

Non-Citizens in the Enlisted U.S. Military

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with David Gregory



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Photo credit line: Cpl Juan Gaytan takes the oath of allegiance during a naturalization ceremony in San Diego on June 24, 2009. Ten service members, including Gaytan, and 800 others became U.S. citizens during the ceremony. Some requirements for obtaining citizenship are having an understanding of U.S. history and government and good moral character. Collectively, the applicants represented over 80 countries. Gaytan works in the intelligence section of the 11th Marine Expeditionary Unit.

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Executive summary

Although in recent years non-citizens have made up only a small share of enlisted accessions (roughly 4 percent), they are a potentially valuable pool for enlisted recruiting for three reasons. First, the number of U.S. non-citizens who are eligible for enlisted military service is large. Approximately 1.2 million non-citizens are in the desired age range (18 to 29) and have the requisite education, resident status, and English language ability for enlistment. Second, our data suggest that a sizable share of the recruitable U.S. non-citizen population comes from diverse backgrounds and possesses language and cultural skills that are of strategic interest to the U.S. military. Third, we find that non-citizen recruits are far less likely than citizen recruits to attrite in the first term, even after controlling for demographic and service-related characteristics that likely affect attrition.

Recent policy changes have streamlined naturalization for many non-citizen servicemembers, so it is not surprising that citizenship attainment has increased and time-to-citizenship has decreased over time among non-citizen servicemembers. Our empirical analysis of citizenship attainment suggests that non-citizens in the Air Force are more likely than non-citizens in the other services to become citizens. In addition, non-citizens who are minorities, female, better educated, married or have dependents, or who score higher on the Armed Forces Qualification Test (AFQT) are more likely to become citizens.

Regarding time-to-citizenship, we find that it is longer for minority non-citizens but shorter for non-citizens who are better educated or have higher AFQT scores.¹ Also, since the July 2002 signing of

1. In this paper, we use the term *minority* to refer to a person who is of minority racial or ethnic descent. For instance, someone who is non-white or Hispanic is considered a minority. This is distinct from someone's citizenship status—citizens and non-citizens alike can be either minorities or non-minorities.

Executive Order (EO) 13269 (Expedited Naturalization of Aliens and Noncitizen Nationals Serving in an Active-Duty Status During the War on Terrorism), the waiting period for non-citizen servicemembers to apply for citizenship has been reduced from 3 years to 1 day of honorable service. In the post-EO period, we find that non-citizens in the Marine Corps have had the longest average time-to-citizenship, followed by the Navy and the Air Force, and finally the Army. In the coming years, unless the Marine Corps starts a basic training naturalization program, we expect that Marine time-to-citizenship will likely remain high and will likely fall for the other services. Once the nation is no longer at war, however, the EO will expire; unless current law is changed, this will have two implications: (1) the waiting period for non-citizen servicemembers applying for citizenship—and therefore time-to-citizenship—will increase and (2) the impetus behind naturalizing at basic training will disappear.

Our analysis produces four important policy implications. We describe these implications in the paragraphs that follow.

First, the services should develop strategies to recruit non-citizens more effectively. Our estimates show an ample pool of qualified non-citizen recruits who may attrite at far lower rates than their citizen counterparts during the first term. Moreover, non-citizens represent a more diverse group of recruits, not only in terms of racial, ethnic, and gender diversity but also in terms of diversity of skill. Indeed, our data show that non-citizen recruits are likely to possess language and cultural skills that are of strategic interest to the U.S. military. As the U.S. economy improves and the military enters a more difficult recruiting environment, it is important to keep in mind this population's potential as a recruiting resource. This is especially important given the recent declines in fertility rates associated with the current economic crisis. In the coming decades, the only source of net growth in the U.S. recruiting-age population is projected to be immigration (that is, immigrants and their U.S.-born children).

Second, the Department of Defense (DOD) and United States Citizenship and Immigration Services (USCIS) would both benefit from the sharing of administrative data. For instance, DOD would have more visibility on citizenship attainment and time-to-citizenship if

USCIS notified DOD directly when servicemembers' citizenship applications were approved. Also, USCIS would have more visibility on whether servicemembers are completing their service obligations in exchange for expedited citizenship processing if DOD notified USCIS directly when servicemembers attrite from the military.²

Third, the Army's, Navy's, and Air Force's basic training naturalization program prototypes have demonstrated that there is a quick and efficient way to naturalize large groups of non-citizen recruits. We suggest that the programs already in place should be supported and that the Marine Corps should be encouraged to continue investigating the possibility of starting its own program.

Fourth, the Army's and Navy's experiences with naturalizing at basic training suggest that it is crucial to have recruiters involved in disseminating citizenship information and paperwork to non-citizen recruits to optimize the efficiency and efficacy of basic training naturalizations. Of course, these basic training-naturalization-related recommendations will be irrelevant when the United States is no longer at war; at that point—unless current law is changed—a 1-year waiting period will be reinstated for servicemembers who wish to apply for citizenship.

Looking ahead, we note five areas for future research:

- It would be useful to know what is driving the differences that we observe across the services in the effect of citizenship status at accession on attrition. One possible explanation could be differences in country of origin, but an empirical test of this hypothesis would require additional data.
- We could investigate the possibility that some characteristics of non-citizen recruits, beyond their citizenship status at accession, might be associated with lower first-term attrition. If so,

2. USCIS has the authority to revoke citizenship if a servicemember leaves the military with other-than-honorable discharge before completing five years of service. To our knowledge, however, USCIS does not have sufficient visibility on attrition from the services to be able to enforce this, nor does this currently seem to be a priority for USCIS.

recruiters could use this information to target specific non-citizens who are particularly likely to remain in the service through the end of the first term. Also, similar to this idea, we could explore whether certain observable characteristics are more or less predictive of attrition for non-citizen recruits than they are for citizen recruits.

- We could examine how likely non-citizen recruits are to remain in the military beyond the first term after becoming citizens. On one hand, non-citizen recruits might seek citizenship to enhance the opportunities available to them in the military; therefore citizenship attainment could signal a non-citizen recruit's desire to remain in the military. On the other hand, non-citizens might join the military for the purpose of attaining citizenship, or they might decide, on attaining citizenship, that they wish to pursue opportunities outside the military and would thus be less likely to stay in the military.
- We could explore other measures of first-term performance for non-citizen recruits besides first-term attrition. For instance, we could examine whether non-citizen recruits advance more quickly in addition to attriting less during the first term.
- We could consider other measures of time-to-citizenship beyond the average used in this analysis. In particular, we could explore measures that capture the spread (or variance) in time-to-citizenship that is otherwise masked when looking at an average. Given the services' different policies and practices relating to the naturalization of servicemembers, it would be particularly interesting to do a cross-service comparison using alternative measures of time-to-citizenship.

Background

From FY99 through FY08, roughly 70,000 non-prior-service (NPS) non-citizens accessed into the active-duty enlisted military, representing about 4 percent of all NPS accessions.³ Although they currently represent only a small share of enlisted NPS accessions, non-citizens are a valuable enlisted recruiting resource, especially as the U.S. economy improves and the military enters a more difficult recruiting environment. Non-citizens also may be a source of greater diversity among recruits, both in terms of diversity in the traditional sense (race, ethnicity, and gender) and in terms of diversity of skills that are of strategic interest to the U.S. military. Indeed, the Quadrennial Defense Review emphasizes DOD's increasing desire to recruit people with specific critical skills:

[I]n coming years, we will face additional challenges to our ability to attract qualified young men and women into the Armed Forces....We will also be challenged to recruit personnel with specialized skills in such areas [sic] foreign languages, medicine, and computer network operations.... Given the inherent link between language and cultural expertise and mission success, this area requires continued focus. [1, pp. 51, 54]

In a previous CNA report [2], non-citizen recruits were found to exhibit better first-term performance (in terms of lower attrition rates) than citizen recruits, even after controlling for relevant demo-

3. In this paper, we consider only *enlisted* non-citizen accessions because citizenship is a requirement for accession into the officer corps, with one exception. In the U.S. Army Reserve, non-citizens holding green cards can be commissioned as officers if they are medical professionals, lawyers, or chaplains. Still, it is possible that some non-citizen enlisted recruits who hold college degrees enlist with the intent of attaining citizenship and transitioning into the officer corps, so at various points throughout the paper we comment on how our results might be relevant for the officer corps as well.

graphic and service-related characteristics.⁴ The report also analyzed data on citizenship attainment to determine what drives non-citizen recruits to become citizens while serving. Because several years have passed since [2] was written, Office of Accession Policy, OUSD, has asked CNA to take a fresh look at first-term attrition and citizenship attainment for a recent cohort of non-citizen recruits.

Our reexamination of citizenship attainment among non-citizen recruits is further warranted by the recent policy changes that have streamlined naturalization for non-citizen servicemembers. Following the events of September 11, 2001, President George W. Bush signed an Executive Order (EO) in July 2002 allowing all non-citizens who have served honorably for 1 day to apply for U.S. citizenship (this is relative to a 5-year waiting period for civilian non-citizens). Previously, non-citizen servicemembers were required to serve for 3 years before becoming eligible to apply for citizenship. In addition, the 2004 National Defense Authorization Act (NDAA) reduced the peacetime waiting period for U.S. citizenship application from 3 years to 1 year.⁵ After this, the 2006 NDAA repealed service-specific citizenship enlistment statutes and established a single statute across all the services.⁶

Also, given its heightened interest in increasing language and cultural skill capabilities, the U.S. military has started specifically recruiting non-citizens to leverage this previously largely untapped resource.

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4. For other recent work on this topic, see [3] and [4].
 5. The 2004 NDAA also provided other benefits to non-citizen servicemembers, including emergency leave and priority government transportation, if needed, to complete citizenship processing as well as the elimination of all citizenship application fees.
 6. According to the statute, the following are eligible to enlist: United States nationals, Legal Permanent Residents (LPRs), and those considered to be vital to the national interest (including those without LPR status). In addition, people are eligible to enlist if they are citizens of a nation covered by one of the following compacts: The Compact of Free Association Between the Federated States of Micronesia and the United States, The Compact of Free Association Between the Republic of the Marshall Islands and the United States, or The Compact of Free Association Between Palau and the United States.

Indeed, such programs as DOD's Military Accessions Vital to the National Interest (MAVNI) and the Army's 09L are aimed at recruiting non-citizens who hold language and cultural skills that are of strategic interest to the U.S. military.⁷ These programs have given the services an incentive to partner with USCIS and develop basic training naturalization programs. Such programs are currently in operation at Army, Navy, and Air Force basic training, where the vast majority of non-citizen recruits who wish to apply for citizenship are naturalized by the end of basic training.

In the remaining sections of this report, we first describe the U.S. non-citizen population, focusing on those who are eligible for enlistment. Then, we review policies that govern the recruitment of non-citizens into the enlisted force. Next, we discuss our empirical analysis of the relationship between attrition and citizenship at accession as well as the determinants of citizenship attainment and time-to-citizenship. We close with some policy recommendations and conclusions.

7. The 09L pilot program (where 09L is the Army's special interpreter/translator military occupational specialty (MOS)) began in 2003 as a way for the Army to directly access soldiers who are heritage or native speakers of languages that are critical to the war effort. Although the majority of 09L recruits are non-citizens, the program recruits citizens, too.

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The non-citizen population⁸

Here, we examine the number and the characteristics of non-citizens who are likely to be eligible for the U.S. military. First, we discuss the data used to produce the estimates discussed in this section. Next, we estimate the size of the recruitable non-citizen population, which is a subset of the overall non-citizen population—narrowed by age, residency status, education, and English language ability in accordance with military recruiting standards. Finally, we examine region of origin and foreign language ability among non-citizens since these characteristics might be of strategic interest to the military.⁹

Data

To characterize the non-citizen population, we use data from two sources: (1) the American Community Survey (ACS),¹⁰ an annual

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8. Dr. Martha Farnsworth Riche, former director of the United States Census Bureau, and Dr. Jeffrey Passel, Senior Demographer at the Pew Hispanic Center, made substantial contributions to this section. We are grateful for their assistance and assume full responsibility for any errors.
 9. For example, the military has a program, Military Accessions Vital to the National Interest (MAVNI), aimed at recruiting non-LPR non-citizens with critical language, cultural skills, and health care professional skills. For more on MAVNI, see appendix A.
 10. See <http://www.census.gov/acs/www/>. Data on citizenship status used to come from a supplementary census form—*the long form*—replaced in 2010 by the ACS, which allows for combining 5 years of ACS data into a "rolling census" that produces the same quality of data as the long form but more frequently. On February 8, 2011 (too late for this paper), the Census Bureau released the first 5-year rolling census; it will update the 5-year census each year as new data become available. The ACS also may be aggregated into 3-year pooled samples to provide a larger sample than any single year of the ACS. Since these 3-year samples are made available in advance of the 5-year rolling census, we use the 2006–2008 pooled sample for our analysis.

survey of roughly 20 percent of U.S. households, and (2) the Current Population Survey (CPS),¹¹ a monthly survey of about 60,000 U.S. households. The Census Bureau conducts both the ACS and the CPS. Each data source has advantages and disadvantages for use in this context, as we describe next.

There are two main advantages to using the ACS. First, relative to the CPS, the ACS has a much larger sample size. Second, the ACS includes information on characteristics that are required of a military recruit, such as educational attainment and English language ability, as well as characteristics that might be desirable in a military recruit, such as foreign language ability and country of origin. Even with the larger ACS sample, the number of respondents in the relevant population for recruiting—people age 18 to 29—is relatively small, especially when we segment the sample by educational attainment, English language proficiency, country of origin, and foreign language ability. Therefore, we used the three-year 2006–2008 pooled ACS (the most recent three-year pooled sample available) to generate a sufficiently large sample.¹²

However, the primary disadvantage of the ACS relative to the CPS is the fact that the ACS does not collect information on non-citizens' resident status. Non-citizens with legal permanent resident (LPR) status are eligible to enlist, but non-citizens who are only temporary residents (e.g., those holding visas for studying, business, or pleasure), refugees, or undocumented immigrants are not eligible to enlist.¹³ Therefore, the major limitation of the ACS estimates is that they include people who are not eligible to enlist based on residency status. One way to think about the estimates based on the ACS is that they reflect the potential non-citizen recruiting pool. In other words,

11. For more information, see <http://www.bls.gov/cps/>.

12. In addition, in the midst of our analysis, the 2009 ACS data became available (though the updated three-year pooled sample still is not available). The estimates we present here are robust, whether we use the 2006–2008 pooled sample or the 2009 single-year sample.

13. Exceptions are certain visa-holders, asylum seekers, and refugees who possess specific health care professional, language, or cultural skills and are recruited into MAVNI. Again, for more on MAVNI, see appendix A.

the sample includes the actual recruiting pool plus those who could be recruited if their citizenship or legal residence status changed.

Using the CPS, we can differentiate between LPRs and other non-citizens, allowing us to focus on non-citizens who are eligible to enlist. The main drawbacks to using the CPS relative to the ACS, however, are that it is a much smaller sample, it does not contain as much detail on country of origin, and it has no information on English proficiency or foreign language ability.

Although both datasets have downsides, each contributes something unique to the discussion. Therefore, in the remainder of this section, we use information from both the ACS and the CPS in our depiction of the recruitable non-citizen population in the United States.

Estimating the size of the recruitable non-citizen population

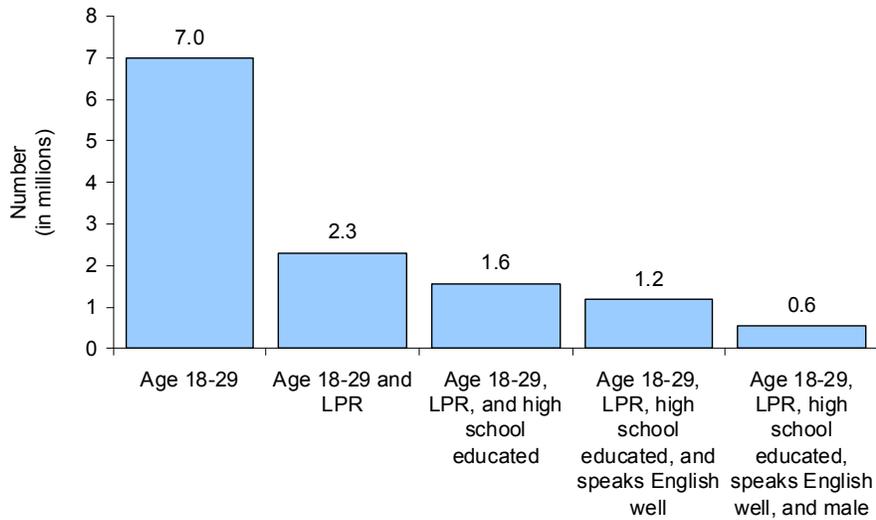
In general, the military tends to access enlisted recruits who meet specific age and education standards. Most enlisted recruits are between the ages of 18 and 24 at the time they enlist (though, at the extremes, recruits can be as young as 17 and as old as 42). For non-citizens, however, we expand the recruitable age window to include 25- to 29-year-olds since, as we describe later, a considerable share of non-citizen recruits are in this older age group.

In terms of education, the military primarily recruits people who have at least a high school degree. Other enlistment standards that are particularly binding for non-citizen recruits include LPR status and English proficiency.¹⁴ Therefore, in estimating the size of the recruitable non-citizen population, we narrow our focus to those who are age 18 to 29, are LPRs, have at least a high school degree, and can speak English well.¹⁵ Figure 1 shows our estimate of the size of the recruitable non-citizen population. Among non-citizens currently in the United States, about 7 million are age 18 to 29.

14. Again, MAVNI recruits are the most notable exception.

15. The ACS asks respondents if they speak English "very well," "well," "not well," or "not at all." To estimate the number of people who speak English well, we combine the first two responses.

Figure 1. Recruitable non-citizen population^a



a. Source: Estimates prepared by Dr. Martha Farnsworth using the ACS and by Dr. Jeffrey Passel using the CPS.

The recruitable population, however, is smaller than 7 million since we must consider residency status, education, and English proficiency as well as age. When we limit our focus to non-citizens age 18 to 29 who are LPRs, the size of the population falls 67 percent, from 7.0 million to 2.3 million people. When we add the restriction of a high school degree or more, the size of the population falls to just over 1.6 million (a drop of another 10 percent). This is compared with the overall U.S. population of high-school-educated 18- to 29-year-olds numbering around 42 million. When we add the restriction of being able to speak English well, the size of the population falls to 1.2 million people (a drop of another 5 percent).¹⁶ In addition, since men

16. Since there is no information on English proficiency in the CPS, our estimate of the number of people who speak English well is based on a sample of age-restricted, but not residency-status-restricted, non-citizens. Therefore, in applying the English proficiency restriction to the population of 18- to 29-year-old LPRs, we implicitly assume that the percentage who speak English well is the same among LPRs as it is among other non-citizens.

are more likely than women to join the military, we also consider how the size of the population changes when we exclude women; figure 1 (last bar) shows that the population falls to just above half a million.¹⁷

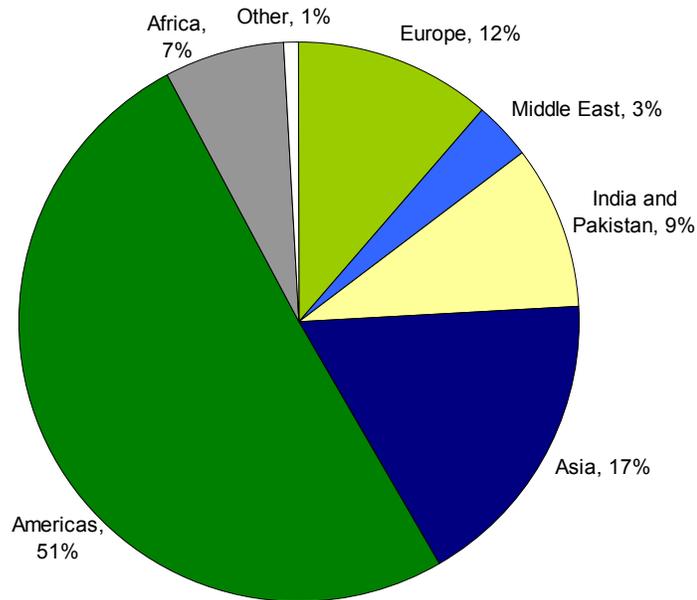
Although the pool of recruitable non-citizens might appear small relative to the overall recruitable population, non-citizens may still represent a key recruiting resource. Due to the current economic crisis, fertility rates have fallen and this will likely affect the size of the future U.S. population in the military's target recruiting age group (ages 18 to 24).¹⁸ Indeed, immigration (i.e., immigrants and their U.S.-born children) is projected to be the only source of net growth in the U.S. population in this age group [7].

Region of origin and foreign language ability

As mentioned earlier, non-citizens may have skills that are of strategic interest to the U.S. military, such as language and cultural skills. Figure 2 shows the distribution of non-citizens, 18 to 29, with at least a high school degree who speak English well, by region of origin.¹⁹ Fully half of them come from the Americas. The next largest region of origin is Asia (17 percent), followed by Europe, India and Pakistan, Africa, and the Middle East (12, 9, 7, and 3 percent, respectively).

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17. Estimates of the size of the recruitable population can be broken down further by state or region of U.S. residence, which might be useful for recruiters. However, the sample size becomes problematically small when disaggregating the data to this extent.
 18. Recent Census Bureau estimates predict that the size of the U.S. population age 18 to 24 will increase in the coming decades, but they do not factor in the effect of the current economic crisis because they were prepared before the crisis occurred [5]. A recent fertility report from the National Center for Health Statistics shows a pronounced decline in fertility since 2007 [6]. Since it is forecasted that this will affect the size of the U.S. population age 18 to 24 in roughly two decades, the Census Bureau's forthcoming population projections will likely predict future declines in the size of the population in this age group.
 19. Unfortunately, the CPS estimates do not allow us to restrict the sample by region or foreign language ability. Thus, in this section, we use data from the ACS only, which means that our estimates pertain to all residency statuses, not just LPRs.

Figure 2. Region of origin among non-citizens age 18 to 29 who have at least a high school degree and speak English well^a



a. Source: Estimates prepared by Dr. Martha Farnsworth Riche using the ACS. Total sample size is 2.6 million.

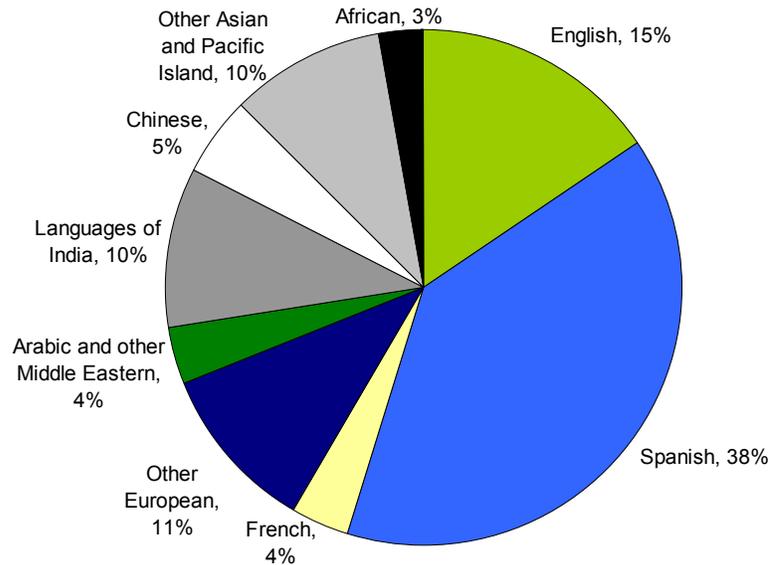
The share of non-citizens age 18 to 29 who speak English well and have *more than* a high school degree varies dramatically by region of origin. Among 18- to 24-year-old non-citizens who speak English well and have more than a high school education, only one-third are from the Americas compared with 81 percent who are from India or Pakistan. The difference is even more pronounced for 25- to 29-year-olds; more than 90 percent of these non-citizens who speak English well and are from India, Pakistan, or China have more than a high school degree. In other words, should the services want to strategically recruit non-citizens with higher education, they should target non-citizens from India, Pakistan, or China.

In addition to region of origin, foreign language ability among non-citizen recruits might be of strategic interest to the military.²⁰ Our

20. Each year, DOD issues a strategic language list (SLL) for recruiting, retention, and training. See appendix B for the FY11 SLL.

estimates of foreign language ability are based on ACS data on language spoken at home. Unfortunately, sample sizes do not permit us to both approximate the recruitable population *and* examine language ability for individual languages. Instead, we aggregate languages into the groups shown in figure 3: Spanish, French, other European, Arabic and other Middle Eastern, languages of India, Chinese, other Asian and Pacific Island, African.²¹

Figure 3. Language spoken at home among non-citizens age 18 to 29 who have at least a high school degree and speak English well^a



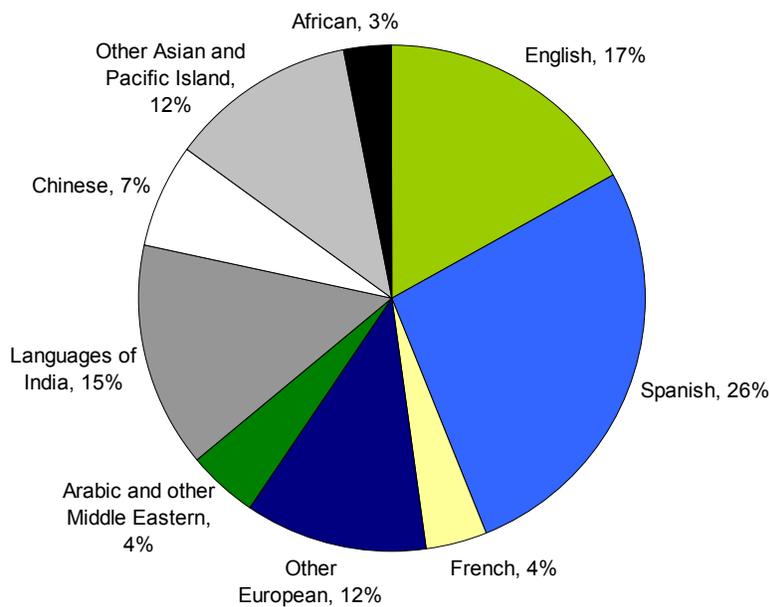
a. Source: Estimates prepared by Dr. Martha Farnsworth Riche using the ACS. Total sample size is 2.6 million.

Figure 3 shows the distribution of languages spoken at home among non-citizens age 18 to 29 who have at least a high school degree and speak English well. For 15 percent of this group, the language spoken at home is English, while the remaining 85 percent speak a foreign language at home.

21. Table 3 in appendix B shows the full listing of languages by group. The table includes Native American languages, but there are very few non-citizens who speak these languages (less than 1 percent in our data). Therefore, this group is excluded from figure 3.

The largest group of foreign language speakers is Spanish speakers (making up just over a third of these non-citizens), followed by those who speak other European languages (11 percent). Although 5 percent of this group of non-citizens speak Chinese at home, another 10 percent speak other Asian and Pacific Island languages. The remaining non-citizens in this group speak the languages of India (10 percent), French (4 percent), Arabic and other Middle Eastern languages (4 percent), and African languages (3 percent). The distribution of languages spoken at home, however, changes remarkably when we narrow our focus to non-citizens age 18 to 29 who speak English well and have *more than* a high school degree (figure 4).

Figure 4. Language spoken at home among non-citizens age 18 to 29 who have more than a high school degree and speak English well^a



a. Source: Estimates prepared by Dr. Martha Farnsworth Riche using the ACS. Total sample size is 1.6 million.

As the figure shows, the largest change is in the share that speaks Spanish at home. As we saw in figure 3, among those with at least a

high school degree, 38 percent speak Spanish at home. In contrast, among those with more than a high school degree, only 26 percent speak Spanish at home. In addition, the share who speaks the languages of India increases from 10 percent to 15 percent. These results have implications for recruiting for specific language ability (other than Spanish) for the officer corps since some of these non-citizens will hold college degrees.²²

Summary

Our analysis of the non-citizen population in the United States suggests that there is a large group of non-citizens who meet enlisted military recruiting standards. We estimate that approximately 1.2 million LPRs age 18 to 29 have at least a high school education and speak English well; roughly half of these people are men. In addition, we find that the majority of recruitable non-citizens come from the Americas, but nontrivial shares also come from Asia, Europe, and India and Pakistan. Moreover, education profiles among non-citizens vary dramatically by region of origin. For example, while only a third of non-citizens from the Americas who are age 18 to 29 and speak English well have more than a high school degree, nearly all non-citizens from India, Pakistan, or China who are age 25 to 29 and speak English well have more than a high school degree. Finally, while Spanish is the most common foreign language spoken in the homes of recruitable non-citizens, other European languages, languages of India, and Asian languages are also frequently spoken at home. This is particularly true among recruitable non-citizens with more than a high school education, who, given their education levels, might be candidates for the officer corps.

These results have three potential implications for military recruiting. First, there is an ample supply of non-citizens in the United States who are eligible for military service. Indeed, non-citizens are a particularly attractive recruiting resource since immigration is projected to

22. As mentioned earlier, it is possible that some non-citizen enlisted recruits who hold college degrees may enlist with the intent of attaining citizenship and later transitioning into the officer corps.

be the only source of net growth in the U.S. population among 18- to 24-year-olds in the coming decades. Second, should the services want to strategically recruit non-citizens with higher education, their best prospect lies in recruiting non-citizens from India, Pakistan, or China. Third, among non-citizens who are eligible to enlist, a good share is likely to possess language and cultural skills that are of strategic interest to the U.S. military.

Recruiting non-citizens

In this section, we summarize the policies that govern the recruitment of non-citizens into the enlisted force. To better understand how non-citizens are recruited into the military, we spoke to both recruiters and non-citizen recruits. Because each service has its own policies and practices for recruiting non-citizens, we spoke with several recruiters from each of the four services.²³ Our interactions with non-citizen recruits, however, were limited to those present during our visits to the Army and Navy basic training naturalization programs.²⁴ Since recruiters and non-citizen recruits were not randomly selected to be included in our interviews, the information gathered may not be representative of all recruiters or non-citizen recruits. Nonetheless, the interviews provide interesting insights into how non-citizens are recruited.

In general, non-citizen recruits are not a specific part of any service's recruiting strategy.²⁵ Rather, recruiters who tend to recruit a sizable number of non-citizens indicated that this is simply because they are assigned to an area with a large non-citizen population. Recruiters also said that the services do not provide any special instructions with respect to recruiting non-citizens—instead, recruiters receive guidance on recruiting in general.

23. We conducted phone interviews with two recruiters from the Air Force, four from the Army, eight from the Navy, and nine from the Marine Corps.

24. We conducted in-person interviews with seven non-citizen recruits at the Army basic training naturalization program and four non-citizen recruits at the Navy basic training naturalization program.

25. The notable exception is the Army which has recruited sizable numbers of non-citizens into MAVNI and O9L.

Typically, recruiters said that they inform non-citizen recruits that they will be eligible for expedited citizenship processing once they join the military, if the recruits are not already aware of this. However, some recruiters stated that expedited citizenship processing does not come up at all. Our discussions with non-citizen recruits at the Army and Navy basic training suggested that recruits frequently were not aware that only 1 day of honorable service in the U.S. military is required before they can apply for citizenship. In some cases, recruits learned about this at the recruiting station, but more often they first heard about it at basic training. Furthermore, many of the Army and Navy non-citizen recruits said that they found out about the opportunity to get naturalized only after they arrived at basic training.

Non-citizen enlistment requirements

There are several requirements for enlisting non-citizens. We discuss three of them here.

First, non-citizen recruits must provide proof of LPR status in the form of an I-551 (Permanent Residence Card).²⁶ If a non-citizen recruit cannot produce an I-551, he or she can use a G-845, which is a formal request for LPR verification to USCIS.

Second, non-citizen recruits who were educated in their home countries must take additional steps to verify their education credentials.²⁷ Many of the recruiters we interviewed acknowledged that these additional steps resulted in more work for them. Often, it is difficult to verify education credentials earned in a foreign country; this trans-

26. The Air Force, Army, and Navy have different standards regarding the expiration and renewal of the I-551. For the Air Force, I-551s must have an expiration date more than 2 years from the date of issue. For the Army, I-551s that are set to expire within 6 months of accession must be renewed. For the Navy, LPRs must be accessed into active-duty status before the expiration of their I-551s. In addition, the Navy allows those who become conditional permanent residents through marriage to a citizen to enter the Delayed Entry Program (DEP) and to ship (provided their marital status does not change).

27. For additional information, see appendix C.

lates into increased paperwork and documentation. Some recruiters, however (particularly those who recruited relatively large numbers of non-citizens), indicated that the extra verification requirements were not especially burdensome.

Third, enlisted recruits must demonstrate that they understand English well enough to meet Military Entrance Processing Station (MEPS) requirements. Each service has its own process for gauging English proficiency. In the Army, anyone who is identified as a non-English-speaking recruit—through any part of the enlistment process, including Armed Services Vocational Aptitude Battery (ASVAB) testing, enlistment qualification testing, medical processing, or MEPS pre-enlistment interviews—may be referred for evaluation.²⁸ In the Navy, it is not sufficient for a recruit to pass the ASVAB; Navy recruits must demonstrate (to the Recruiter in Charge and Navy Enlisted Classifier during the recruiting and classification interviews) that they can read, speak, and understand English.²⁹ Similarly, the Marine Corps requires that the MEPS liaison noncommissioned officer certify that a recruit has sufficient ability to read, write, and speak English to complete recruit training.

Occupation restrictions and reenlistment standards

The occupations that non-citizens can access into are somewhat limited because many jobs in the military require security clearances, which only can be obtained by U.S. citizens. However, in each of the services, there are many occupations that do not require clearances and therefore do not require having citizenship.³⁰

In total, the number of occupations that do not require citizenship is 46 in the Air Force, 90 in the Army, 30 in the Navy, and 88 in the Marine Corps. Using recent Defense Manpower Data Center

28. This evaluation may include administration of the English Comprehension Level Test (ECLT).

29. However, no standard language interview format has been established.

30. See appendix D for service-specific lists of occupations that do not require citizenship.

(DMDC) data, we examine the number of personnel who are in these occupations. Note that these counts include citizen and non-citizen servicemembers and therefore represent only the potential number of openings that could be filled by non-citizens, not the share of these openings non-citizens hold. We find that roughly a quarter of the enlisted active-duty inventory in the Air Force is in occupations that can be held by non-citizens, compared with two-fifths in the Navy and one-half in the Army and Marine Corps. This confirms what we learned when interviewing Air Force officials: occupational restrictions for non-citizen recruits are greater in the Air Force than in the other services.

In theory, once a servicemember becomes a citizen, he or she can reclassify into a different occupation that requires a clearance. In our conversations with Army and Navy non-citizen recruits, we learned that some recruits do aspire to change occupations once they attain citizenship, whereas others said that they were more interested in serving and less concerned about the particular job they will hold.

Finally, some non-citizen recruits face limits on how long they can serve without becoming a citizen. Currently, the Army, Navy, and Marine Corps have no limits on the reenlistment of non-citizens. Non-citizens can serve indefinitely without needing to naturalize.³¹ In contrast, non-citizens in the Air Force are restricted from reenlisting without attaining citizenship. Given the relatively greater occupational restrictions that non-citizens face in the Air Force compared with the other services, this is not surprising. Even without explicit service limits, occupational restrictions for non-citizens may be a practical limitation to the lengths of their military careers.

31. Before 2007, the Army capped service for non-citizens at 8 years.

First-term performance

In this section, we examine differences in first-term performance among non-citizen and citizen recruits, focusing on attrition behavior at various points in the first term. First, we examine attrition within 3 months, which roughly coincides with the completion of basic training. Then we examine attrition by 36 and 48 months, which approximates completion of the first term.³²

Data

The data we use for the attrition analysis (as well as for the citizenship analysis described in the next section) come from DMDC. The sample consists of FY99–08 enlisted accessions into the Air Force, Army, Navy, and Marine Corps.³³ Using DMDC quarterly snapshots, we track these recruits through June 2010. The dataset includes information on the following:

- Demographic characteristics—citizenship status, race, ethnicity, gender, education, marital status, number of dependents, and age³⁴
- Service-related characteristics—AFQT score, time in DEP, presence of enlistment waivers, service branch, and accession date

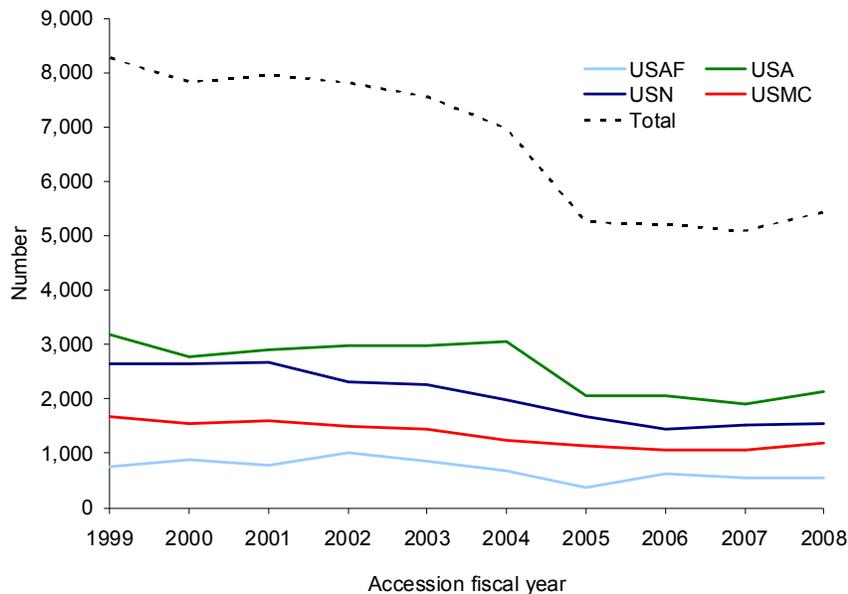
32. We use 36 and 48 months to approximate the completion of the first term since most enlistment contracts are for 3 or 4 years of service.

33. In the figures included in this section, we abbreviate the services as follows: USAF for the Air Force, USA for the Army, USN for the Navy, and USMC for the Marine Corps.

34. DMDC also reports country of origin, but this field is too poorly populated to be of use. Also, the reader should keep in mind that citizenship is distinct from a person's race or ethnicity. In this paper, we use *minority* to refer to someone who is Hispanic or not white. Therefore, both citizens and non-citizens can be minorities and non-minorities.

Figure 5 shows the total number of non-citizen accessions by service and accession fiscal year.³⁵ Across the whole sample, nearly 70,000 non-citizens enlisted between FY99 and FY08 across all four services.³⁶ Over the sample time period, the total number of non-citizen accessions has fallen by about a third, from just over 8,000 in FY99 to about 5,500 in FY08. The decline has been more rapid for the Navy, which saw a larger decline in the number of non-citizen accessions (41 percent between FY99 and FY08), than for the other services (which saw declines of 28 to 33 percent over this same period).

Figure 5. Number of non-citizen accessions, by service and accession fiscal year

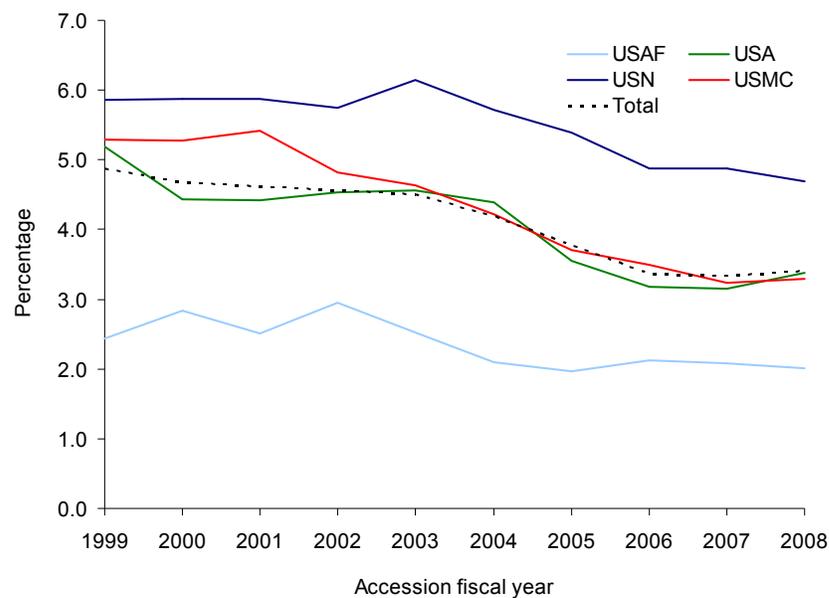


35. Since MAVNI began in FY09 and our data cover FY99–08 accessions, all non-citizen accessions in our sample are LPRs.

36. In the empirical analyses that follow, the samples of non-citizen and citizen accessions are about 15 and 5 percent smaller, respectively, than the total number of non-citizen and citizen accessions found in the raw data. This is because recruits who do not have complete information, in terms of the demographic and service-related characteristics we incorporate into our empirical models, are dropped from the sample.

As figure 5 shows, the Army accesses the largest number of non-citizens across all of the services, followed by the Navy, the Marine Corps, and finally the Air Force. However, when we scale non-citizen accessions by total accessions (figure 6), the order changes.

Figure 6. Non-citizen accessions as a percentage of total accessions, by service and accession fiscal year



Indeed, while non-citizens account for roughly 4 percent of accessions across all of the services and of accessions for the Army and the Marine Corps, they account for 5.6 and 2.4 percent of accessions, respectively, for the Navy and the Air Force. As was the case for the total number of non-citizen accessions, the non-citizen share of accessions across all four services has declined over this time period by 30 percent, from just under 5 percent in FY99 to just over 4 percent in FY08. This decline has been particularly steep for the Army and the Marine Corps, which experienced declines in the non-citizen share of

accessions of 35 and 38 percent, respectively, compared with the Air Force and Navy, which experienced declines of 17 and 20 percent.³⁷

Citizenship status and attrition

In this subsection, we analyze how citizenship status at accession affects attrition behavior. Figure 7 contains raw data on 3-, 36-, and 48-month attrition rates for non-citizen and citizen recruits across all four services. As the figure shows, non-citizen recruits attrite at substantially lower rates than citizen recruits. Across the entire sample of accessions, we find that 1 out of every 25 non-citizen recruits attrites within 3 months, compared with twice that rate among citizen recruits. By 36 and 48 months, attrition rates among non-citizen recruits increase to roughly 1 in 5 (16.1 percent) and 1 in 6 (18.2 percent), respectively. But, these rates are still considerably lower than the rates for citizen recruits—roughly 1 in 4 (28.4 percent) by 36 months and 1 in 3 (31.9) by 48 months.

Figure 8 shows 3-, 36-, and 48-month attrition rates by citizenship status at accession. As was the case across all services, non-citizen recruits in each service attrite at substantially lower rates than citizen recruits. However, there is a good deal of variation across services. Looking at absolute differences, the attrition rate gap is largest for the Navy. Looking at percentage differences instead, the attrition rate gap is smallest for the Army and the Marine Corps.

37. One potential cause of the recent downward trend in the number of non-citizen accessions and the non-citizen share of total accessions observed in figures 5 and 6 might be the current economic crisis. In recessionary periods when the civilian unemployment rate is high, the military is able to access, on average, higher quality recruits from a larger pool of available applicants. If citizen recruits have, on average, more education or higher AFQT scores, or if recruiters view non-citizens to be more difficult to recruit than citizens, fewer non-citizens would be expected to access (both in raw numbers and as a share of accessions). However, since the timing of the decrease in the number of non-citizen accessions and the non-citizen share of accessions doesn't align perfectly with the onset of the economic crisis, further analysis is required to fully explain these trends.

Figures 7 and 8, however, do not consider the fact that non-citizen and citizen recruits have different demographic and service-related characteristics that are likely to affect attrition. Figure 9 displays some of these differences.³⁸

Figure 7. 3-, 36-, and 48-month attrition rates, non-citizen v. citizen recruits, all services^a

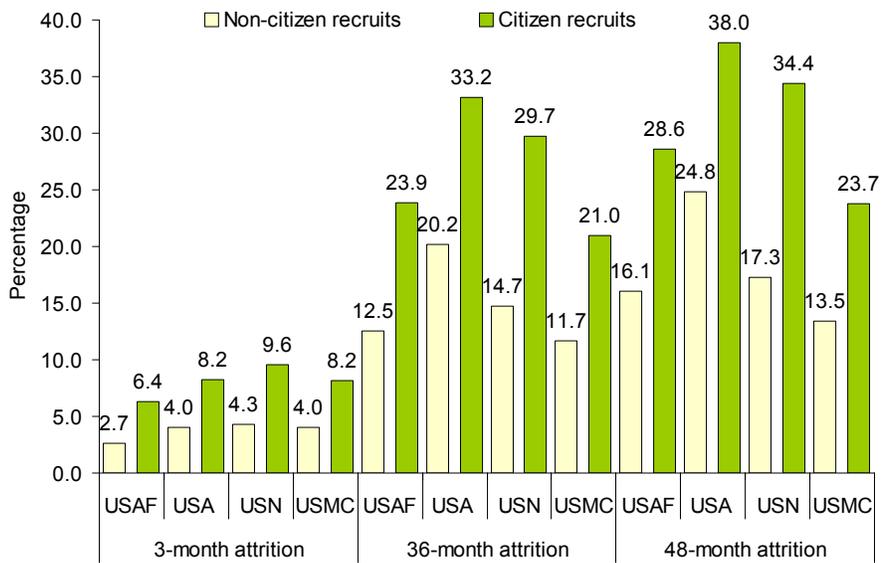


a. All of the differences in attrition rates between non-citizen and citizen recruits displayed here are statistically significant at the 5-percent level.

As figure 9 shows, a substantially larger share of non-citizen than citizen recruits are minorities—56.0 and 31.5 percent of non-citizen recruits are not white and Hispanic, respectively, compared with 20.7 and 8.9 percent of citizen recruits. Non-citizen recruits, compared with citizen recruits, also are more likely to be female (19.4 v. 16.8 percent), married or with dependents at accession (17.9 v. 16.8 percent), and age 25 or older at accession (18.6 v. 7.1 percent).

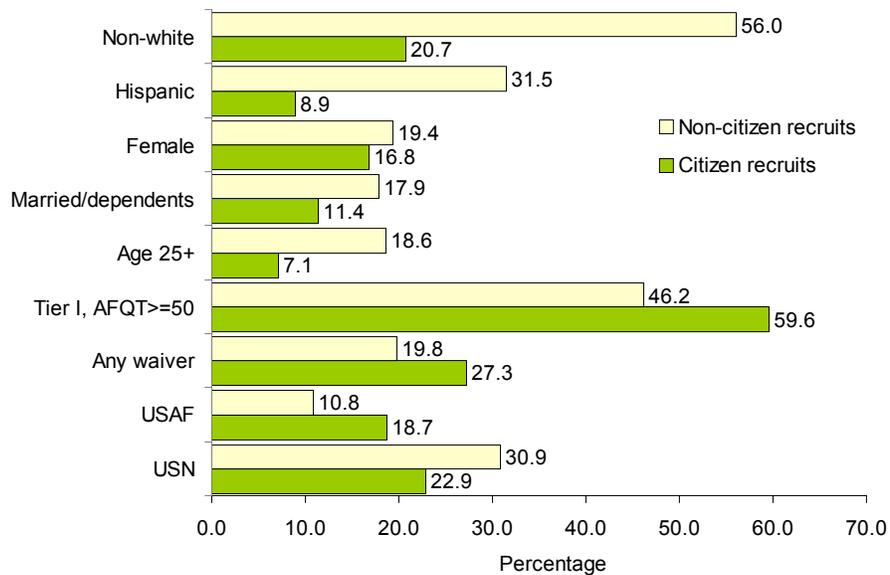
38. Table 8 in appendix E includes the complete set of demographic and service-related characteristics used in our empirical analysis. In figure 9, we highlight a subset of those characteristics for which there are particularly salient differences by citizenship status at accession.

Figure 8. 3-, 36-, and 48-month attrition rates, non-citizen v. citizen recruits, by service^a



a. All attrition differences between non-citizen and citizen recruits are statistically significant at the 5-percent level.

Figure 9. Selected demographic and service-related characteristics, non-citizens v. citizens^a



a. All differences between non-citizen and citizen recruits are statistically significant at the 5-percent level.

In addition, non-citizen recruits are less likely to be "high quality," which we define as Tier I (primarily high school graduates) and scoring at least in the 50th percentile on the AFQT, and they also are less likely to access with an enlistment waiver.³⁹ Finally, a smaller share of non-citizen recruits join the Air Force, while a larger share join the Navy, relative to citizen recruits.

To understand what is driving differences in attrition rates between non-citizen and citizen recruits, we construct a regression model to analyze this relationship. The regression model allows us to separate out the effect of differences in various characteristics, such as those displayed in figure 9, from the effect of citizenship status at accession.

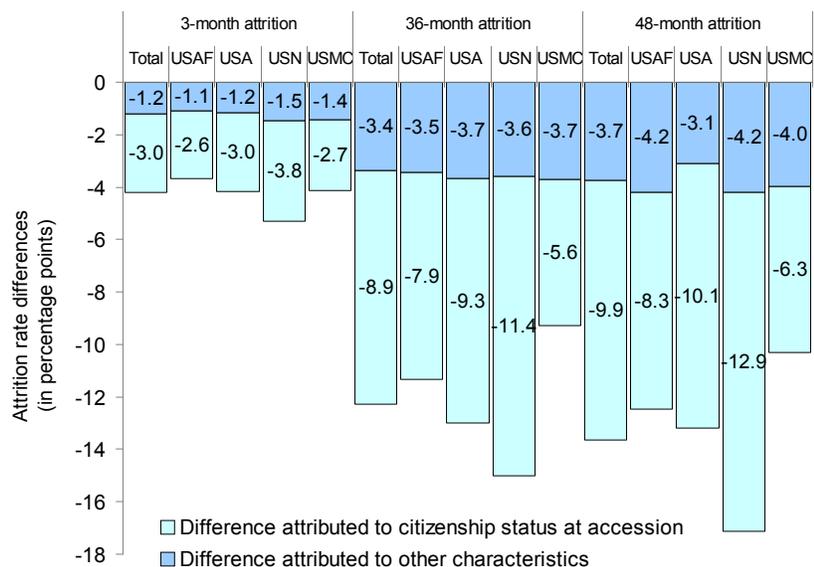
Specifically, we construct a logit regression model that uses citizenship status as well as other demographic and service-related characteristics to explain variation in attrition behavior. The demographic characteristics include traits that do not change over time, such as race, ethnicity, and gender, as well as characteristics that are time-dependent and measured at accession, such as education, marital status, number of dependents, and age. The service-related characteristics are all measured at accession as well, and they include AFQT score, whether and for how long a recruit was in DEP, whether the recruit accessed with an enlistment waiver and of what type, service branch, and accession trimester and fiscal year.

We run separate regressions for each of our three measures of attrition (3-, 36-, and 48-month attrition). We also run separate regressions on five different samples—accessions into all services versus accessions into each of the four services. We report the regression results as marginal effects, or the percentage-point effect of a specific characteristic on attrition after having controlled for other characteristics.

39. As shown in table 8 in appendix E, we group waivers into the following categories: drug/alcohol (DA), DA test positive, serious, dependents, medical/physical, and other.

Figure 10 contains the main results from the regression analysis; each stacked blue bar comes from a separate regression.⁴⁰ The figure shows what share of the raw difference in attrition rates we observe between non-citizen and citizen recruits (which can be deduced from figures 7 and 8) can be attributed to citizenship status at accession and what share can be attributed to “other” characteristics we control for in our regression model.

Figure 10. Differences in 3-, 36-, and 48-month attrition rates, non-citizen minus citizen recruits, by service^a



a. In each instance, the share of the raw difference that can be attributed to citizenship status at accession is statistically significantly different from zero at the 5-percent level.

For example, in figure 7 we saw that non-citizen recruits are 4.2 percentage points less likely than citizen recruits to attrite by 3 months (8.2 percentage points for citizen recruits versus 4.0 percentage points for non-citizen recruits). Figure 10 breaks down this 4.2-

40. For complete regression results, see tables 9–11 in appendix E.

percentage-point difference into a 3.0-percentage-point difference that can be attributed to citizenship status at accession and a 1.2-percentage-point difference that can be attributed to differences in other characteristics. In other words, across all services, just under three-quarters of the attrition rate gap between non-citizen and citizen recruits that we observe in the raw data can be attributed to citizenship status at accession, while the remaining quarter results from differences in other characteristics.

Overall, figure 10 tells the same story as in the previous CNA report on non-citizen attrition [2]; even after considering the effect of other demographic and service-related characteristics in our regression model, citizenship status at accession is still systematically related to first-term attrition. Indeed, when looking across all four services, the raw data show that non-citizen recruits are 4.2, 12.3, and 13.6 percentage points less likely to attrite by 3, 36, and 48 months. However, after controlling for other characteristics, those differences fall, but only slightly, to 3.0, 8.9, and 9.9 percentage points, and they remain statistically significant. These findings are consistent with the anecdotal evidence we gathered in our interviews of recruiters and non-citizen recruits. The interviews revealed that, relative to citizen recruits, non-citizen recruits generally have a stronger attachment to serving the United States, which they now consider to be “their country,” and have a better work ethic. Both of these observations support our findings that non-citizen recruits are less likely to attrite in the first term.

Moreover, figure 10 shows that citizenship status has different effects across the four services. Across all three measures of attrition, citizenship status has the greatest effect in the Navy. At the other end of the spectrum, citizenship status has the smallest effect on 3-month attrition for the Air Force and on 36- and 48-month attrition for the Marine Corps. At present, we cannot discern what is behind these cross-service differences in the effect of citizenship status on attrition. Possible explanations include things that are observable, such as differences in country of origin, or things that are not observable, such as differences in commitment to service or motivation. Unfortunately, the information on country of origin in the DMDC data is insufficient—for many non-citizens, the field is blank—so we are unable to exploit that information in our analysis.

Summary

Overall, our analysis of the effect of citizenship status at accession on first-term performance is consistent with the conclusions from [2]. Looking at the raw data, we see that non-citizen recruits are significantly and substantially less likely to attrite at three markers over the course of the first term: 3 months, 36 months, and 48 months after accession. Moreover, even after considering the effect of demographic and service-related characteristics, this result holds, both across all four services and for each service individually. Again, our observations from our interviews of recruiters and non-citizen recruits suggest that these differences in attrition by citizenship status might be the result of a stronger association with serving one's country and a better work ethic among non-citizen recruits as compared to citizen recruits.

Finally, we find that citizenship status has the largest effect on attrition for the Navy across all three measures of attrition and the smallest effect on attrition for the Air Force at 3 months and for the Marine Corps at 36 and 48 months. Currently, we are unable to discern what is driving differences in the effect of citizenship status on attrition across the services. We offer as possible explanations differences in country of origin, commitment to service, or motivation, but we are unable to differentiate between these based on the current analysis.

Citizenship attainment and time-to-citizenship

Given the recent policy changes relating to naturalization of non-citizen servicemembers (as we discuss below), it is interesting to examine trends in citizenship attainment and time-to-citizenship. In this section, we examine three things related to citizenship attainment among servicemembers. To motivate our empirical analysis of citizenship attainment and time-to-citizenship, we begin with a detailed discussion of service-specific policies relating to the naturalization of non-citizen servicemembers. Then, we estimate the extent to which servicemembers who enter the military as non-citizens attain citizenship while serving. Finally, among those servicemembers who attain citizenship while serving, we estimate time-to-citizenship, or the time between accession and naturalization.

Service-specific naturalization policies

As mentioned earlier, with the signing of the EO in July 2002, non-citizen servicemembers became eligible to apply for citizenship after only 1 day of honorable service. When the previous CNA report [2] was written, each service had its own method of assisting non-citizens with naturalization, but all were required to provide non-citizens with a point of contact (POC) for naturalization assistance. Typically, the service POCs would provide non-citizens with some assistance in completing the application for citizenship, which was sent to one centralized USCIS processing center. Then, USCIS would contact the applicant to complete the naturalization interview and exam at the nearest USCIS office.

Today, the services play a much larger role in assisting with this process. Indeed, three of the four services have partnered with USCIS and started programs at basic training to naturalize non-citizen recruits. The Army's basic training naturalization program, which began in 2009, paved the way for these types of programs. In 2010 and 2011, the Navy and the Air Force, respectively, followed suit and cre-

ated basic training naturalization programs. The Marine Corps has investigated the possibility of starting a naturalization program at basic training, but it has no immediate plans to do so.

In this section, we discuss the service-specific policies for assisting non-citizens with naturalization, including our observations from site visits to the Army and Navy basic training naturalization programs. We start with the Army—the service with the most experience with naturalizing at basic training. Then we move on to the Navy and the Air Force, which have relatively new basic training naturalization programs, and finish with the Marine Corps.

Army

The Army's naturalization program at basic training started in 2009 in response to a need to naturalize soldiers accessing through MAVNI.⁴¹ Under MAVNI, the recruiting pool is expanded beyond LPRs; a non-citizen can access with certain visas, or as an asylum seeker or refugee. Since the majority of MAVNIs access on student and work visas, however, when they join the Army their legal status is technically in a gray area until they receive citizenship. Hence, with the development of MAVNI also came a need to expedite citizenship processing. However, when the Army developed its expedited naturalization processing at the five Basic Combat Training locations, all non-citizens, including LPRs, were processed for citizenship.⁴²

Naturalizing non-citizens at basic training is mutually beneficial for USCIS and the Army.⁴³ For USCIS, it is preferable to naturalize non-

41. Again, for more information on MAVNI, see appendix A.

42. In addition to MAVNI, the Army has a special interpreter/translator MOS called 09L. As described earlier, the 09L pilot program began in 2003 as a way for the Army to directly access soldiers who are heritage or native speakers of languages that are critical to the war effort. 09Ls originally accessed as either LPRs (majority) or citizens. Once MAVNI opened in 2009, 09L was also open to certain visa holders, asylum seekers, and refugees. There is still an advantage to naturalizing 09Ls at basic training as well—many 09Ls will need to get security clearances before being deployed, and only citizens can obtain security clearances.

43. The same case can be, and has been, made for the other services.

citizens before their graduation from basic training because at basic training the recruits are all in one place. In contrast, once soldiers graduate from basic training, they can go to any number of places and for varying lengths of time. This is especially important given that USCIS is now required to either adjudicate all citizenship applications within 6 months or supply a reason as to why an application decision has not been made in this time period [8]. For the Army, expedited citizenship processing avoids issues of expired visas and the potential for deportation among MAVNI soldiers. For all other non-citizen soldiers, the sooner they are naturalized, the sooner they can get security clearances that might be needed for deployments or some occupations.

Ideally, non-citizen recruits who wish to be naturalized at basic training learn about this opportunity from their recruiters, who give the recruits packets containing the forms they must fill out and information on the required supporting documentation.⁴⁴ Non-citizen recruits complete these forms and drop them off at the Reception Battalion. As we learned during our visit to Fort Jackson's basic training naturalization program, however, non-citizen recruits frequently do not learn about the opportunity to be naturalized at basic training until they arrive there. Although this causes some delays in application processing, in general, most non-citizen recruits who want to become citizens do so by the end of basic training.⁴⁵

44. Non-citizens who wish to apply for expedited citizenship must submit two forms: an N-400 (Application for Naturalization) and an N-426 (Request for Certification of Military or Naval Service). In addition to these forms, the recruits should receive a study guide for the naturalization exam and be directed to get fingerprinted and to have passport photos taken.

45. Nonetheless, USCIS anticipates that some non-citizen recruits who wish to become citizens may not be able to be naturalized by basic training graduation. For these recruits, the onsite USCIS officer forwards their citizenship applications to the local USCIS near the recruits' next duty stations and also gives the soldiers a phone number to call to follow up on the status of their applications.

Once non-citizen recruits submit their completed forms, the naturalization interviews, fingerprinting, and exams all take place at the onsite USCIS office. Although drill sergeants are important in ensuring that soldiers are in the right place at the right time, the USCIS officers do the majority of the work involved in getting the non-citizen recruits naturalized, in terms of assistance with paperwork and other administrative tasks.

The goal of the Army's basic training naturalization program is to have all non-citizens who are seeking citizenship naturalized by basic training graduation, with the naturalization ceremony held at Family Day (the day before basic training graduation). In general, the naturalization program at Fort Jackson appears to be meeting this goal. Altogether, it takes roughly 10 weeks to get a citizenship application processed at Fort Jackson—from the time the application was submitted to the time the recruit takes the citizenship oath.

There are two practical lessons to be learned from the Fort Jackson experience. First, early in the basic training naturalization program, there were delays in application processing due to one particular step in the application adjudication—the Federal Bureau of Investigation (FBI) name check. Since 2002, FBI name checks, which cross-check individuals' names with FBI records, have been required for all LPR and naturalization applications. During our visit to Fort Jackson, we learned that the FBI name check can be the biggest hurdle in getting recruits naturalized by the end of basic training. But, it appears that this issue has been resolved by submitting the list of names as early in the process as possible. Second, it is important to have a liaison to coordinate the uniformed and USCIS sides of the process. In particular, the liaison can gather input from the drill sergeants on when recruits might be available for their interviews and the naturalization exam; this can increase the likelihood that recruits will be present for their scheduled appointments.

Navy

The Navy's basic training naturalization program, which started at Great Lakes in 2010, was modeled after the Army's program. Before developing the program, the Navy's policy was to educate non-citizen

recruits on the citizenship benefits associated with service (such as expedited citizenship, no application fees, and familial benefits) but to encourage them to delay submitting a citizenship application until A-school, where MOS training begins. Starting last year, however, the Navy partnered with USCIS to conduct naturalizations at basic training.

Following the Army's lead, the Navy has established an onsite USCIS office (colocated with the Legal Aid office) where all administrative tasks associated with citizenship applications occur. As we learned on our visit to the program, the goal is to naturalize as many interested non-citizen recruits as possible by the end of basic training. In the case of those who apply for citizenship but do not get naturalized by basic training graduation, their applications are forwarded to the local USCIS office closest to the sailors' A-schools, with the ultimate goal of making sure that all citizenship applications are processed before the sailors go to sea.

The Navy's basic training naturalization process starts when non-citizen recruits show up at basic training. The Navy advertises the opportunity to become naturalized twice—when recruits first arrive and again during the first week of training. During that first week of training, non-citizen recruits who are interested in applying for citizenship are brought to the Legal Aid office where USCIS officials give them the requisite paperwork and instructions on how to fill it out.⁴⁶ In addition, at weekly informational sessions, non-citizen recruits can ask Navy and USCIS personnel questions about applying for citizenship. Finally, during graduation week, recruits return to the Legal Aid office for interviews, the exam, and the naturalization ceremony.

46. Ideally, non-citizen recruits would receive the requisite paperwork from their recruiters, but such a policy has not been put in place yet. Recruiters have been instructed to inform recruits of the availability of expedited citizenship processing at basic training, but—as is the case with the Army—even this is not yet the norm. From the Navy's point of view, the first week of training is an ideal time to have non-citizen recruits start the naturalization process since the first 2 weeks of training are composed of events that can be made up at a later date, whereas training becomes less flexible after week 2.

In general, our impression from our visit to the naturalization program at Great Lakes is that the program is faring well. Among non-citizen recruits who want to get citizenship, nearly all have been able to do so at basic training. From the point of view of both the uniformed personnel in the Legal Aid office and the USCIS officers, they will do whatever it takes to ensure that non-citizen recruits seeking citizenship are naturalized at basic training.

Air Force

This year, the Air Force became the third service to partner with USCIS and bring naturalization to basic training at Lackland Air Force Base. This program is brand new; the first applications were processed in June 2011.

Ideally, non-citizen recruits in the Air Force are informed by their recruiters of the availability of naturalization at basic training. The recruiters supply interested non-citizen recruits with citizenship application materials and ensure that their paperwork is completed by the time the recruit ships. Also, the recruiters instruct the recruits to go to local USCIS application support centers to be fingerprinted no later than 30 days before shipping. Then, when the non-citizen recruits arrive at the Reception Battalion, they submit their completed applications to begin processing. In practice, about half of non-citizen recruits arrive with their application packets completed. While the Air Force has achieved buy-in from the leadership at Air Force Recruiting Service as well as from the recruiters, it will likely take time before all non-citizens who wish to be naturalized will have completed their applications before the start of basic training.

During week 4 of training, USCIS officials are on site at Lackland Air Force Base. For non-citizen recruits who arrived at basic training with completed applications, USCIS officials use this time to interview and administer the citizenship test. For non-citizen recruits who arrived at basic training with incomplete applications, USCIS officials assist them with finalizing their applications and getting fingerprinted. USCIS officials also coordinate the naturalization ceremony, which is scheduled for the Thursday before basic training graduation, at the end of the 8th week of training.

Although the Air Force's goal is to naturalize all non-citizen recruits who are seeking citizenship by the time they graduate from basic training, in practice this is only possible for non-citizen recruits who arrive at basic training with completed applications. For non-citizen recruits whose applications are incomplete at the start of basic training, their applications will be forwarded to USCIS offices located near their initial skills training locations, and the applicant will be advised to follow up with USCIS on their own.

Marine Corps

Unlike the other services, the Marine Corps has not established a basic training naturalization program. Indeed, there is no standard time during which naturalization takes place for non-citizens in the Marine Corps. Instead, the Marine Corps encourages interested non-citizen Marines to submit their citizenship applications after reaching their first duty stations. From the Marine Corps' point of view, this is an ideal time because it is the first opportunity in a Marine's career when he or she will have a stable address for several years. The only centralized assistance a non-citizen Marine currently receives from the Marine Corps takes place at his or her first duty station, where information about attaining citizenship may be included in the Marine's orientation.

Data

For our empirical analysis of citizenship attainment and time-to-citizenship, we return to the sample of FY99–FY08 enlisted accessions from DMDC that we used for the attrition analysis. Recall that the data track these servicemembers quarterly through June 2010. Unfortunately, there is no DMDC data field that contains the date that a non-citizen servicemember attained citizenship. Instead, what we do observe in the data are changes in individuals' citizenship status between quarters. We use these changes in citizenship status from one quarter to another to infer both citizenship attainment and the timing of citizenship attainment. In other words, we observe whether a person's citizenship status changed from "non-citizen" at the time of accession to "citizen" during our sample period (our proxy for citizenship attainment) and the number of quarters that passed between

accession and the change in citizenship status (our proxy for time-to-citizenship).

We recognize that our measures of citizenship attainment and time-to-citizenship are only approximations. For citizenship attainment, since personnel files are not automatically updated when servicemembers attain citizenship, there is likely to be measurement error in our estimate of the number of servicemembers who attain citizenship during our sample period.⁴⁷ To the extent that servicemembers fail to report that they have become citizens (which they have little incentive to do unless they want to move into an occupation that requires a security clearance), our data will understate the true number of servicemembers attaining citizenship.

For time-to-citizenship, measurement error arises for two reasons. First, at best, we only have visibility on the timing of citizenship attainment down to the quarter. Therefore, we cannot tell if someone attained citizenship at the beginning or the end of that quarter. Second, when servicemembers update their citizenship status in their personnel files (which we have pointed out may not always happen), they might do so with a lag. For both of these reasons, our estimate of time-to-citizenship will overstate the true duration, at least among servicemembers who report a change in citizenship status.

These shortcomings aside, the DMDC data are the best information currently available on citizenship attainment and time-to-citizenship, so we use these data for our analysis.

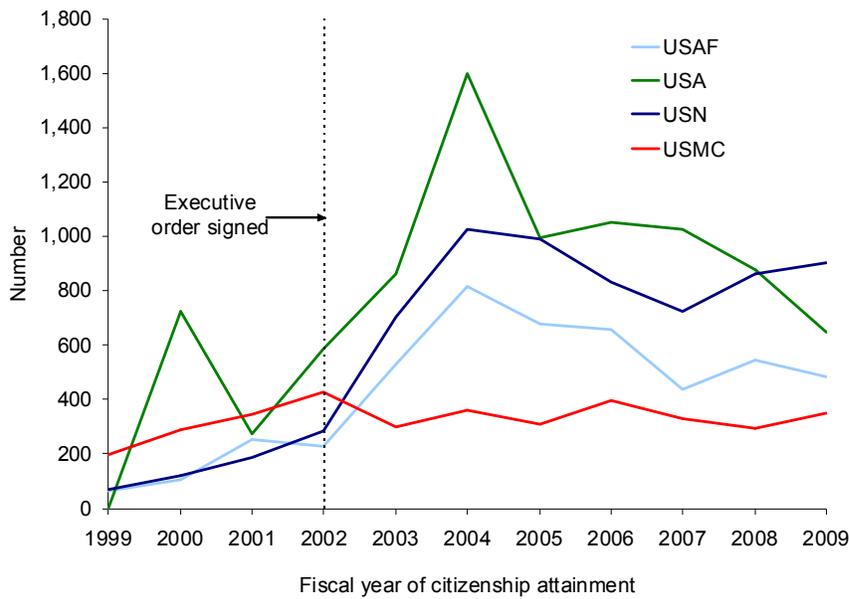
Citizenship attainment

Across our entire sample of FY99–FY08 non-citizen accessions, we estimate that a little less than half (43.8 percent) became citizens by the end of our sample period (June 2010). Figure 11 shows the number of servicemembers who became new citizens by fiscal year of citizenship attainment; we omit FY10 because only 9 months of data are

47. In fact, it is incumbent on the servicemember to report a change in his or her citizenship status for this to be reflected in the service personnel files that feed into the DMDC database.

available. The figure shows that, in general, the number attaining citizenship is increasing over time. The number of new citizens is highest in the Army, followed by the Navy, the Air Force, and finally the Marine Corps.

Figure 11. Number of new citizens by fiscal year of citizenship attainment

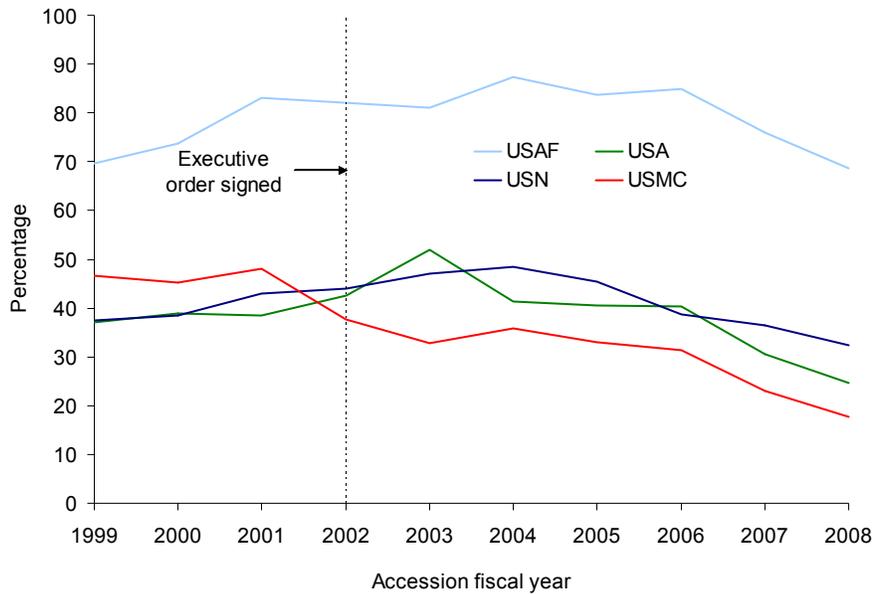


Two features of the data displayed in figure 11 warrant further explanation. The first is the sharp spike in the number of new citizens in the Army in FY00. This spike also was observed in [2], in which the authors attributed it to retrospective updating of citizenship status in the year 2000. The second is the sharp increase in the number of new citizens in the Air Force, Army, and Navy from FY02 to FY04. We argue that this is likely a result of the Executive Order signed in FY02. Once the reduced waiting period took effect, a large number of servicemembers who would have had to wait a while longer to apply for citizenship immediately became eligible to apply. Indeed, when we examine accession dates among servicemembers getting naturalized, we find wider variation in accession dates among servicemembers getting citizenship immediately after the EO was signed than in the

period before the order was signed. This is consistent with the notion that the signing of the EO eliminated the waiting period for some servicemembers who otherwise would have had to delay applying for citizenship.

Figure 12 shows the percentage of non-citizen accessions that attain citizenship by the end of our sample (June 2010) by fiscal year of accession. We make three observations.

Figure 12. Percentage of non-citizen accessions that attain citizenship by accession fiscal year

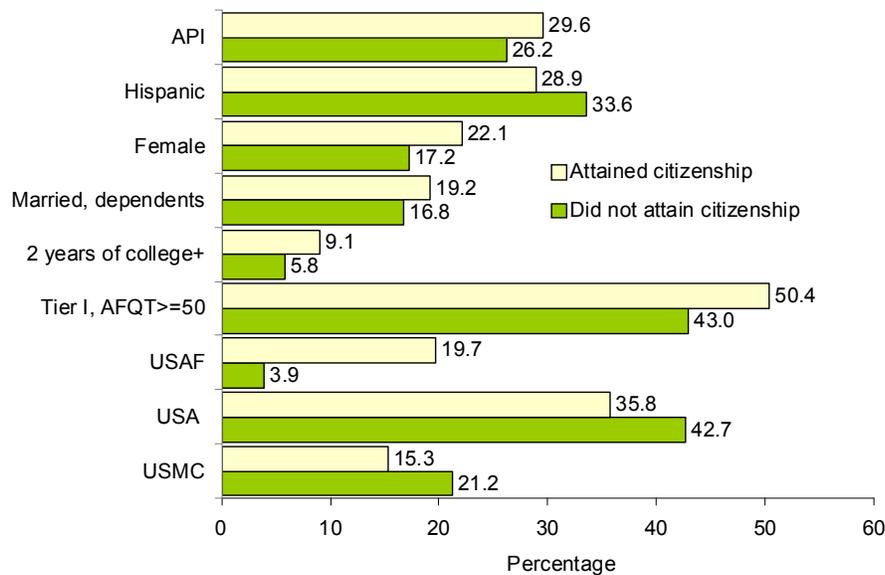


First, the recent years of data in the figure, FY07 and FY08 accessions, are likely to be censored. Given that our period of observation extends through only part of FY10, there has been less time for these cohorts to attain citizenship; therefore, we should expect to see lower rates of citizenship attainment for these recent accessions. Second, if we ignore FY07 and FY08 accessions, the share of non-citizen accessions that attain citizenship during our sample period is relatively stable over time. The exception is the Marine Corps, which experienced a more or less continuous decline in the share attaining citizenship over this period. Third, the share of non-citizen accessions attaining citizenship is much higher—by a factor of 2—in the Air Force than in the other services. This is arguably because non-citizens

in the Air Force can serve a maximum of one term; to reenlist, they must become U.S. citizens.⁴⁸ Also, because of the Air Force service limit for non-citizens, non-citizen airmen have a great incentive to make sure that their citizenship status gets updated once they become citizens.

Before analyzing the determinants of citizenship attainment, we first consider how those who attain citizenship and those who do not differ in terms of demographic and service-related characteristics. Figure 13 displays some of these differences.⁴⁹

Figure 13. Selected demographic and service-related characteristics, non-citizen recruits by citizenship attainment^a



a. All of the pairwise differences displayed here are statistically significant at the 5-percent level.

48. As mentioned earlier, before 2007, the Army capped service at 8 years without citizenship. The data in figure 12 suggest that this policy was not particularly binding since we do not observe a large share of soldiers who accessed as non-citizens attaining citizenship before 2007.

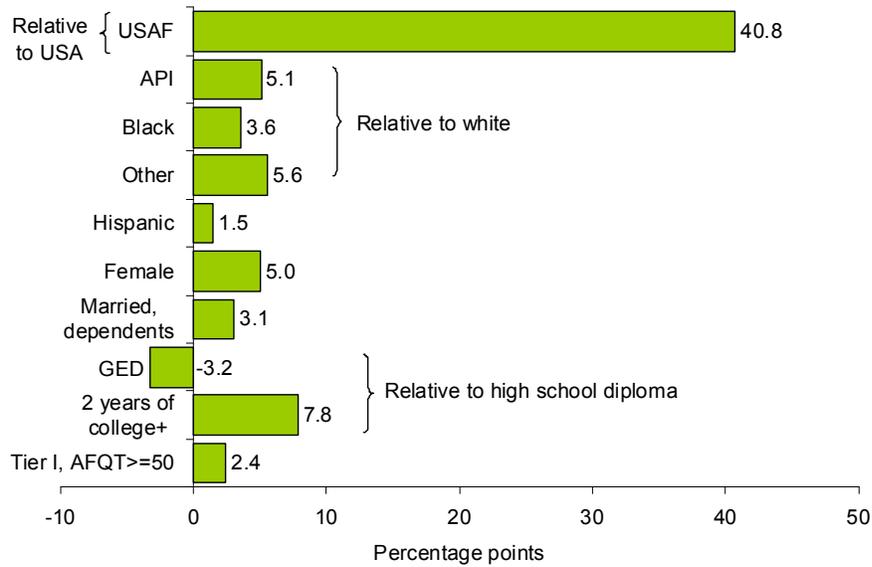
49. Table 12 in appendix F includes the complete set of demographic and service-related characteristics for non-citizen recruits who did and did not attain citizenship. In figure 13, we highlight a subset of those characteristics for which there are particularly salient differences.

As figure 13 shows, non-citizen recruits who attain citizenship are more likely to be Asian/Pacific Islander (API), but less likely to be Hispanic, than those who do not attain citizenship. Those who attain citizenship also are more likely to be female and to be married or have dependents. The former could be driven by a desire to increase after-service opportunities in the private sector, while the latter could be driven by the desire to obtain familial citizenship benefits. Those who become citizens also are more likely to have 2 or more years of college education and to be high quality (Tier I and scoring at least in the 50th percentile on the AFQT) than those who do not become citizens. This could be because higher quality recruits have their sights set on higher skill occupations that are more likely to require security clearances or because higher quality recruits plan to transition to the officer corps. In either case, these recruits must first get their citizenship. Finally, we see that—across the services—non-citizen recruits who become citizens are substantially more likely to be in the Air Force than those who do not become citizens, which is consistent with the Air Force policy that caps service among non-citizens at one term.

Given these differences in demographic and service-related characteristics, we construct a regression model to analyze what predicts whether a non-citizen recruit becomes a citizen. Similar to our approach to modeling attrition, we estimate a logit regression model that uses demographic and service-related characteristics to explain variation in citizenship attainment. The demographic characteristics include race, ethnicity, gender, education, marital status, number of dependents, and age, while the service-related characteristics include AFQT score, service branch, and trimester and fiscal year of accession. Again, we run separate regressions for five samples—all non-citizen accessions and non-citizen accessions in each of the services—and we report the results as marginal effects, or the percentage-point effect of a specific characteristic on the likelihood of attaining citizenship after having controlled for other characteristics.

Figure 14 contains the main results from the analysis of citizenship attainment across all four services.⁵⁰

Figure 14. Marginal effect on citizenship attainment, all services^a



a. All results presented in here are statistically significant at the 5-percent level.

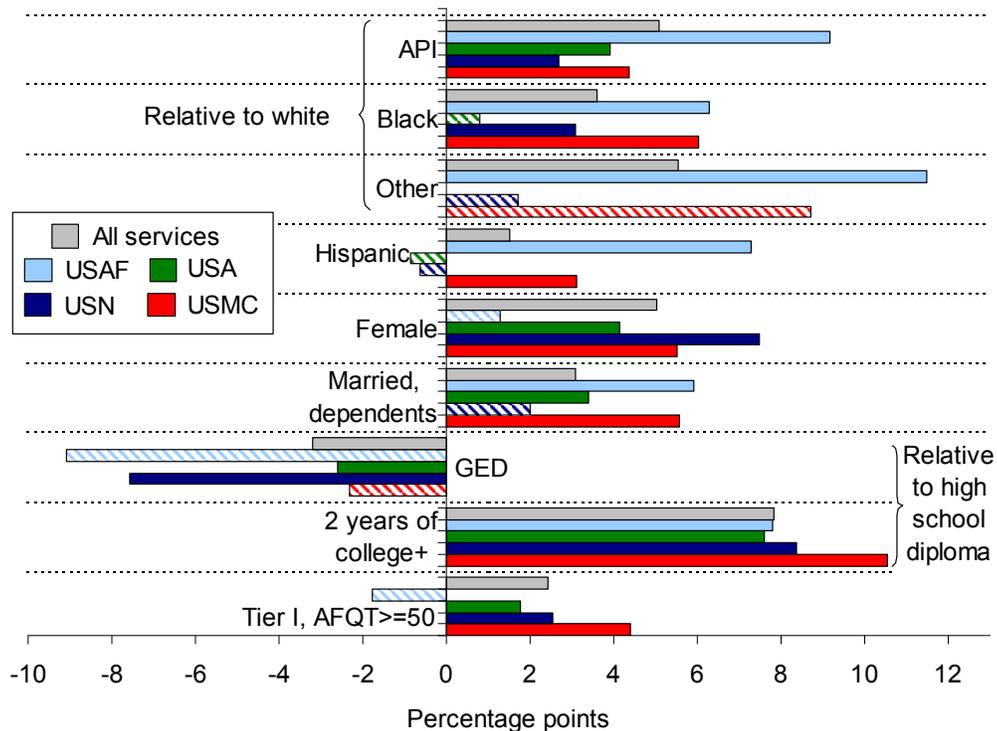
From figure 14, we draw four main conclusions. First, being in the Air Force substantially increases the likelihood that a non-citizen recruit will attain citizenship. Relative to the Army (the omitted category), non-citizen recruits in the Air Force are 40.8 percentage points more likely to become citizens. This is consistent with the Air Force policy that allows a non-citizen to serve a maximum of one term without becoming a citizen. Second, we see that minority and female non-citizen recruits are more likely to become citizens relative to their non-minority and male counterparts. We posit, as we did earlier, that this might be driven by a desire to increase after-service opportunities in the private sector. Third, non-citizen recruits who are married or have dependents are more likely to become citizens; this could be driven by the desire to obtain familial citizenship benefits. Finally,

50. For complete regression results, see table 13 in appendix F.

education and AFQT are positively related to attaining citizenship. This is consistent with the hypotheses that higher quality non-citizen recruits want to transition to higher skill occupations that are more likely to require security clearances or to the officer corps. In either case, citizenship is required.

We suspect that the effects of these characteristics on citizenship attainment might vary across the four services, so we also run the citizenship attainment regression separately for each service. Figure 15 contains the main results from these regressions, plus those from the service-wide regression.⁵¹ In the figure, the service-specific regression results are grouped by characteristic (to ease the cross-service comparison of, say, the effect of race on citizenship attainment), but they can be differentiated from one another by the color of the bar.

Figure 15. Marginal effect on citizenship attainment, by service^a



a. Solid bars represent results that are statistically significant at the 5-percent level, whereas striped bars represent results that are not statistically significant at that level.

51. Again, for complete regression results, see table 13 in appendix F.

As figure 15 shows, across all services, the effect of having completed 2 or more years of college is comparatively large; these non-citizen recruits are between 8 percentage points (for the Air Force and the Army) and 11 percentage points (for the Marine Corps) more likely than non-citizen recruits with only high school diplomas to become citizens. For the other characteristics shown in the figure, we see substantial variation in the marginal effects across the services. Relative to the other services, race, ethnicity, and marital/dependent status have a relatively large positive effect on the likelihood that an Air Force non-citizen recruit will become a citizen. For the Navy, gender has a relatively large positive effect, while having a General Educational Development (GED) certificate has a relatively large negative effect on attaining citizenship compared with the other services. Finally, for the Marine Corps, being high quality (i.e., Tier I and scoring at least in the 50th percentile on the AFQT) and having completed at least 2 years of college stand out as large positive effects relative to the other services.

Time-to-citizenship

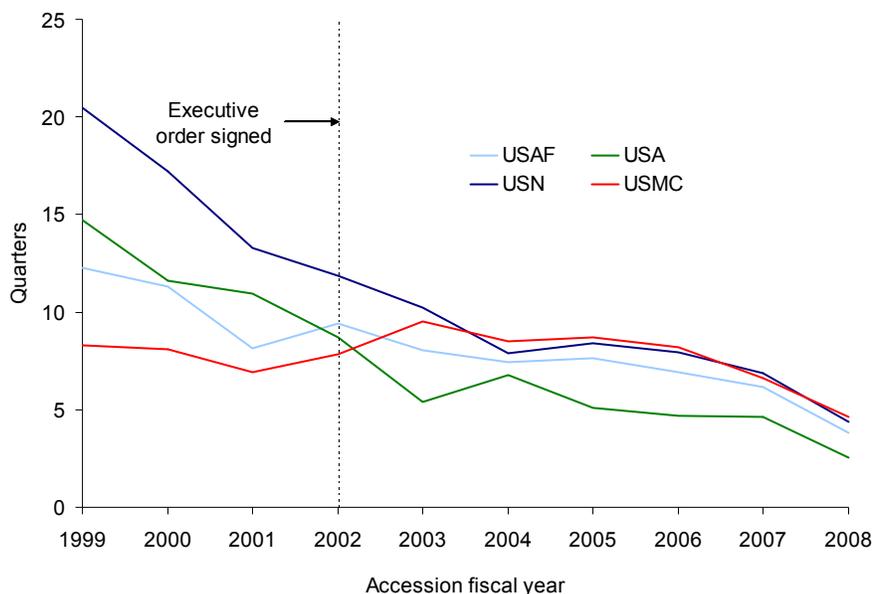
Among the FY99–FY08 non-citizen accessions who attained citizenship by June 2010, we estimate time-to-citizenship as the number of quarters between accession and the first time we observe a change in citizenship status. Figure 16 shows our approximation of time-to-citizenship by accession cohort and by service.⁵² Note that the recent years of data in the figure, FY07–FY08 accessions, are likely to be downwardly biased. Because our period of observation extends only through June 2010, we should expect to see lower times-to-citizenship among non-citizen recruits from these recent cohorts because they had a limited number of quarters in which to become citizens.

As the figure shows, time-to-citizenship generally trends downward over our sample time period. This is consistent with the EO exerting downward pressure on average time-to-citizenship by effectively eliminating the waiting period for citizenship applications. We assert that

52. When estimating time-to-citizenship, we include only the non-citizen recruits we observe attaining citizenship. Those who do not become citizens are omitted from the calculation and the ensuing analysis.

the order had two separate effects, a prospective effect and a retrospective effect, and these are supported by the data in figure 16.

Figure 16. Time-to-citizenship by fiscal year of accession, average quarters between accession and change in citizenship status



First, consider the prospective effect. All else equal, time-to-citizenship among non-citizen recruits who accessed after the passage of the EO should be shorter, on average, than time-to-citizenship among non-citizen recruits who accessed before the EO. This is because the EO shortened the waiting period to apply for citizenship from 3 years of honorable service to 1 day. The data in figure 16 support this; average time-to-citizenship is higher among pre-FY02 accession cohorts than among cohorts that accessed in FY02 and beyond.

Second, consider the retrospective effect. All else equal, time-to-citizenship by accession cohort should fall in the time leading up to the signing of the EO. To understand why, consider two groups of non-citizens who accessed in the years just before the signing of the EO. The first group is made up of people who, at the time the EO was

signed, had already been LPRs for the requisite 3 years (and therefore were already eligible to apply for citizenship). Since the EO affects time-to-citizenship through reducing the waiting period, it should not affect this group's time-to-citizenship. The second group, however, comprises recruits who, at the time the EO was signed, had *not* been LPRs for 3 years (and were *not* eligible to apply for citizenship). For this group, the EO shortened the waiting period, especially for recruits who accessed in the years just before July 2002. Indeed, as the data in figure 16 show, average time-to-citizenship fell dramatically among cohorts accessing right before the signing of the EO.⁵³

Figure 16 also shows that the trend in time-to-citizenship over our sample period is remarkably different across the services. For all services save the Marine Corps, time-to-citizenship has trended downward over the sample period (the trend for the Marine Corps has remained more or less flat, especially when we omit FY07 and FY08, which we argue are downwardly biased). Also, the relative time-to-citizenship ranking of the four services changed after the Executive Order was signed. For pre-FY02 accessions, time-to-citizenship was highest for the Navy and lowest for the Marine Corps. However, for FY02 and later accessions, time-to-citizenship was highest for the Air Force, Navy, and Marine Corps and lowest for the Army. This reversal in the ranking of the services is caused by the relatively rapid declines in time-to-citizenship for the Army and the Navy compared with the other services.

Although not enough time has transpired to allow us to track time-to-citizenship for FY09 and FY10 cohorts, we anticipate that the general downward trend in time-to-citizenship will continue for the Air Force, Army, and Navy because of the introduction of the naturalization programs at basic training (which started in 2009 to 2011). All else equal, we expect that these programs will drive down time-to-citizenship to approximately 1 quarter for the vast majority of new accessions into the Air Force, Army, and Navy (since a majority of non-citizens who want to become citizens will do so at basic training). It is likely that

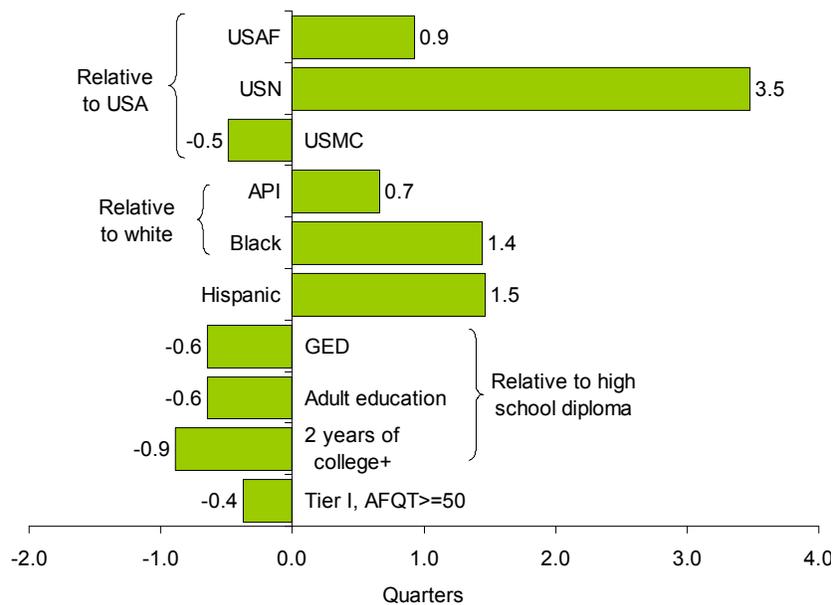
53. Another explanation for the trend in figure 16, besides the retrospective effect offered here, could be systematic variation in the length of time that non-citizen recruits have been LPRs *before* joining the service. However, we have no way of observing this.

time-to-citizenship will remain higher for the Marine Corps, in the absence of establishing a naturalization program at basic training.

To determine what is behind these differences in time-to-citizenship, we construct a linear regression model that uses differences in demographic and service-related characteristics to explain the variation. The characteristics are the same as those used in the citizenship attainment regressions (race, ethnicity, gender, education, marital status, number of dependents, age, AFQT score, service branch, and trimester and fiscal year of accession). Again, we run separate regressions for five samples—all non-citizen accessions who became citizens and that group split by service. We report the results in terms of how a specific characteristic affects time-to-citizenship (measured in quarters) after having controlled for other characteristics.

Figure 17 shows the main results from the time-to-citizenship analysis across all four services.⁵⁴ We draw three conclusions from the figure.

Figure 17. Marginal effect on time-to-citizenship, all services^a



a. All results presented here are statistically significant at the 5-percent level.

54. For complete regression results, see table 14 in appendix F.

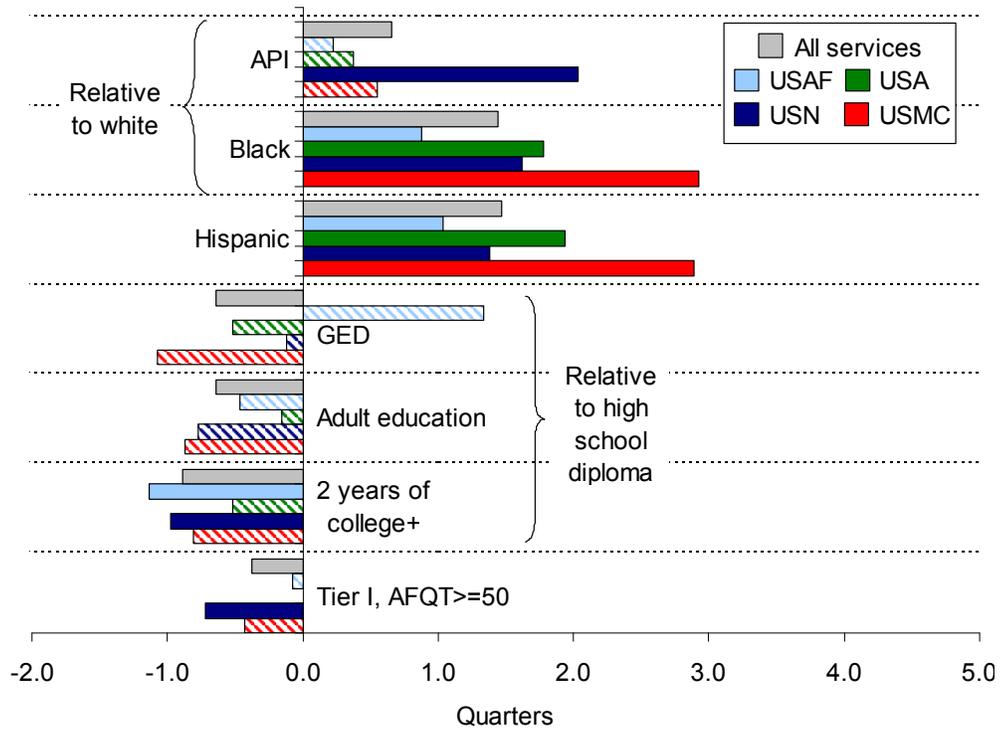
First, we see that being in the Navy substantially increases time-to-citizenship; it is longer in the Navy than the Army (the omitted category) by nearly a year (3.5 quarters). Also, relative to the Army, time-to-citizenship is longer by nearly 1 quarter in the Air Force, whereas it is shorter by 0.5 quarter in the Marine Corps. Second, we see that time-to-citizenship is longer, on average, for minorities, although we found earlier (in figure 14) that minorities are more likely than non-minorities to attain citizenship. Finally, we find that having a GED, having adult education, having at least 2 years of college experience, and being high quality (Tier I and scoring at least at the 50th percentile on the AFQT) are associated with shorter time-to-citizenship. For those who are college-educated or did well on the AFQT, this might reflect their desire to transition to higher skill occupations that are more likely to require security clearances or to the officer corps, which requires citizenship.

We also run the time-to-citizenship regressions separately by service, since we suspect that the effects will vary across the services. Figure 18 contains the main results from these regressions, plus those from the service-wide regression.⁵⁵ As was the case for figure 15, the results from the service-specific time-to-citizenship regressions are grouped by characteristic, but they are differentiated from one another by the color of the bar.

As figure 18 shows, for the Army, Navy, and Marine Corps, being black or Hispanic has a relatively large effect on time-to-citizenship—increasing it by roughly 1.5 to 3 quarters. For the Navy, being API has a similar effect. Most of the effects of education in the cross-service regression are not significant in the service-specific regressions. The exception is having at least 2 years of college, which decreases time-to-citizenship in the Air Force and Navy by roughly 1 quarter. Finally, time-to-citizenship in the Navy is significantly reduced (by nearly 1 quarter) for non-citizen accessions who are high quality (Tier I and scoring at least at the 50th percentile on the AFQT).

55. Again, for complete regression results, see table 14 in appendix F.

Figure 18. Marginal effect on time-to-citizenship, by service^a



a. Solid bars represent results that are statistically significant at the 5-percent level, whereas striped bars represent results that are not statistically significant at that level.

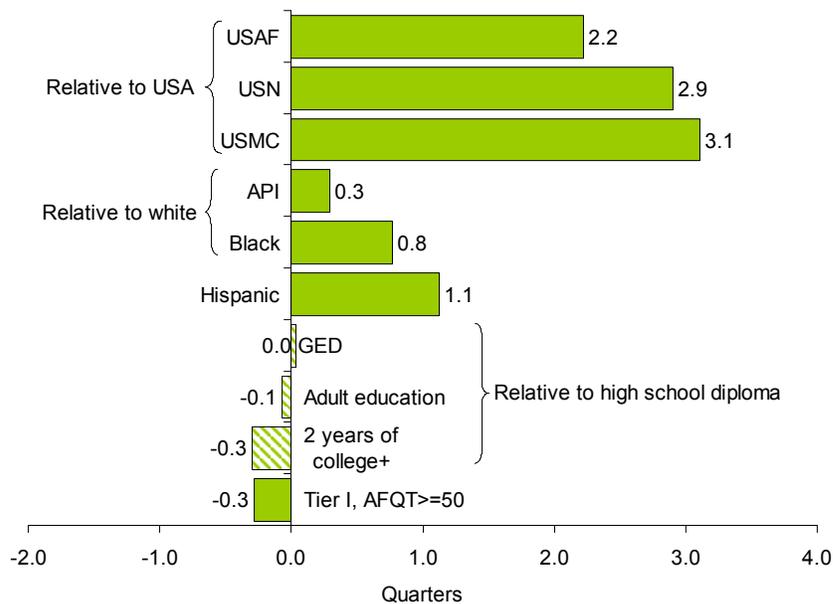
Since we would expect time-to-citizenship to be lower starting with FY03 and later accessions owing to the EO, and since the relative ranking of the services with respect to time-to-citizenship shifted before and after FY02 (figure 16), we also run the time-to-citizenship regression on a sample after the EO (i.e., FY03–08 accessions). Figure 19 contains the main results from this analysis across the services.⁵⁶

There are two main differences between these results and those for all accessions (shown in figure 17). First, with the exception of the service branch variables, the effects for all other variables have the same sign as in the full sample regression, but they are attenuated—so much so for the education variables that they are now statistically

56. For complete regression results, see table 15 in appendix F.

insignificant. Second, as we suspected, the change in the relative ranking of services in terms of time-to-citizenship we observed in figure 16 has been borne out here as well. When considering all accessions from FY99 to FY08, time-to-citizenship was longest (by a considerable amount) for the Navy, followed by the Air Force, then the Army, and finally the Marine Corps. As figure 19 shows, among non-citizens who accessed after the Executive Order was signed, time-to-citizenship was longest for the Marine Corps, followed by the Navy, the Air Force, and finally (by a considerable amount) the Army. Again, when data on time-to-citizenship for FY09 and FY10 accessions become available, we expect to see that the Marine Corps will continue to have the longest time-to-citizenship, while time-to-citizenship in the Air Force, Army, and Navy will drop considerably because of the recent introduction of naturalization programs at basic training for these three services.

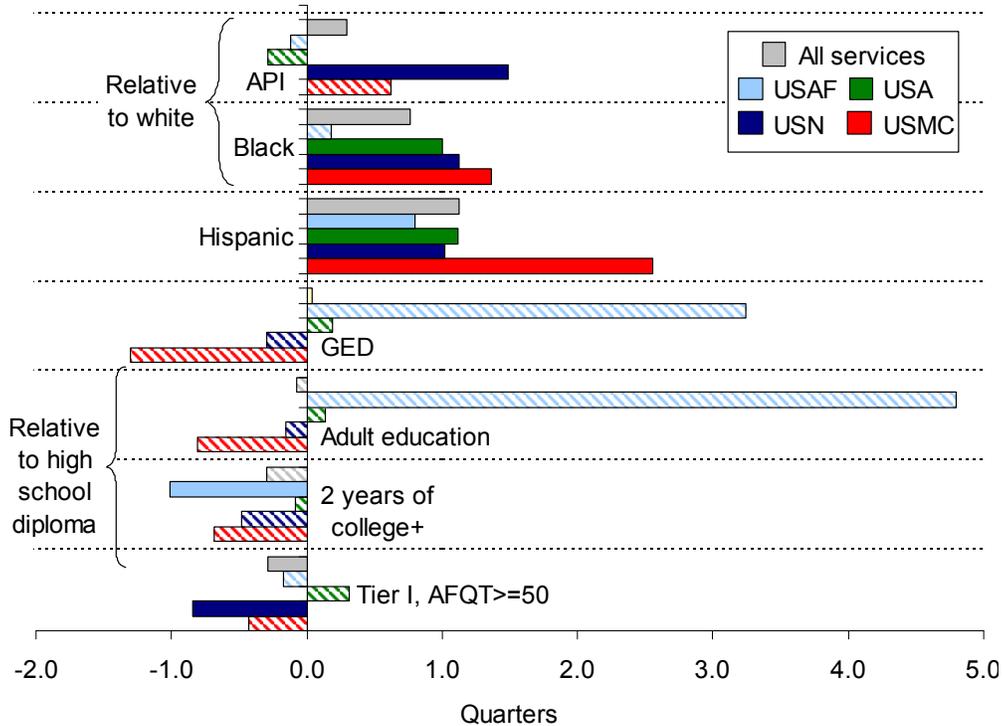
Figure 19. Marginal effect on time-to-citizenship, FY03–08 (post-EO) accessions, all services^a



a. Solid bars represent results that are statistically significant at the 5-percent level, whereas striped bars represent results that are not statistically significant at that level.

Figure 20 shows the results when we run service-specific regressions on the reduced sample of FY03–08 accessions.⁵⁷

Figure 20. Marginal effect on time-to-citizenship, FY03–FY08 accessions, by service^a



a. Solid bars represent results that are statistically significant at the 5-percent level, whereas striped bars represent results that are not statistically significant at that level.

A comparison of figure 18 (full sample) and figure 20 (reduced sample) reveals that the main conclusions are not affected by the change in the sample:

- Being black or Hispanic continues to have a relatively large, positive effect on time-to-citizenship for the Army, Navy, and Marine Corps.
- Being API has a similarly sized, positive effect for the Navy.

57. Again, for complete regression results, see table 15 in appendix F.

- Most education effects are not significant (except for having at least 2 years of college experience in the Air Force).
- Being high quality (Tier I and scoring at least at the 50th percentile on the AFQT) is still associated with shorter time-to-citizenship.

Summary

From our analysis of citizenship attainment, we arrive at four main conclusions:

1. Being in the Air Force substantially increases the likelihood that a non-citizen recruit will attain citizenship. Relative to the Army, non-citizen recruits in the Air Force are 40.8 percentage points more likely to become citizens. This is consistent with the fact that the Air Force allows non-citizens to serve a maximum of one term without becoming a citizen.
2. Minority and female non-citizen recruits are more likely to become citizens relative to their non-minority and male counterparts. We posit that this might be driven by a desire to increase after-service opportunities in the private sector. We also find that race and ethnicity have a relatively larger effect in the Air Force than in the other services, whereas the effect of being female is larger in the Navy than in the other services.
3. Non-citizen recruits who are married or have dependents are more likely to become citizens, an effect that could be driven by the desire to obtain familial citizenship benefits. We find that this effect is relatively larger in the Air Force than in the other services.
4. Education and AFQT are positively related to attaining citizenship, and this effect is larger in the Marine Corps than in the other services. This finding is consistent with the hypotheses that either these higher quality non-citizen recruits are looking to transition to higher skill occupations, which are more likely to require security clearances, or they are looking to transition to the officer corps. In either case, citizenship is required.

With regard to our analysis of time-to-citizenship, we have three main conclusions:

1. When considering all accessions from FY99 through FY08, we find that time-to-citizenship is longest for the Navy (and considerably so), followed by the Air Force, the Army, and finally the Marine Corps. However, when we limit the sample to accessions since the signing of the EO, we see instead that the Marine Corps has the longest time-to-citizenship among post-FY02 accessions, followed by the Navy, the Air Force, and finally (by a substantial amount) the Army. We expect to see that—among more recent non-citizen accessions—time-to-citizenship among accessions to the Air Force, Army, and Navy will fall considerably as a result of their naturalization programs at basic training.
2. Time-to-citizenship is longer for minorities, especially among non-citizen accessions in the Army, Navy, and Marine Corps.
3. The following characteristics are associated with shorter time-to-citizenship: having a GED, having adult education, having at least 2 years of college experience, and being high quality (i.e., Tier I and scoring at least at the 50th percentile on the AFQT). The effect of 2 years of college is especially large for the Air Force and Navy, while the effect of being high quality is especially large for the Navy. For those who are college educated or scored well on the AFQT, again this might be caused by a desire to transition to higher skill occupations, which are more likely to require security clearances, or to transition to the officer corps. In either case, citizenship is required.

Conclusions and recommendations

Our analysis substantiates the three reasons why non-citizens are a potentially valuable enlisted recruiting resource. First, there is an ample supply of non-citizens in the United States who are eligible for military service. We estimate that approximately 1.2 million non-citizens (about half of whom are male) are in the desired age range (18 to 29) and have the requisite education, permanent resident status, and English ability for enlistment. Although this number may seem small relative to the overall U.S. recruitable population, non-citizens are still an attractive recruiting resource given that immigration is projected to be the only source of net growth in the U.S. population among 18- to 24-year-olds in the coming decades. Second, we find that a substantial share of the recruitable U.S. non-citizen population comes from diverse backgrounds and potentially possesses language and cultural skills that are of strategic interest to the U.S. military. Third, non-citizen recruits are significantly and substantially less likely than citizen recruits to attrite in the first term. In addition, we find substantial variation in the effect of citizenship status at accession on attrition by service, with the effect being the largest for the Navy and the smallest for the Air Force and Marine Corps.

Given the recent policy changes that have streamlined naturalization for non-citizen servicemembers, we are not surprised to find that citizenship attainment has increased and time-to-citizenship has decreased over our period of observation. Our statistical analysis suggests that the rate of citizenship attainment is higher for the Air Force (likely because of the one-term limit without citizenship), for minorities, for women, for those who are married or have dependents, and for those who have more education or higher AFQT scores. We also find that time-to-citizenship is longer for minority recruits but shorter for recruits who have more education or higher AFQT scores. In addition, in the period following the Executive Order, time-to-citizenship has been longest for the Marine Corps, followed by the Navy, the Air Force, and the Army. We expect that time-to-citizenship will remain

relatively high for the Marine Corps but will fall for the other services in the coming years because of their naturalization programs at basic training. When the nation is no longer at war, however, the EO will expire and, unless current law is changed, time-to-citizenship will rise once again as the 1-year waiting period goes into effect. In addition, the impetus behind naturalizing at basic training will disappear.

Policy implications

Four key policy implications arise from this analysis:

1. The services should consider developing strategies to recruit non-citizens more effectively, especially if the recruiting environment becomes challenging again. As our analysis shows, there is an ample pool of qualified non-citizen recruits who have lower first-term attrition rates than their citizen counterparts.⁵⁸ Moreover, these non-citizen recruits are more diverse, on average, than citizen recruits and are likely to have language and cultural skills of strategic interest to the U.S. military.
2. DOD and USCIS both would benefit from sharing their administrative data. On one hand, if USCIS notified DOD when servicemembers' applications were approved, DOD would have more visibility on who attains citizenship and when. On the other hand, if DOD kept USCIS apprised of who attrites from the military, USCIS would be better positioned to know whether servicemembers are not completing their service obligations in exchange for expedited citizenship processing.⁵⁹

58. There is one caveat to this assertion. It is possible that the size of the attrition rate gap between non-citizen and citizen recruits might decrease as the services recruit more non-citizens if, for instance, the marginal recruit's commitment to serving his or her country decreases as the pool of non-citizen enlistees increases.

59. As mentioned earlier, USCIS has the authority to revoke citizenship if a servicemember leaves the military before completing five years of service with an other-than-honorable discharge. To our knowledge, however, USCIS does not have sufficient visibility on attrition from the service to be able to enforce this, nor does this currently seem to be a priority for USCIS.

3. Basic training naturalization programs have proved to be a viable option for quickly and efficiently naturalizing large groups of non-citizen servicemembers. The programs already in place at the Army, Navy, and Air Force basic training should be supported, and the Marine Corps should be encouraged to investigate further the possibility of adding such a program to its basic training.
4. The Army's and Navy's experiences suggest that getting recruiters involved in disseminating citizenship information and paperwork to non-citizen recruits greatly increases the speed and ease of basic training naturalizations. Of course, these recommendations relating to the basic training naturalization programs will be irrelevant when the United States is no longer at war, unless policies governing the naturalization of non-citizen servicemembers are changed yet again.

Areas for future research

In closing, we note five areas for future research. We devote a paragraph to each.

First, it would be useful to test whether the differences in the effect of citizenship status at accession on attrition that exist across the services (as seen in figure 10) can be explained by things we can observe in our data. One potential explanation is differences in country of origin, but the current amount information on country of origin in the DMDC data is insufficient for us to explore this.

Second, we could examine whether certain observable characteristics are more closely associated with lower first-term attrition among non-citizen recruits than other characteristics. If this is the case, this could help the services determine which non-citizen recruits are particularly likely to remain in the service through the end of the first term and, therefore, should be targeted for enlisted recruiting. Also, similar to this idea, we could explore whether certain observable characteristics are more or less predictive of attrition for non-citizen recruits than they are for citizen recruits.

Third, we could explore other measures of first-term performance besides first-term attrition. For example, we could test whether non-citizen recruits advance more quickly, in addition to attriting less during the first term.

Fourth, we could examine whether non-citizens are likely to be “first term” or “career” servicemembers by exploring how likely they are to remain in the military beyond the first term after becoming citizens. On one hand, non-citizen recruits might seek citizenship to enhance the opportunities available to them in the military, since citizenship is a prerequisite for a security clearance. This could be a signal that non-citizens who become citizens have a greater tendency to stay in the military past the first term. On the other hand, non-citizens might join the military for the purpose of attaining citizenship, or they might decide once they attain citizenship that they wish to pursue opportunities outside the military, and thus would be less likely to stay beyond the first term.

Fifth, the current study examines what factors lead to higher or lower average time-to-citizenship. In future work, we could consider other measures of time-to-citizenship—in particular measures that capture the spread (or variance) in time-to-citizenship that is otherwise masked when looking at an average. Given the service-specific differences in policies and practices relating to the naturalization of servicemembers, it would be particularly interesting to do a cross-service comparison using alternative measures of time-to-citizenship.

Appendix A: Military Accessions Vital to the National Interest (MAVNI)

On November 25, 2008, the Secretary of Defense authorized MAVNI as a pilot program [9], to recruit non-citizens who are not LPRs but who have skills that are “vital to national interest,” through U.S. Code 504(b(2)).⁶¹ Recruits who access under MAVNI possess skills that are considered to be vital to national interests, including health care professional and specific language and cultural skills. MAVNI was initially granted the authority to enlist up to 1,000 recruits and was scheduled to end either on December 31, 2009, or when the recruiting limit had been met [10]. Of the 1,000 MAVNI recruits, 890 were allocated to the Army, 100 to the Navy, and 10 to the Air Force.⁶²

After December 31, 2009, MAVNI was granted a series of 60-day extensions and was finally officially extended for an additional 2 years on August 17, 2010. With this extension, new recruiting totals were established. An additional 1,500 recruits were authorized for the program, including 1,000 for the Army (100 of which are health care professionals), 250 for the Navy, and 125 each for the Air Force and Marine Corps.⁶³ Also, given the United States’ recent heightened security concerns, the 2-year extension added new DOD requirements that the services address security screening procedures. This

61. Undocumented or unauthorized immigrants are not eligible for enlistment under MAVNI. In addition, non-citizens must already be living in the United States to be eligible for MAVNI; that is, MAVNI will not sponsor visas or recruit non-citizens who are overseas [9]. For more information on MAVNI eligibility, see [10].

62. The Marine Corps did not participate in the first year of MAVNI.

63. Since the Navy provides medical personnel to the Marine Corps, the Marine Corps allotment is only for recruits with language or cultural skills.

has caused MAVNI recruiting to be put on hold indefinitely until USD(I) approves the services' screening policies.

Although the service secretaries individually have the authority to determine what skills are vital to the national interest, with MAVNI DOD established general criteria that apply across the services. For health care professionals applying for MAVNI, recruits must be trained in a medical specialty for which the services are undermanned and must meet all criteria required for their medical specialty, in addition to any criteria for foreign-trained medical personnel recruited under other DOD authorities. Recruits must demonstrate English proficiency and commit to a minimum of 3 years of active duty or 6 years in the Selected Reserve. Those with specific language and cultural skills who would like to enlist through MAVNI must possess language and culture capabilities that are critical to DOD (see table 1) and must demonstrate language proficiency. In addition, recruits must meet all existing enlistment criteria (with the exception of LPR status) and must enlist for a minimum of 4 years of active duty.

Table 1. MAVNI critical languages^a

Albanian	Igbo	Punjabi
Amharic	Indonesian	Russian
Arabic	Korean	Sindhi
Azerbaijani	Kurdish	Sinhalese
Bengali	Lao	Somali
Burmese	Malay	Swahili
Cambodian-Khmer	Malayalam	Tamil
Chinese	Moro	Turkish
Czech	Nepalese	Turkmen
Hausa	Pashto	Urdu
Hindi	Persian (Dari & Farsi)	Yoruba
Hungarian	Polish	

a. Source: [10]. These are the languages authorized with the original pilot program. Once MAVNI reopens, additional languages will be included.

The Army has recruited the majority of MAVNI recruits who have accessed to date. Indeed, on February 23, 2009, the Army was assigned the task of recruiting 932 of the allotted 1,000 MAVNI recruits, of which 789 had language and cultural skills and 143 were health care professionals [11]. The Army targeted its recruiting for language and cultural skills in large cities, including New York City, Los Angeles, Atlanta, Chicago, and Dallas, but it recruited health care professionals nationwide. Army health care professional MAVNI recruits were required to pass an English test, but all Army MAVNI recruits were expected to score 50 or higher on the AFQT (which is a higher threshold than that used for citizen recruits. As the biggest recruiter of MAVNI recruits, the Army took the lead on developing the additional security protocols required by DOD.

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Appendix B: Foreign languages

The strategic language list (SLL) for FY11, shown in table 2, contains three groups of languages. “Immediate languages” are those for which DOD has an immediate need. Languages that DOD anticipates needing in the future are called “emerging languages.” The third category—“enduring languages”—consists of languages that DOD expects to continue to need during the next 10 to 15 years. (Note: The services have the authority to add or delete languages from the emerging and enduring lists and to promote languages from the emerging or enduring lists to the immediate lists, but not vice versa.)

Table 2. FY11 SLL^a

Immediate languages			
Baluchi	Pashto-Mghan (Pushtu)	Persian-Mghan (Dari)	Urdu
Iraqi Arabic	Persian-Iranian (Farsi)	Somali	Yemeni Arabic
Emerging languages			
Amharic	Hindi	Punjabi (Western)	Ukrainian
Azerbaijani	Kazakh	Singhalese	Uzbek
Bengali	Krio	Tamazight	
Divehi	Lingala	Tamil	
Fulani	Nepalese	Telegu	
Enduring languages			
Algerian Arabic	Igbo	Maranao	Yakan
Brazilian Portuguese	Ilocano	Modern Standard Arabic	Yoruba
Cambodian	Indonesian	Russian	
Cantonese	Japanese	Serbo-Croatian	
Cebuano	Javanese	Sorani	
Czech	Korean	Spanish	
Egyptian Arabic	Kurmanji	Swahili	
European Portuguese	Lao	Tagalog	
French	Levantine Arabic	Tausug	
Georgian	Maghrebi Arabic	Thai	
Gulf Arabic	Maguindanao	Turkish	
Hausa	Malay	Turkmen	
Hebrew	Mandarin	Vietnamese	

a. Source: [12].

Table 3 shows how we group languages in the ACS data.

Table 3. ACS language groups

Group	Languages		
Spanish	Spanish		
French	French	French Creole	Patois
	Cajun		
Other European	Afrikaans	Hungarian	Romanian
	Albanian	Irish Gaelic	Russian
	Armenian	Italian	Serbian
	Bulgarian	Jamaican Creole	Serbocroatian
	Croatian	Lettish	Slovak
	Czech	Lithuanian	Swedish
	Danish	Macedonian	Ukrainian
	Dutch	Norwegian	Yiddish
	Finnish	Pennsylvania Dutch	Other European
	German	Polish	
	Greek	Portuguese	
Arabic and other Middle Eastern	Arabic	Kurdish	Syriac
	Amharic	Pashto	Turkish
	Hebrew	Persian	
Languages of India	Bengali	Marathi	Telugu
	Gujarathi	Nepali	Urdu
	Hindi	Panjabi	Other Indian
	Kannada	Sinhalese	Other Pakistani
	Malayalam	Tamil	
Chinese	Chinese	Formosan	Mandarin
	Cantonese		
Other Asian and Pacific Island	Bisayan	Japanese	Sebuano
	Burmese	Korean	Tagalog
	Chamorro	Laotian	Thai
	Hawaiian	Malay	Tongan
	Hmong	Miao-yao, Mien	Vietnamese
	Ilocano	Mon-Khmer, Cambodian	Other Asian
	Indonesian	Samoan	Other Pacific Island
African	African	Ibo	Swahili
	Bantu	Kru	Yoruba
	Cushite	Mande	Other African
	Fulani		
Native American	Aleut-Eskimo	Cherokee	Navaho
	American Indian	Dakota	Zuni
	Apache	Keres	Other American Indian

Appendix C: Verifying non-citizens' education credentials

Education credentials must be verified before enlistment. For non-citizens, often there are extra steps that need to be taken since their education credentials typically are from a foreign country. Each service has its own method for doing so, as we describe here.

For the Air Force, non-citizens accessing with a high school degree or more from foreign schools must have an educational-level evaluation before enlisting [13]. This evaluation can be obtained through a state Department of Education, a college or university accredited by Accredited Institutions of Postsecondary Education (AIPE), or an authorized credential evaluation agency that is a member of the National Association of Credential Evaluation Services (NACES). Non-citizen recruits are responsible for fees associated with the education-level evaluation, including those associated with translating documents into English.

For the Army, non-citizens accessing with a high school degree or more from foreign schools must have their documents evaluated by a state Board of Education or any degree-granting college or university accredited by AIPE or NACES [14].⁶⁴ If a non-citizen recruit's education documentation is not in English, the Army will permit a bilingual

64. Non-citizen recruits who attended schools in the following regions are exempt from the education credential verification requirement (and therefore their education credentials will be treated in the same manner as those from any U.S. school): Federated States of Micronesia, Republic of the Marshall Islands, Commonwealth of the Northern Mariana Islands, Guam, American Samoa, Canada, Puerto Rico, Virgin Islands, Palau, Department of Defense Dependent School System, and overseas American-sponsored elementary and secondary schools assisted by the U.S. Department of State.

soldier to translate the documentation, and the written translation must be signed by the soldier with a commissioned officer's signature as a witness. Recruiting battalions that do not have a soldier with a skilled language identifier may designate recruiting personnel to translate foreign documents.

For the Navy, foreign education credentials must be evaluated using the American Association of College Registrars and Admissions Officers' (AACRAO) Projects in International Education Research World Series publications [15]. Foreign language education documents require certified English translation, obtained by the non-citizen recruit, and both versions must be submitted for review. These documents must be submitted at least 3 working days before the beginning of MEPS processing.

Finally, the Marine Corps requires that, before enlistment, foreign credentials be verified either by the non-citizen's home country's consulate,⁶⁵ a state Board of Education, a university or college listed in the Directory of Postsecondary Institutions, or a foreign language service that is accredited by AACRAO [16].

65. This is not applicable to hostile countries, as described in [16].

Appendix D: Occupations that do not require citizenship

Table 4. Occupations that do not require citizenship: Air Force

Code	Name
1S0X1	Safety
2S0X1	Materiel Management
2T0X1	Traffic Management
2T1X1	Vehicle Operations
2T2X1	Air Transportation
2T3X1	Special Purpose Vehicle and Equipment Maintenance
2T3X2	Special Vehicle Maintenance
2T3X7	Vehicle Maintenance Control & Analysis
3E0X1	Electrical Systems
3E0X2	Electrical Power Production
3E1X1	Heating, Ventilation, AC, & Refrigeration
3E2X1	Pavement and Construction Equipment
3E3X1	Structural
3E4X1	Utilities Systems
3E4X2	Liquid Fuel Systems Maintenance
3E4X3	Pest Management
3E5X1	Engineering
3E6X1	Operations Management
3M0X1	Services
3N0X1	Public Affairs
3N1X1	Regional Band
3N2X1	Premier Band
3S0X1	Personnel
4A0X1	Health Services Management
4A1X1	Medical Materiel
4A2X1	Biomedical Equipment
4B0X1	Bioenvironmental Engineering

Source: Dr. Hector M. Acosta, Section Chief, Marketing Research & Analysis, Headquarters, Air Force Recruiting Service.

Table 4. Occupations that do not require citizenship: Air Force (continued)

Code	Name
4C0X1	Mental Health Service
4D0X1	Diet Therapy
4E0X1	Public Health
4H0X1	Cardiopulmonary Laboratory
4J0X2	Physical Medicine Apprentice
4M0X1	Aerospace Physiology
4N0X1	Medical Services
4N1X1	Surgical Services
4P0X1	Pharmacy
4R0X1	Diagnostic Imaging
4T0X1	Medical Laboratory
4T0X2	Histopathology
4V0X1	Optometry
4Y0X1	Dental Assistant
4Y0X2	Dental Laboratory
6C0X1	Contracting
6F0X1	Financial Management
9TA45	Administrative Aptitude Area
9TG43	General Aptitude Area

Source: Dr. Hector M. Acosta, Section Chief, Marketing Research & Analysis, Headquarters, Air Force Recruiting Service.

Table 5. Occupations that do not require citizenship: Army

Code	Name
09L	Interpreter/Translator
11B	Infantryman
11C	Indirect Fire Infantryman
13B	Cannon Crewmember
13S	Field Artillery Surveyor
15A	Aviation Life Support Systems Repairer
15B	Aircraft Powerplant Repairer
15D	Aircraft Powertrain Repairer
15F	Aircraft Electrician
15G	Aircraft Structural Repairer
15H	Aircraft Pneudraulics Repairer
15M	UH-1 Helicopter Repairer
15R	AH-64 Attack Helicopter Repairer
15S	OH-58D/ARH Helicopter Repairer
15T	UH-60 Helicopter Repairer
15U	CH-47 Helicopter Repairer
15V	Observation/Scout Helicopter Repairer
15X	AH-64A Armament/Electrical/Avionics Systems Repairer
15Y	H-64D Armament/Electrical/Avionic Systems Repairer
19D	Cavalry Scout
19K	M1 Armor Crewman
21B	Combat Engineer
21C	Bridge Crewmember
21D	Diver
21E	Construction Equipment Operator
21G	Quarrying Specialist
21J	General Construction Equipment Operator
21K	Plumber
21M	Firefighter
21P	Prime Power Production Specialist
21Q	Powerline Distribution Specialist
21R	Interior Electrician
21S	Topographic Surveyor
21T	Technical Engineer

Source: United States Army PERSCOM MOS Smart Book, <http://www.apd.army.mil/Home/Links/PDFFiles/MOS-Book.pdf>.

Table 5. Occupations that do not require citizenship: Army (continued)

Code	Name
21V	Concrete and Asphalt Equipment Operator
21W	Carpentry and Masonry Specialist
31E	Internment/Resettlement Specialist
42R	Army Bandsperson
44B	Metal Worker
44C	Financial Management Technician
44E	Machinist
45B	Small Arms/Artillery Repairer
45K	Armament Repairer
52C	Utilities Equipment Repairer
52D	Power-Generation Equipment Repairer
62B	Construction Equipment Repairer
63A	M1 Abrams Tank System Maintainer
63B	Wheeled Vehicle Mechanic
63D	Artillery Mechanic
63H	Tracked Vehicle Repairer
63J	Quartermaster and Chemical Equipment Repairer
63M	Bradley Fighting Vehicle System Maintainer
68A	Biomedical Equipment Specialist
68D	Operating Room Specialist
68E	Dental Specialist
68G	Patient Administration Specialist
68H	Optical Laboratory Specialist
68J	Medical Logistics Specialist
68K	Medical Laboratory Specialist
68M	Nutrition Care Specialist
68P	Radiology Specialist
68Q	Pharmacy Specialist
68R	Veterinary Food Inspection Specialist
68S	Preventive Medicine Specialist
68T	Animal Care Specialist
68V	Respiratory Specialist
68W	Health Care Specialist
68X	Mental Health Specialist
74D	Chemical, Biological, Radiological, Nuclear Specialist
79R	Recruiter
79T	Recruiting and Retention NCO (ARNG)

Source: United States Army PERSCOM MOS Smart Book, <http://www.apd.army.mil/Home/Links/PDFFiles/MOS-Book.pdf>.

Table 5. Occupations that do not require citizenship: Army (continued)

Code	Name
79V	Retention and Transition NCO (USAR)
88H	Cargo Specialist
88K	Watercraft Operator
88L	Watercraft Engineer
88M	Motor Transport Operator
88N	Transportation Management Coordinator
88P	Railway Equipment Repairer
88T	Railway Section Repairer
88U	Railway Operations Crewmember
92A	Automated Logistical Specialist
92F	Petroleum Supply Specialist
92G	Food Service Specialist
92L	Petroleum Laboratory Specialist
92M	Mortuary Affairs Specialist
92R	Parachute Rigger
92S	Shower/Laundry and Clothing Repair Specialist
92W	Water Treatment Specialist
92Y	Unit Supply Specialist
94H	Test, Measurement, and Diagnostic Equipment Maintenance Support Specialist

Source: United States Army PERSCOM MOS Smart Book, <http://www.apd.army.mil/Home/Links/PDFFiles/MOS-Book.pdf>.

Table 6. Occupations that do not require citizenship: Navy

Code	Name
ABE	Aviation Boatswain's Mate - Equipment
ABF	Aviation Boatswain's Mate - Fuels
ABH	Aviation Boatswain's Mate - Handling
AD	Aviation Machinist Mate
AM	Aviation Structural Mechanic
AME	Aviation Structural Mechanic - Equipment
AS	Aviation Support Equipment Technician
BM	Boatswain's Mate
BU	Builder
CE	Construction Electrician
CM	Construction Mechanic
CS	Culinary Specialist
DC	Damage Controlman
EA	Engineering Aid
EM	Electricians Mate
EN	Engineman
EO	Equipment Operator
GSE	Gas Turbine Systems Technician - Electrical
GSM	Gas Turbine Systems Technician - Mechanical
HM	Hospital Corpsman
LS	Logistics Specialist
MM	Machinist Mate
MR	Machinery Repairman
MU	Musician
PR	Aircrew Survival Equipmentman
PS	Personnel Specialist
RP	Religious Program Specialist
SH	Ship's Serviceman
SW	Steelworker
UT	Utilitiesman

Source: United States Navy Personnel Command, Enlisted Community Management Branch, <http://www.public.navy.mil/bupers-npc/enlisted/community/Pages/default.aspx>.

Table 7. Occupations that do not require citizenship: Marine Corps

Code	Name
0121	Personnel Clerk
0151	Administrative Clerk
0311	Rifleman
0313	Light Armored Vehicle Crewman
0331	Machine Gunner
0341	Mortarman
0351	Infantry Assaultman
0352	Antitank Assault Guided Missileman
0411	Maintenance Management Specialist
0811	Field Artillery Cannoneer
1141	Electrician
1142	Electrical Equipment Repair Specialist
1161	Refrigeration Mechanic
1171	Hygiene Equipment Operator
1316	Metal Worker
1341	Engineer Equipment Mechanic
1345	Engineer Equipment Operator
1361	Engineer Assistant
1371	Combat Engineer
1391	Bulk Fuel Specialist
1812	M1A1 Tank Crewman
1833	Assault Amphibious Vehicle Crewman
1834	Expeditionary Fighting Vehicle Crewman
2131	Towed Artillery Systems Technician
2141	Assault Amphibious Vehicle Repairer/Technician
2146	Main Battle Tank Repairer/Technician
2147	Light Armored Vehicle Repairer/Technician
2148	Expeditionary Fighting Vehicle Repairer/Technician
2161	Machinist
3043	Supply Administration and Operations Clerk
3051	Warehouse Clerk
3052	Packaging Specialist
3112	Distribution Management Specialist
3361	Subsistence Supply Clerk

Source: Department of the Navy. *Military Occupational Specialties (MOS) Marine Corps Manual*. Marine Corps Order 1200.17, May 2008.

Table 7. Occupations that do not require citizenship: Marine Corps (continued)

Code	Name
3381	Food Service Specialist
3432	Finance Technician
3451	Financial Management Resource Analyst
3521	Automotive Organizational Mechanic
3531	Motor Vehicle Operator
3533	Logistics Vehicle System Operator
4133	Marine Corps Community Services Marine
4341	Combat Correspondent
4421	Legal Services Specialist
4612	Combat Camera Production Specialist
5524	Musician
5831	Correctional Specialist
6048	Flight Equipment Technician
6062	Aircraft Intermediate Level Hydraulic/Pneumatic Mechanic
6072	Aircraft Maintenance Supply Equipment Hydraulic/Pneumatic/Structures Mechanic
6073	Aircraft Maintenance Support Equipment Electrician/ Refrigeration Mechanic
6074	Cryogenics Equipment Operator
6092	Aircraft Intermediate Level Structures Mechanic
6111	Helicopter/Tiltrotor Mechanic-Trainee
6112	Helicopter Mechanic - CH-46
6113	Helicopter Mechanic - CH-53
6114	Helicopter Mechanic - UN/AH-1
6116	Tiltrotor Mechanic - MV-22
6122	Helicopter Power Plants Mechanic - T-58
6123	Helicopter Power Plants Mechanic - T-64
6124	Helicopter Power Plants Mechanic - T-400/T-700
6132	Helicopter/Tiltrotor Dynamic Components Mechanic
6152	Helicopter Airframe Mechanic - CH-46
6153	Helicopter Airframe Mechanic - CH-53
6154	Helicopter Airframe Mechanic - UN/AH-1
6156	Tiltrotor Airframe Mechanic - MV-22
6212	Fixed-Wing Aircraft Mechanic - AV-8/TAV-8
6213	Fixed-Wing Aircraft Mechanic - EA-6
6214	Unmanned Aerial Vehicle Mechanic
6216	Fixed-Wing Aircraft Mechanic - KC-130
6217	Fixed-Wing Aircraft Mechanic - F/A-18
6222	Fixed-Wing Aircraft Power Plants Mechanic - F-402

Source: Department of the Navy. *Military Occupational Specialties (MOS) Marine Corps Manual*. Marine Corps Order 1200.17, May 2008.

Table 7. Occupations that do not require citizenship: Marine Corps (continued)

Code	Name
6223	Fixed-Wing Aircraft Power Plants Mechanic - J-52
6226	Fixed-Wing Aircraft Power Plants Mechanic - T-56
6227	Fixed-wing Aircraft Power Plants Mechanic - F-404
6251	Fixed-Wing Aircraft Airframe Mechanic-Trainee
6252	Fixed-Wing Aircraft Airframe Mechanic - AV-8/TAV-8
6253	Fixed-Wing Aircraft Airframe Mechanic - EA-6
6256	Fixed-Wing Aircraft Airframe Mechanic - KC-130
6257	Fixed-Wing Aircraft Airframe Mechanic - F/A-18
6281	Fixed-Wing Aircraft Safety Equipment Mechanic- Trainee
6282	Fixed-Wing Aircraft Safety Equipment Mechanic - AV-8/TAV-8
6283	Fixed-Wing Aircraft Safety Equipment Mechanic - EA-6
6286	Fixed-Wing Aircraft Safety Equipment Mechanic - KC-130/V-22
6287	Fixed-Wing Aircraft Safety Equipment Mechanic - F/A-18
6672	Aviation Supply Clerk
7011	Expeditionary Airfield Systems Technician
7051	Aircraft Rescue and Firefighting Specialist
7314	Unmanned Aerial Vehicle Air Vehicle Operator

Source: Department of the Navy. *Military Occupational Specialties (MOS) Marine Corps Manual*. Marine Corps Order 1200.17, May 2008.

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Appendix E: Attrition analysis

In this appendix, we report the full comparison of demographic and service-related characteristics among non-citizen and citizen recruits in table 8. Tables 9 through 11 present our full attrition regression results.

Table 8. Characteristics of non-citizen and citizen recruits, FY99–FY08 accessions^a

Characteristic	Non-citizen recruits	Citizen recruits
Attrition		
3-month	4.0%	8.2% *
36-month	16.1%	28.4% *
48-month	18.2%	31.9% *
Race		
White	44.0%	79.3% *
Asian Pacific Islander	27.7%	2.7% *
Black	26.5%	16.9% *
Other	1.9%	1.2% *
Hispanic	31.5%	8.9% *
Female	19.4%	16.8% *
Married or dependents	17.9%	11.4% *
Age		
<=18	25.8%	37.0% *
19	18.5%	22.4% *
20-24	37.1%	33.5% *
25+	18.6%	7.1% *
Education		
Dropout	3.3%	3.1% *
GED	4.0%	8.4% *
High school diploma	81.4%	82.0% *
Adult education	4.0%	3.1% *
2 years of college +	7.2%	3.4% *
Tier I, AFQT<math>\geq 50	46.2%	59.6% *

Table 8. Characteristics of non-citizen and citizen recruits, FY99–FY08 accessions^a (continued)

Characteristic	Non-citizen recruits	Citizen recruits
Delayed Entry Program (DEP)	89.2%	88.8% *
DEP ≥ 3 months	51.3%	54.5% *
Waiver ^b		
Any	19.8%	27.3% *
Drug/alcohol (DA)	4.7%	7.7% *
DA test positive	0.3%	1.0% *
Serious	3.9%	8.7% *
Dependents	3.0%	1.7% *
Medical/physical	6.3%	7.7% *
Other	3.4%	4.1% *
Service branch		
USAF	10.8%	18.7% *
USA	39.7%	39.4%
USN	30.9%	22.9% *
USMC	18.6%	19.0% *
Accession trimester		
ONDJ	28.0%	27.6%
FMAM	28.6%	27.1% *
JJAS	43.4%	45.3% *
N (1,000s)	57.3	1,473.0
Percent of sample	3.7%	96.3%

a. * denotes a statistically significant difference at the 5-percent level.

b. Waiver types are not mutually exclusive since recruits can access with more than one waiver.

Table 9. Marginal effect on 3-month attrition (in percentage points)^a

Variable	Total	USAF	USA	USN	USMC
Non-citizen recruit	-3.0 *	-2.6 *	-3.0 *	-3.8 *	-2.7 *
Race					
Asian/Pacific Islander	-3.8 *	-3.5 *	-4.1 *	-4.0 *	-3.2 *
Black	-1.8 *	-1.8 *	-2.6 *	-1.6 *	-0.5 *
Other	-5.4 *	-5.1 *	14.1 *	-5.5 *	-7.7 *
Hispanic	-5.8 *	-5.4 *	-5.1 *	-6.9 *	-6.6 *
Female	5.1 *	3.3 *	6.8 *	3.5 *	5.7 *
Married, dependents	1.0 *	-0.4 *	1.1 *	1.2 *	2.9 *
Age					
19	0.6 *	0.5 *	0.2	0.8 *	1.0 *
20-24	0.9 *	0.7 *	0.3 *	1.0 *	1.5 *
25+	2.2 *	1.3 *	1.9 *	2.0 *	4.5 *
Education					
Dropout	-2.6 *	4.3 *	-5.3 *	2.0 *	5.6 *
GED	1.6 *	1.9 *	2.3 *	2.3 *	3.6 *
Adult education	0.9 *	1.2 *	1.2 *	0.9 *	0.6 *
2 years of college+	-2.9 *	-2.7 *	-3.3 *	-2.7 *	-1.6 *
Tier I, AFQT \geq 50	-2.1 *	-1.7 *	-1.8 *	-2.9 *	-2.0 *
Enlistment waiver					
Drug/alcohol (DA)	0.1	-1.1	-0.7	-0.5	0.2
DA test positive	-0.4	13.2	-1.7 *	3.8 *	1.0 *
Serious	-0.9 *	-0.9 *	-1.9 *	0.4 *	-0.3
Dependents	0.6 *	1.0 *	-0.8 *	0.7 *	0.1
Medical/physical	1.4 *	0.7 *	1.4 *	1.8 *	1.7 *
Other	1.1 *	0.2	0.3	0.9 *	0.6 *
Delayed Entry Program (DEP)	0.1	0.6 *	0.0	-0.7 *	-0.8 *
DEP \geq 3 months	-1.0 *	-1.3 *	-0.9 *	-1.9 *	-1.3 *
Service branch					
USAF	-1.3 *	--	--	--	--
USN	2.2 *	--	--	--	--
USMC	1.2 *	--	--	--	--
Accession trimester					
FMAM	0.8 *	0.4 *	1.1 *	0.3 *	0.5 *
JJAS	-0.7 *	0.1	-0.5 *	-0.7 *	-1.0 *
Accession fiscal year					

Table 9. Marginal effect on 3-month attrition (in percentage points)^a (continued)

Variable	Total	USAF	USA	USN	USMC
2000	-2.0 *	-1.7 *	-6.9 *	-2.1 *	0.2
2001	-3.0 *	-4.5 *	-7.3 *	-3.2 *	0.2
2002	-3.5 *	-5.2 *	-7.7 *	-4.4 *	1.2 *
2003	-3.1 *	-3.6 *	-7.1 *	-3.6 *	-0.6 *
2004	-2.1 *	-2.6 *	-5.1 *	-4.1 *	-0.5 *
2005	-3.6 *	-1.6 *	-8.7 *	-3.5 *	-1.5 *
2006	-5.1 *	-1.2 *	-12.8 *	-3.2 *	-0.5 *
2007	-4.1 *	1.5 *	-11.8 *	-2.6 *	-1.3 *
2008	-3.9 *	-1.5 *	-9.8 *	-1.7 *	-2.1 *
N (1,000s)	1,530.0	281.6	602.9	354.6	291.0

a. * denotes statistical significance at the 5-percent level.

Table 10. Marginal effect on 36-month attrition (in percentage points)^a

Variable	Total	USAF	USA	USN	USMC
Non-citizen recruit	-8.9 *	-7.9 *	-9.3 *	-11.4 *	-5.6 *
Race					
Asian/Pacific Islander	-9.3 *	-9.1 *	-10.6 *	-8.9 *	-7.0 *
Black	-1.9 *	-0.7 *	-4.1 *	-0.5 *	-1.8 *
Other	-11.8 *	-12.9 *	3.7	-8.3 *	-15.7 *
Hispanic	-10.0 *	-12.2 *	-9.3 *	-9.1 *	-11.9 *
Female	12.7 *	7.0 *	21.4 *	4.9 *	10.9 *
Married, dependents	1.9 *	-3.1 *	3.2 *	1.2 *	2.5 *
Age					
19	-0.2	-0.6 *	-0.6 *	-0.4 *	0.6 *
20-24	-1.8 *	-3.0 *	-2.5 *	-1.9 *	0.1
25+	-0.9 *	-4.4 *	-1.5 *	-1.0 *	4.0 *
Education					
Dropout	-0.6 *	-5.6	-6.6 *	10.3 *	10.7 *
GED	8.3 *	6.7 *	10.4 *	11.6 *	7.1 *
Adult education	5.5 *	-5.0 *	6.1 *	8.6 *	1.8 *
2 years of college+	-7.3 *	-6.0 *	-9.0 *	-6.7 *	-6.4 *
Tier I, AFQT \geq 50	-4.9 *	-5.5 *	-3.9 *	-5.7 *	-4.8 *
Enlistment waiver					
Drug/alcohol (DA)	2.8 *	-1.2	1.1	2.6 *	2.4 *
DA test positive	8.5 *	5.1	8.5 *	16.5 *	7.5 *
Serious	2.8 *	2.7 *	0.6 *	6.0 *	2.3 *
Dependents	0.5	1.8	-4.5 *	1.0	1.2 *
Medical/physical	0.9 *	-0.2	0.3	0.8 *	2.1 *
Other	4.6 *	2.9 *	2.5 *	4.2 *	1.4 *
Delayed Entry Program (DEP)	-2.5 *	-2.4 *	-2.5 *	-3.7 *	-2.6 *
DEP \geq 3 months	-5.1 *	-4.7 *	-5.2 *	-7.6 *	-4.4 *
Service branch					
USAF	-5.4 *	--	--	--	--
USN	-1.0 *	--	--	--	--
USMC	-8.9 *	--	--	--	--
Accession trimester					
FMAM	0.0	0.5 *	-0.9 *	0.4 *	0.0
JJAS	-2.4 *	-0.8 *	-3.8 *	-1.2 *	-1.8 *
Accession fiscal year					

Table 10. Marginal effect on 36-month attrition (in percentage points)^a (continued)

Variable	Total	USAF	USA	USN	USMC
2000	-1.7 *	-1.8 *	-4.9 *	-2.7 *	-0.5
2001	-3.4 *	-3.8 *	-7.6 *	-4.3 *	-1.7 *
2002	-3.3 *	0.3	-8.9 *	-4.9 *	-1.1 *
2003	-2.2 *	0.8 *	-7.0 *	-2.3 *	-2.6 *
2004	-2.0 *	0.7	-6.2 *	-3.0 *	-2.7 *
2005	-5.2 *	-0.6	-12.4 *	-3.2 *	-3.3 *
2006	-7.4 *	-1.5 *	-16.3 *	-4.4 *	-3.8 *
2007	-7.3 *	0.3	-16.2 *	-5.4 *	-4.4 *
N (1,000s)	1,321.2	245.4	517.4	313.8	244.5

a. * denotes statistical significance at the 5-percent level.

Table 11. Marginal effect on 48-month attrition (in percentage points)^a

Variable	Total	USAF	USA	USN	USMC
Non-citizen recruit	-9.9 *	-8.3 *	-10.1 *	-12.9 *	-6.3 *
Race					
Asian/Pacific Islander	-10.2 *	-10.6 *	-11.3 *	-10.2 *	-7.7 *
Black	-1.0 *	-0.7 *	-3.9 *	0.3	-0.4
Other	-14.0 *	-14.9 *	13.3	-11.0 *	-16.1 *
Hispanic	-10.5 *	-12.3 *	-9.5 *	-9.5 *	-12.2 *
Female	12.4 *	7.5 *	24.0 *	5.0 *	10.4
Married, dependents	1.8 *	-3.5 *	3.8 *	1.6 *	2.5
Age					
19	-0.2	-0.5 *	-0.4	-0.7 *	0.2
20-24	-2.0 *	-3.1 *	-2.5 *	-2.2 *	-0.2
25+	-1.1 *	-5.3 *	-1.6 *	-1.5 *	3.6 *
Education					
Dropout	0.0	-3.5	-6.5 *	10.8 *	12.8 *
GED	10.0 *	8.1 *	12.0 *	12.6 *	7.6 *
Adult education	6.0 *	-6.3 *	7.0 *	9.9 *	1.7 *
2 years of college+	-7.5 *	-6.7 *	-9.3 *	-7.5 *	-7.9 *
Tier I, AFQT \geq 50	-5.2 *	-5.4 *	-3.1 *	-6.0 *	-5.3 *
Enlistment waiver					
Drug/alcohol (DA)	3.7 *	-2.3	3.4 *	3.2 *	3.2 *
DA test positive	11.7 *	7.3	11.3 *	17.8 *	10.8 *
Serious	4.4 *	3.6 *	1.7 *	6.6 *	3.4 *
Dependents	1.0 *	1.7	-5.6 *	1.0	1.8 *
Medical/physical	1.1 *	-0.7	0.5	0.8 *	2.4 *
Other	5.0 *	3.0 *	2.7 *	4.6 *	2.1 *
Delayed Entry Program (DEP)	-3.4 *	-3.1 *	-3.2 *	-4.1 *	-2.9 *
DEP \geq 3 months	-5.7 *	-5.1 *	-5.9 *	-8.2 *	-4.7 *
Service branch					
USAF	-6.3 *	--	--	--	--
USN	-2.6 *	--	--	--	--
USMC	-12.2 *	--	--	--	--
Accession trimester					
FMAM	0.0	0.5 *	-0.8 *	0.4	0.0
JJAS	-2.3 *	-1.3 *	-3.5 *	-1.6 *	-1.6 *
Accession fiscal year					

Table 11. Marginal effect on 48-month attrition (in percentage points)^a (continued)

Variable	Total	USAF	USA	USN	USMC
2000	-1.5 *	-1.5 *	-4.9 *	-2.3 *	-0.9 *
2001	-2.0 *	-0.6	-6.5 *	-3.2 *	-1.8 *
2002	-1.6 *	2.0 *	-7.4 *	-3.3 *	-1.2 *
2003	-1.0 *	1.0 *	-6.4 *	0.3	-2.7 *
2004	-1.5 *	0.9 *	-6.2 *	-1.8 *	-3.1 *
2005	-4.4 *	-0.8	-12.4 *	-2.5 *	-3.7 *
2006	-6.1 *	-2.0 *	-15.5 *	-3.6 *	-4.0 *
N (1,000s)	1,006.6	218.5	290.1	283.1	214.9

a. * denotes statistical significance at the 5-percent level.

Appendix F: Citizenship analysis

In this appendix, we report the full comparison of demographic and service-related characteristics among non-citizen recruits who do and do not attain citizenship during our sample period (table 12) as well as our full citizenship attainment and time-to-citizenship regression results (tables 13 through 15).

Table 12. Characteristics of non-citizen recruits by citizenship attainment, FY99-FY08 accessions^a

Characteristic	Attained citizenship	Did not attain citizenship
Race		
White	41.2%	46.1% *
Asian Pacific Islander	29.6%	26.2% *
Black	26.8%	26.2%
Other	2.3%	1.5% *
Hispanic	28.9%	33.6% *
Female	22.1%	17.2% *
Married or dependents	19.2%	16.8% *
Age		
<=18	24.7%	26.6% *
19	17.3%	19.4% *
20-24	37.6%	36.7% *
25+	20.4%	17.3% *
Education		
Dropout	2.9%	3.6% *
GED	3.0%	4.8% *
High school diploma	81.5%	81.4%
Adult education	3.5%	4.5% *
2 years of college +	9.1%	5.8% *
Tier I, AFQT>=50	50.4%	43.0% *
Service branch		
USAF	19.7%	3.9% *
USA	35.8%	42.7% *
USN	29.2%	32.2% *
USMC	15.3%	21.2% *
Accession trimester		
ONDJ	28.7%	27.4% *
FMAM	29.2%	28.1% *
JJAS	42.1%	44.5% *
N (1,000s)	25.1	32.3 *
Percent of sample	43.8%	56.2% *

a. * denotes a statistically significant difference at the 5 percent level.

Table 13. Marginal effect on citizenship attainment (in percentage points)^a

Variable	Total	USAF	USA	USN	USMC
Race					
Asian/Pacific Islander	5.1 *	9.2 *	3.9 *	2.7 *	4.4 *
Black	3.6 *	6.3 *	0.8	3.1 *	6.0 *
Other	5.6 *	11.5 *	--	1.7	8.7
Hispanic	1.5 *	7.3 *	-0.9	-0.6	3.1 *
Female	5.0 *	1.3	4.1 *	7.5 *	5.5 *
Married, dependents	3.1 *	5.9 *	3.4 *	2.0	5.6 *
Age					
19	-1.6 *	0.1	-3.1 *	-0.5	-1.4
20-24	1.5 *	1.8	-2.3 *	4.5 *	2.4 *
25+	5.8 *	3.8	0.7	12.7 *	4.0
Education					
Dropout	2.0	-24.2	6.6 *	-4.2	5.7
GED	-3.2 *	-9.1	-2.6 *	-7.6 *	-2.3
Adult education	-2.0	5.1	-1.0	-3.9 *	-1.1
2 years of college+	7.8 *	7.8 *	7.6 *	8.4 *	10.5 *
Tier I, AFQT≥50	2.4 *	-1.8	1.8 *	2.5 *	4.4 *
Service branch					
USAF	40.8 *	--	--	--	--
USN	2.5 *	--	--	--	--
USMC	0.4	--	--	--	--
Accession trimester					
FMAM	-0.8	0.0	0.1	-1.3	-2.6 *
JJAS	-0.3	1.3	1.9 *	-2.1 *	-2.7 *
Accession fiscal year					
2000	1.5	3.5	5.0 *	1.3	-1.1
2001	4.6 *	12.8 *	5.4 *	6.0 *	1.7
2002	4.1 *	11.6 *	9.1 *	6.5 *	-8.5 *
2003	7.3 *	10.9 *	18.1 *	9.2 *	-13.3 *
2004	4.5 *	17.5 *	7.8 *	10.0 *	-9.8 *
2005	2.5 *	13.4 *	7.1 *	6.5 *	-12.4 *
2006	0.1	14.4 *	6.9 *	-1.1	-14.5 *
2007	-7.7 *	6.7 *	-3.6 *	-3.5 *	-22.9 *
2008	-13.3 *	-0.8	-10.0 *	-7.6 *	-28.2 *
N (1,000s)	57.3	6.2	22.7	17.7	10.7

a. * denotes statistical significance at the 5 percent level.

Table 14. Marginal effect on time-to-citizenship (in quarters)^a

Variable	Total	USAF	USA	USN	USMC
Race					
Asian/Pacific Islander	0.7 *	0.2	0.4	2.0 *	0.6
Black	1.4 *	0.9 *	1.8 *	1.6 *	2.9 *
Other	0.5	0.2	--	1.5 *	0.4
Hispanic	1.5 *	1.0 *	1.9 *	1.4 *	2.9 *
Female	-0.1	-0.4 *	-0.3	0.0	1.8 *
Married, dependents	0.1	-0.5 *	0.5 *	0.3	-0.2
Age					
19	0.1	0.3	0.1	-0.2	0.3
20-24	0.7 *	0.7 *	0.5	0.6 *	1.1 *
25+	0.7 *	0.2	0.9 *	0.2	0.7
Education					
Dropout	-0.2	-3.4	-2.3 *	1.7 *	-5.8
GED	-0.6 *	1.3	-0.5	-0.1	-1.1
Adult education	-0.6 *	-0.5	-0.2	-0.8	-0.9
2 years of college+	-0.9 *	-1.1 *	-0.5	-1.0 *	-0.8
Tier I, AFQT \geq 50	-0.4 *	-0.1	0.0	-0.7 *	-0.4
Service branch					
USAF	0.9 *	--	--	--	--
USN	3.5 *	--	--	--	--
USMC	-0.5 *	--	--	--	--
Accession trimester					
FMAM	-0.4 *	-0.8 *	-0.7 *	-0.4	0.8 *
JJAS	-0.9 *	-0.7 *	-1.5 *	-0.9 *	0.1
Accession fiscal year					
2000	-2.3 *	-1.0 *	-4.3 *	-3.2 *	-0.1
2001	-4.6 *	-4.3 *	-5.1 *	-7.0 *	-1.5 *
2002	-5.3 *	-3.0 *	-7.6 *	-8.5 *	-0.4
2003	-7.1 *	-4.3 *	-10.8 *	-10.0 *	1.1 *
2004	-7.5 *	-4.9 *	-9.6 *	-12.5 *	0.2
2005	-7.9 *	-4.6 *	-11.0 *	-12.0 *	0.5
2006	-8.3 *	-5.3 *	-11.4 *	-12.5 *	-0.1
2007	-9.1 *	-6.1 *	-11.7 *	-13.7 *	-1.7 *
2008	-11.3 *	-8.5 *	-13.5 *	-16.1 *	-3.6 *
N (1,000s)	25.1	5.0	9.0	7.3	3.8

a. * denotes statistical significance at the 5 percent level.

Table 15. Marginal effect on time-to-citizenship, post-FY02 accessions (in quarters)^a

Variable	Total	USAF	USA	USN	USMC
Race					
Asian/Pacific Islander	0.3 *	-0.1	-0.3	1.5 *	0.6
Black	0.8 *	0.2	1.0 *	1.1 *	1.4 *
Other	0.4	-0.4	--	1.0 *	0.5
Hispanic	1.1 *	0.8 *	1.1 *	1.0 *	2.6 *
Female	-0.2	-0.3	-0.3	-0.1	0.4
Married, dependents	0.4 *	-0.3	0.6 *	0.2	0.5
Age					
19	0.2	0.4	-0.4	-0.1	1.0 *
20-24	0.6 *	0.7 *	0.4	0.3	1.0 *
25+	0.5 *	0.3	0.6	0.1	0.3
Education					
Dropout	1.9 *	-4.4	-1.5	2.3 *	-5.9
GED	0.0	3.2	0.2	-0.3	-1.3
Adult education	-0.1	4.8	0.1	-0.2	-0.8
2 years of college+	-0.3	-1.0 *	-0.1	-0.5	-0.7
Tier I, AFQT \geq 50	-0.3 *	-0.2	0.3	-0.8 *	-0.4
Service branch					
USAF	2.2 *	--	--	--	--
USN	2.9 *	--	--	--	--
USMC	3.1 *	--	--	--	--
Accession trimester					
FMAM	-0.7 *	-0.3	-1.4 *	-0.4	0.7
JJAS	-1.0 *	-0.5 *	-2.3 *	-0.4	0.4
Accession fiscal year					
2004	-0.4 *	-0.6 *	1.2 *	-2.4 *	-0.9 *
2005	-0.7 *	-0.3	-0.2	-2.0 *	-0.7
2006	-1.3 *	-1.1 *	-0.6 *	-2.4 *	-1.2 *
2007	-2.1 *	-1.9 *	-1.1 *	-3.6 *	-2.8 *
2008	-4.3 *	-4.2 *	-2.8 *	-6.0 *	-4.6 *
N (1,000s)	13.7	2.8	5.2	4.0	1.7

a. * denotes statistical significance at the 5 percent level.

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