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Tracking Outcomes of Voluntary Education Programs: Characterizing Tuition Assistance Users and Their Outcomes

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Abstract

In this report, we use individual-level data provided by each of the Services, Force Education and Training, and the Defense Manpower Data Center to estimate whether individual Servicemembers use Tuition Assistance (TA) and whether they are among the Services' more active TA users. In addition, we analyze which military and demographic characteristics are important in determining whether a Servicemember experiences a positive TA outcome (defined as attaining any degree, attaining a bachelor's degree or higher, and/or having a high course completion rate). Ultimately, by identifying those subpopulations of Servicemembers who are among the Services' more active TA users but also are among the least likely to experience positive TA outcomes, we identify those groups that might benefit from targeted counseling efforts. Such discussions could prepare Servicemembers for the challenges that lie ahead, making their ultimate success more likely.

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Cover image credit: Twenty years after his high school graduation, SFC Joshua Moon, an Army reservist from Beech Grove, Tennessee, graduated with an associate of science degree from Motlow State Community College. Deployed to Afghanistan in support of Operation Enduring Freedom, Moon was able to complete his degree with help from the Army's Tuition Assistance program and the handful of education counselors currently deployed to Afghanistan to support soldiers' educational needs.
(Photo Credit: SGT Marc Loi)

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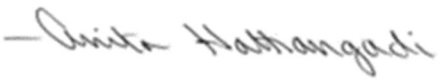

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Executive Summary

Tuition Assistance (TA) is the primary education benefit that the Department of Defense (DOD) provides to Servicemembers to ease the financial burdens and academic readiness hurdles of continuing education while in service. The 2014 DOD Appropriations Bill mandated a study tracking outcomes for those who receive TA. A number of metrics were requested, both aggregated and at the educational-sector level (public, private for-profit, or private not-for-profit). In a previous report, we presented tables containing all of the requested statistics necessary to satisfy the congressional requirement, and we discussed some revealing differences across Services and over time.

That report did not, however, analyze the potential reasons behind the trends and differences we observed. This report fills that gap; we conduct empirical analysis to determine the military and demographic characteristics that are associated with TA use and positive education outcomes from TA use (e.g., attaining any degree, attaining a bachelor's degree or higher, attaining a high course completion rate). We then use these findings to highlight subpopulations that could benefit from targeted counseling—namely, those who are using TA at higher rates than their counterparts but are among those who are less likely to experience positive TA outcomes. We recognize that other outcomes are important in evaluating the overall success of the TA program, such as longer term employment outcomes and how Servicemembers use the education attained through TA to enhance their post-service lives. Such questions, however, were beyond the scope of this effort.

Servicemembers who are more likely to *use* TA but less likely to experience positive TA outcomes include the following groups:

- Those in the E1-E3 paygrades
- Enlisted female Servicemembers with three or more dependents
- Black Servicemembers (both officers and enlisted)
- Hispanic officers
- Servicemembers taking most of their courses in the public sector

We find that TA use among these Servicemembers is high, suggesting that they do not lack the *desire* for additional education but could use guidance in how to navigate the educational system and balance their educational and other goals.

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Glossary

ACES	Army Continuing Education System
ADMF	Active Duty Master File
CCAF	Community College of the Air Force
DMDC	Defense Manpower Data Center
DOD	Department of Defense
E-O	Enlisted to Officer
FY	Fiscal Year
GED	General Educational Development
IPEDS	Integrated Postsecondary Education Data System
NEC	Navy Enlisted Classification
OPE	Office of Postsecondary Education
PFP	Private For-Profit
PNFP	Private Not-For-Profit
PUB	Public
TA	Tuition Assistance

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Introduction

The Department of Defense (DOD) provides educational benefits to Servicemembers. DOD's primary program for easing the financial burdens and academic readiness hurdles of continuing education while in service is Tuition Assistance (TA). Per DOD policy, all Services can provide the same TA benefits: up to $250 per semester credit hour up to a maximum of $4,500 in tuition per fiscal year (FY).[1] Although TA users primarily pursue associate or bachelor's degrees, TA funds also can be used for coursework to obtain a high school diploma, certificate, or master's degree [1-2]. TA is available to active-component Servicemembers and reservists who meet the Services' eligibility requirements.

The 2014 DOD Appropriations Bill mandated a study tracking the outcomes of those who receive TA. Specifically, the bill stated:

> The Committee is concerned about the lack of information available on the outcomes of students receiving Tuition Assistance…benefits. Therefore, the Committee directs the Department to submit a report tracking such outcomes of each of these programs. [3, p. 34]

A number of metrics were requested, both aggregated and at the educational-sector levels of public, private for-profit, and private not-for-profit. The metrics requested included the graduation rate, the number of program participants, the number of courses taken per participant, the course completion rate (defined as the percentage of courses successfully completed), and the average cost per course (both to the TA program and to Servicemembers/spouses). In addition, the 2014 DOD Appropriations Bill requested a report on the percentage of Servicemembers using Top-Up[2] and the average dollar amounts of Top-Up use by FY. In a previous report, we presented tables containing all of the requested statistics necessary to satisfy the congressional requirement and discussed some revealing differences across Services and over time [6].

[1] Beginning in FY14, the Army limits were more restrictive: a maximum of $4,000 per year.

[2] Top-Up is a provision in the GI Bill that allows Servicemembers to use TA and GI Bill benefits simultaneously so that they do not have to take out loans for any tuition or fees that exceed the TA maximums [4-5].

In this report, we go one step further and discuss how individual Servicemember characteristics (gender, race/ethnicity, occupation, paygrade, marital status, etc.) are related to TA use and "positive" TA outcomes (e.g., attaining any degree). Using these results, we then provide information on groups that could potentially benefit from further counseling to ensure that they are using TA efficiently to achieve their desired educational goals.

The remainder of this report is organized as follows. In the next section, we summarize the relevant literature related to TA user characteristics and TA outcomes. Next, we review our data sources and analytical methodology. Then, we present the relationships between Servicemember characteristics and the outcomes of interest, one metric at a time. Within the section for each metric, we include findings for Servicemembers in the Army, Navy, Air Force, and Marine Corps, both individually and combined across the four Services. We conclude by providing recommendations for policy-makers based on the results from our analysis.

A Synthesis of the Relevant Literature

DOD provides education benefits to Servicemembers and their spouses to ease the financial burdens and academic readiness hurdles of continuing their higher education while in service. Tuition Assistance provides an annual maximum of 16 semester credit hours and $4,500 in tuition and fees to active-component Servicemembers and some reservists.[3] TA can be used for certificates, as well as for associate, bachelor's, and master's degrees [1-2].

Aside from the obvious benefits to the Servicemember, there is evidence that, in general, TA programs can be useful to DOD as well. Specifically, TA programs have been beneficial in recruiting higher quality personnel, although the evidence on TA's retention benefits is mixed. In addition, there is little current research on the educational and financial outcomes of TA users. A previous CNA report summarized the current TA literature—including research on these programs' use and outcomes [7]. Because few studies have focused on these programs, the previous report also explored the civilian higher education literature to better understand potential educational outcomes for TA users. In doing so, the previous report provided the relevant background information needed for the quantitative portion of this study, in which we collect and analyze data on educational outcomes of TA users.

In general, college graduates experience numerous benefits—namely, increased earnings potential, higher employment rates, and an increased quality of life [8-10]. Therefore, college usually is worth its cost, except in cases where students:

- Fail to receive their degrees (noncompletions) [8-9, 11-12]
- Fail to find jobs commensurate with their abilities (underemployment) [13-15]
- Take on more debt than their future incomes warrant (excessive debt) [8]

We expect that the aforementioned reasons why college may fail to be worth its cost for civilian students also will apply to TA users.

Variation across educational sectors in students' outcomes is important and substantive; in general, civilian students in the for-profit sector have the poorest outcomes (e.g., lowest graduation rates) [8].[4] In addition, for-profit institutions are

[3] Beginning in FY14, the Army reduced its annual funding limit from $4,500 to $4,000.

[4] The civilian literature's findings of poorer outcomes at for-profits are contradictory to what we find for Servicemembers later in this report. We find that those taking TA courses in the private

more popular among TA users than civilian college students [16-17], and TA users spend more at for-profits than at public or private institutions [18]. For-profits account for slightly less than half of TA users (45 percent) and courses (48 percent) but more than half of TA funds (52 percent) [18]. The popularity of for-profits among TA users is a potential concern because for-profits historically have substantially higher noncompletion rates and higher proportions of students and alumni with excessive debt [8].[5] Specifically:

- Noncompletion rates at for-profits are 85.2 percent. (For comparison, noncompletion rates at public and private institutions are 38.5 percent and 29.3 percent, respectively [8].)

- Mean debt of bachelor's degree recipients at for-profits is $45,042. (For comparison, mean debt of bachelor's degree recipients at public and private institutions is $12,922 and $18,700, respectively [8].)

These higher debt levels are especially noteworthy and of possibly great consequence because of the increased variance in college graduates' earnings *and* debt levels we have experienced since the 1960s, as discussed in our literature review [7]. The variance of both earnings and debt has increased over the past six decades, making college more financially worthwhile for some (because they ultimately have relatively higher earnings) but no longer financially worthwhile for others (because they have relatively higher debt). For those who experience bouts of underemployment, do not complete their degrees, or have more debt than their future incomes can support, college can, in fact, be a poor investment.

Despite their potentially poorer outcomes, for-profits may offer TA users options that they are not offered at public or private not-for-profit institutions—specifically, distance learning options and the ability to pursue a full-time courseload (even while working full-time). The for-profits have tailored their educational services around being able to provide these options to their students, including TA users [19-22]. Therefore, for-profit sector outcomes for TA users might not be consistent with those of civilian users because for-profit institutions provide flexibility for TA users that many traditional postsecondary education programs do not.

for-profit sector at times have better outcomes (to include degree attainment and course completion) than their counterparts in other sectors. It is unclear whether other outcomes, such as earnings and debt levels, are better for those attending for-profit institutions; we were unable to obtain the necessary data to evaluate differences in debt levels, and an earnings analysis was outside the scope of this effort.

[5] Noncompletion in this context represents the failure to obtain a degree. That is, it is the converse of graduation. Later in this report, when we present the findings from our analysis, we discuss and refer to completion in the positive—in terms of course completion.

For several reasons, though, we might expect that TA users will be less likely than typical civilian college students to graduate from college (while using TA) and, therefore, will be less likely to experience the associated benefits of a college degree. First, TA users are nontraditional students: they enroll part-time, are older at enrollment than traditional students, and require distance learning options. A nontraditional student is less likely (than the average student) to graduate with a bachelor's degree [23]. Second, TA is disproportionately used at for-profits [16-17]. The students of for-profit institutions are substantially less likely to graduate with bachelor's degrees compared with those in other education sectors [8]. Third, compared with society at large, Servicemembers are more likely to be racial/ethnic minorities. Racial/ethnic minorities are less likely (on average) to graduate with bachelor's degrees [24]. Although these findings suggest that TA users will be less likely to graduate with bachelor's degrees than other, more traditional college students, no previous studies have determined whether this is actually the case. The empirical phase of this study attempts to answer this question.

In the first empirical phase of this study, we provided summary statistics on the number of TA participants, TA costs, the number of TA courses taken, the number of TA credits earned, TA course completion rates, and TA graduation rates [6]. We reported these summary statistics by sector for each Service and for DOD overall; they ultimately became part of a congressional report. We summarize our findings from that effort in the remainder of this section.

There are a few important caveats regarding the comparability of numbers across the Services. First, management controls, which vary by Service, often limit the number of courses that a Servicemember can take, especially in his or her first year. As a result, the average number of courses taken per Servicemember might not be directly comparable across the Services since the limits on first-year or later courses vary by Service. Second, Army and Air Force data contained specific fields for certificates and for degree types, whereas the Navy and Marine Corps data had free entry fields for the type and/or level of degree earned. The Navy and Marine Corps, therefore, include degrees at a wider range of levels. Third, the Army has noted that there are discrepancies between the Army data that we report and similar data generated by the Army Continuing Education System (ACES). The ACES data include all grades officially submitted, whereas, if the same course is taken on multiple dates, we keep the dates associated with the course for which the Servicemember received the highest grade.[6] If, however, a grade was later lowered—resulting in multiple grades for the same course—and the more recent entry was the correct entry, our data would not accurately reflect that change. Finally, our TA data do not include students who take courses

[6] If the Servicemember took the same course on multiple dates, and received the same grade, we keep the dates associated with the first time the course was taken.

solely through the Community College of the Air Force (CCAF), the Army War College, the Naval Postgraduate School, or other Service-provided institutions. Airmen are able to take CCAF courses free of charge and, as such, do not use TA to fund their course enrollments. CCAF course completions, degree completions, and other metrics are thus not part of the TA data provided throughout this report [6].[7]

With these caveats in mind, the following general findings emerged from our analysis of Servicemembers' TA use, as presented in our previous report [6]:

- The Army had the highest number of TA participants, followed by the Air Force, Navy, and Marine Corps [6].
- TA costs were fairly similar across the four Services, although generally higher at both types of private institutions (profit and not-for-profit) than at public institutions [6].
- In recent years, participants have taken fewer courses at public institutions than at both types of private institutions, and first-year TA users took fewer courses than their later-year counterparts [6].
- Similar findings emerge in our analysis of the number of credits earned per participant, the number of courses completed, course completion rates, the number of degrees completed, and the graduation rate.[8] That is, all are higher at both types of private institutions than at public institutions and lower among first-year TA users than their later-year counterparts [6].
- Course completion rates are slightly higher in the Air Force and Marine Corps than in the Army or Navy; in fact, course completion rates were highest in the Air Force in each educational sector [6]. Exploring *why* these differences exist by Service was beyond the scope of this effort.

Note that these are only summary statistics and do not control for differences in participants' characteristics or in the quality of institutions attended. In this report, in which we characterize both Servicemembers who use TA and those who ultimately graduate, we parse out such differences. This is important for determining the appropriate policy response, if any. For example, if differences in TA use or TA outcomes (such as course completion and graduation) are primarily determined by

[7] CCAF students would, however, be included in the data if they started their education at another institution, using TA benefits, and then transferred those credits to CCAF (or conversely, started at CCAF and then transferred to another institution and used TA benefits).

[8] Although we have focused solely on education outcomes, there are other important outcomes in evaluating the overall success of the TA program, such as employment and how Servicemembers use the education attained through TA to enhance their post-service lives. Such questions, however, were beyond the scope of this effort.

differences in participants' demographic characteristics (such as race, ethnicity, and gender), there is a less clear policy response than if TA outcomes are primarily determined by the educational sector in which the Servicemember took courses.

Data and Methodology

Our primary analytic objectives are to (1) characterize TA users and how they differ from their non-TA-using counterparts, (2) estimate the likelihood of positive outcomes for TA users (such as attaining any degree, attaining a bachelor's degree or higher, and attaining a high course completion rate[9]), and (3) identify any at-risk subpopulations of TA users who might benefit from counseling services. These analyses are limited to active-duty Servicemembers and rely on two types of data: Service-provided TA data and the Defense Manpower Data Center's (DMDC's) Active Duty Master File (ADMF). In this section, we discuss each of these data sources and how they were combined to inform our overall methodology.

TA data and caveats

The Services' TA data contained information on all courses taken and degrees earned by Servicemembers (both officers and enlisted) receiving TA from FY99 through FY15. These data required substantial cleaning to be in a uniform, usable format; Appendix A contains the full details of this data cleaning. Using the Services' TA data, we assigned each Servicemember's course and degree data to one of four educational sectors: public, private not-for-profit, private for-profit, and other. Navy, Air Force, and Marine Corps data listed institutions in each of the public, private not-for-profit, and private for-profit sectors, but the Army did not differentiate between the private not-for-profit and private for-profit sectors in its data. Therefore, we standardized sectors in the Army data using data from the other Services and from the Integrated Postsecondary Education Data System (IPEDS). If two or more other Services listed a private institution's corresponding sector and there was no disagreement between Services, the Army data were updated to reflect the sector in the other Services. If an institution was listed in only one other Service's data or if any Service disagreed on the sector to which an institution belonged, the sector was verified using historical IPEDS data and/or the IPEDS College Navigator [25].[10] Over 4,400 institution names did not have a sector listed in any of the four Services' files; these were left as "other or unknown sector."[11] Using these data, we created the variables needed to define the TA-

[9] The course completion rate is defined as the percentage of courses successfully completed.

[10] Correspondence with IPEDS staff revealed that all Everest colleges and institutes changed from private for-profit to private not-for-profit during the 2014/2015 academic year. We are unaware of any other institutions making this switch or the reverse.

[11] Since some names on this list are alternative spellings, abbreviations, or misspellings of other ones, the 4,400 names correspond to many fewer actual institutions.

using population and to estimate the probability that any TA-using Servicemember achieves positive educational outcomes. Namely, for all Servicemembers, we identified:

- Whether they used TA in a given year
- Whether they were a "super user" in a given year, defined as taking at least the median level of credits or the median level of courses in their Service for a given year
- Whether they were a "consecutive user" in a given year, defined as taking at least one course for at least two consecutive years
- Whether they earned any degree by FY15, given that they had previously used TA
- Whether they earned a bachelor's degree or higher by FY15, given that they had previously used TA
- Their overall course completion rate

These ultimately became our six dependent variables, and their summary statistics are shown in Table 1. Our analysis focuses on identifying which demographic and military characteristics are most important in determining whether a Servicemember uses TA, and—for TA users—whether they were super users, consecutive users, earned any degree by FY15, or earned a bachelor's degree or higher by FY15.[12] The same estimation strategy (discussed at greater length later in this section) is used to identify the determinants of TA users' overall course completion rates. Note that our data capture only degree completions that happen while in service. Servicemembers who take some courses using TA and then finish their degrees using the GI Bill after transitioning from service (or using other financing means) are marked as "noncompletions" in our data. We have no way of observing degrees earned outside the TA program.

Table 1. Summary statistics of TA use indicators and outcomes, FY99-FY15

Variable	Status	Statistic	Army	Navy	Marine Corps	Air Force	DOD
TA use	Enlisted	Mean	46%	47%	46%	55%	49%
		Std. dev.	50%	50%	50%	50%	50%
		Sample size	2,750,157	1,409,530	734,454	2,130,980	7,025,121
	Officers	Mean	20%	23%	25%	30%	25%
		Std. dev.	40%	42%	43%	46%	43%

[12] We separately estimate the determinants of being a user, a consecutive user, and a super user because we observe that consecutive users and super users are sometimes more likely to have positive outcomes (presented in a later section). Thus, we find it worthwhile to identify the characteristics that make it most likely for a TA user to be a super user or a consecutive user (and thus be more likely to have positive outcomes).

Variable	Status	Statistic	Army	Navy	Marine Corps	Air Force	DOD
		Sample size	245,305	145,355	53,542	302,652	746,854
TA super use	Enlisted	Mean	88%	79%	95%	99%	91%
		Std. dev.	33%	40%	23%	10%	29%
		Sample size	1,274,716	658,206	338,446	1,179,775	3,451,143
	Officers	Mean	84%	80%	95%	99%	91%
		Std. dev.	36%	40%	22%	10%	28%
		Sample size	48,195	33,786	13,457	91,965	187,403
TA consec-utive use	Enlisted	Mean	45%	46%	40%	53%	48%
		Std. dev.	50%	50%	49%	50%	50%
		Sample size	1,274,716	658,206	338,446	1,179,775	3,451,143
	Officers	Mean	48%	52%	50%	60%	55%
		Std. dev.	50%	50%	50%	49%	50%
		Sample size	48,195	33,786	13,457	91,965	187,403
Any degree	Enlisted	Mean	8%	16%	12%	10%	9%
		Std. dev.	27%	37%	1%	30%	29%
		Sample size	438,891	222,904	137,771	331,454	1,131,020
	Officers	Mean	25%	23%	4%	5%	15%
		Std. dev.	43%	42%	18%	23%	35%
		Sample size	32,318	20,157	7,541	46,975	106,991
BA/BS or higher	Enlisted	Mean	4%	7%	1%	9%	6%
		Std. dev.	20%	26%	8%	28%	23%
		Sample size	438,891	222,904	137,771	331,454	1,131,020
	Officers	Mean	24%	18%	3%	5%	13%
		Std. dev.	43%	38%	16%	22%	34%
		Sample size	32,318	20,157	7,541	46,975	106,991
Course com-pletion rate	Enlisted	Mean	69%	78%	76%	83%	76%
		Std. dev.	36%	32%	35%	27%	34%
		Sample size	477,832	243,446	154,151	359,198	1,234,627
	Officers	Mean	85%	90%	89%	92%	89%
		Std. dev.	27%	23%	24%	20%	23%
		Sample size	33,611	20,558	7,803	48,170	110,142

Source: CNA tabulations of TA data.

In terms of caveats regarding the comparability of TA numbers across the Services, the same caveats discussed in the summary of our Congressional Report findings apply to the analysis conducted in this report: management controls, Service-level differences in the types of degrees included in the data, discrepancies between the Army data we report and similar data generated by the Army Continuing Education System (likely due to the fact that we keep only the highest grade per course), and the fact that our data do not capture Air Force graduations from the Community College of the Air Force. In addition, a number of observations had to be dropped from our data, for a variety of reasons. In Appendix B, we present information on the dropped observations, by Service. Although we attempted to make our results as comparable as possible across Services, by applying the same rules to each Service's data, each Service is affected differently—resulting in a different number of observations being

dropped per Service. As we show in Appendix B, when comparing the summary statistics of those who were dropped and not dropped in each Service, we are left with no reason to expect that the dropped observations are considerably skewing our results.[13]

All of these caveats affect only the count variables. That is, they could affect our counts of the number of degrees or courses that Servicemembers took and, ultimately, reduce the comparability of these counts across Services. As a result, these caveats will not introduce bias in our estimations. That would be a concern if the affected variables were on the *right*-hand side of our estimations; however, since they are the *outcome* variables of interest, no bias is introduced. In addition, we account for these Service-level differences by running our estimations at both the Service and DOD levels, and we control for Service in our DOD estimations.

Merging TA data to DMDC data

To conduct our analysis, we also need information on Servicemembers' demographic and military characteristics, such as race, ethnicity, gender, marital status, number of dependents, paygrade, years of service, education level, and DOD occupation. We obtain this information from DMDC's Active Duty Master File for all regular (i.e., not reservist) Servicemembers who were in the Services from FY99 through FY15. Annual observations regarding military and demographic characteristics are extracted from the September ADMF, and each September file becomes the starting observation for the next FY. Thus, the information contained in the September 2009 ADMF provides the FY10 characteristics for those Servicemembers.[14]

Our ultimate DMDC file consists of Servicemembers who used TA at some point in their careers as well as those who did not. To these data, we merge the Services' TA data, thus allowing us to estimate TA outcomes as a function of military and demographic characteristics. This file contains information at the person-year level—that is, each observation is a year for a particular Servicemember—and there are multiple years (and hence observations) per Servicemember; this is what we call a panel dataset. When possible, we estimate our outcomes of interest in this form of the data, preserving variation not only across Servicemembers but also across time. This is especially important for characteristics that vary across time for each Servicemember (e.g., paygrade, marital status, number of dependents, and years of service). If Servicemembers' likelihood of using TA, being a super user, or being a consecutive TA

[13] Appendix C shows different grades that can appear within the data.

[14] The only exception involves cases where information (such as race or ethnicity) was missing from the September file but available on a previous quarter. In such cases, this information is extracted from the previous quarter.

user varies with any of these time-variant characteristics, it is important that we capture that. For this reason, the user, super-user, and consecutive-user estimations are conducted using this panel form of the data.

For our other outcomes of interest, however, panel estimations are not appropriate. These outcomes are whether a TA user earned any degree by FY15, whether a TA user earned a bachelor's degree or higher by FY15, and each TA user's overall course completion rate. Unlike the outcomes focused on TA use, which vary from year to year, these outcomes are *cumulative* in nature and are measured at the end of our sample, meaning that they take only one value for each Servicemember. As a result, for these estimations, it is appropriate to reduce our panel dataset to a cross-section dataset—one in which we have only one observation per person.

To construct this cross-section dataset, we took the last observed value for all characteristics that are time-variant, with one exception: education. We suspect that a Servicemember's proclivity to use TA and therefore the probability that he or she will pursue a degree (specifically, a bachelor's degree or higher) will be determined by his or her education level when first starting to use TA. Someone who has a college degree when first using TA, for example, might be more likely to take graduate-level classes that will further immediate career goals without ultimately earning another degree. It is for this reason that we use Servicemembers' education level at accession in our cross-section estimations, although we use the *last* observed value for all other variables. We use the last observed values for all other characteristics because we are estimating *cumulative* outcomes, as of FY15, for degree and course completions. Thus, the most relevant characteristics are those from FY15 (or the last year in which we saw the Servicemember in the data).

Estimations

To recap, our analysis involves identifying the determinants of TA use and the likelihood of positive educational outcomes resulting from that TA use. In our panel estimations, where we have multiple years of observations for each Servicemember, we estimate the determinants of whether a given Servicemember in a given year uses TA, is a TA super user, or is a consecutive TA user. These estimations include all active-component Servicemembers.[15] In our cross-section regressions, where the dataset has been reduced to one observation per Servicemember, we estimate the determinants that he or she obtained any degree by FY15, or obtained a bachelor's degree or higher

[15] For our purposes, we define TA eligibility based on Service component. All those in the active component are eligible for TA. Reservists are sometimes eligible for TA, but only under certain conditions. By restricting our analysis to the active component, we are restricting our sample to Servicemembers who we know are eligible for TA.

by FY15, and we estimate the determinants of each Servicemember's course completion rate. These estimations include only those Servicemembers who used TA (took at least one course) at some point in their military careers. In all cases, the characteristics we control for include the following:

- Gender
- Race/ethnicity
- Marital status and number of dependents[16]
- Paygrade
- Years of service
- DOD occupation
- Cohort year[17]
- U.S. state[18]

In the cross-section estimations, which are limited to TA users, we also control for:

- The sector (private for-profit, private not-for-profit, and public) in which the Servicemember took the most courses
- The total number of credits the Servicemember took in the previous academic year
- The frequency with which the Servicemember was a super user (averaged over all years)
- The frequency with which the Servicemember was a consecutive user (averaged over all years)[19]

[16] We also include an interaction of gender and marital status, as well as an interaction of gender and dependents, to allow for the fact that marital status and dependents might affect men's and women's TA outcomes differently.

[17] Cohort year is the year in which the Servicemember first took a TA course. It should capture variation in Service- or DOD-level TA policies over time as well as other factors that vary by year and might affect a Servicemember's ability to use TA or the likelihood of obtaining positive TA outcomes.

[18] This information allows us to capture variation in educational opportunities by state.

[19] Controlling for the previous year's credits, super user status, and consecutive user status allows us to determine if there is a "momentum" effect. That is, are Servicemembers who use TA more consistently more likely to earn a degree or to have a higher course completion rate?

Each estimation is run separately for officers and enlisted because the effect of military and demographic characteristics on TA use or positive TA outcomes will likely differ for these populations. Note that we include warrant officers among our enlisted population estimations. The warrant officer population is too small to be completely separated; we include it with the enlisted vice the officer population since neither enlisted Servicemembers nor warrant officers are required to have a college degree upon entry.

We also run estimations separately by Service (to allow for different effects of Service-specific policies or cultures) and for all of DOD combined (so that we can observe whether our outcomes vary by Service, after controlling for the aforementioned characteristics). Finally, where appropriate, we run our estimations for all years in the sample and then separately for FY14/FY15 only. This is because significant DOD-level TA policy changes[20] occurred in FY14, and there was considerable interest in identifying whether these changes had any apparent effect on how Servicemembers use TA or whether their TA use leads to positive outcomes. We remind the reader that, due to the nature of the congressional requirement, all estimations were run for active-duty Servicemembers only. Our findings, therefore, cannot be generalized as representative of DOD as a whole since they do not include members of the reserve or guard components, whose experiences and opportunities may differ.

[20] Specifically, the program became more standardized, and a DOD Instruction changed the voluntary education "agreement" to be with the Secretary of Defense; it had previously been with installation commanding officers.

Determinants of TA Use

In this section, we answer three questions: (1) Which military and demographic characteristics determine if a Servicemember uses TA in a given year? (2) Among Servicemembers using TA in a given year, which characteristics determine if a Servicemember is a super user in that year? (3) Among Servicemembers using TA in a given year, which characteristics determine if that is a consecutive year of TA use (meaning at least one other year of TA use preceded it)?

For each question, 10 equations were estimated, providing separate results for officers and enlisted in the four Services and all of DOD. Because of the sheer volume of estimation output, we consolidate results in this section's tables. We present variables whose marginal effect on the outcome in question was frequently 3 percentage points or greater.[21] We include only those findings that have potential policy implications (e.g., excluding state and cohort effects). Appendix D contains complete results. The marginal effects presented in these tables represent the average correlation between each characteristic and each outcome, holding all other factors constant at their average values (examples follow).

Servicemembers who use TA

We analyze which Servicemember characteristics are associated with higher or lower probability of TA use. We first discuss the enlisted population and then officers.

Enlisted

In Table 2, we present a summary of the determinants of TA use for enlisted Servicemembers. The numbers presented in this table are the percentage-point change in TA use that is associated with each characteristic, relative to a comparison group. For example, Craftsworkers in the Army are 5 percentage points less likely to use TA than their Functional Support and Administration counterparts, all else equal.

A number of preeminent findings emerge from Table 2. First, all occupational groups are *less* likely to use TA than the Functional Support and Administration group. This is not entirely surprising; those with administrative jobs have significantly more "desk time" than their counterparts, giving them greater access to resources needed to

[21] A factor's marginal effect measures the change in the outcome variable that results from a one-unit change in the factor, when all other factors (or variables) are held constant.

research their TA options and possibly allowing for some coursework during downtime. They likely deploy less frequently (providing a stable geographic location from which courses can more easily be taken), and they likely have a more predictable schedule with little evening work (allowing them to devote certain hours to class attendance). We find that those enlisted Servicemembers who accessed with no high school degree, a homeschool certificate, or other nontraditional high school credential (most commonly a General Educational Development (GED) test) are less likely than those with traditional high school diplomas to use TA. This suggests that a high school diploma may be the minimum education necessary for taking classes with TA to seem worthwhile to enlisted Servicemembers.

We also find that more junior enlisted Servicemembers are most likely to use TA. Specifically, those in the Army, Navy, Air Force, and Marine Corps with E4-E6 paygrades are, respectively, 22.4, 13.4, 21.5, and 17.2 percentage points less likely to use TA than their E1-E3 counterparts.[22] The marginal effects of being in the E7-E9 paygrades are smaller, but still sizable and highly significant. This may suggest (a) that senior enlisted have responsibilities that make returning to school infeasible, (b) that they met their TA goals as more junior enlisted and have no incentive to continue taking courses as senior enlisted, or (c) that they were discouraged by their experiences taking courses as junior enlisted and have no desire to keep using TA. We do, however, observe an overall positive relationship between being in the W1-W2 or W3-W5 paygrades and TA use.[23] TA use also is more common among black Servicemembers (relative to their white counterparts). Finally, in our DOD-level estimation, we find that enlisted Airmen are the most likely to use TA, followed by Sailors, Soldiers, and Marines.

[22] These findings may seem to conflict with statistics previously published by the DOD Voluntary Education Office stating that the average enlisted TA user is an E5. There are two possible explanations for such differences. First, the DOD statistics are simple averages, whereas our estimation effects control for all the other military and demographic characteristics in our model (such as paygrade, years of service, DOD occupation, gender, and race/ethnicity). Second, our model also controls for a Servicemember's cohort year—the year in which he or she first took a course using TA. That is, our model compares Servicemembers who took their first TA course in the same year. This is a fundamentally different approach from looking at the annual paygrade distribution of all TA users in a given year and could lead to more nuanced findings regarding the average user. Further disentangling the precise reasons for the differences in findings was beyond the scope of this effort.

[23] The Navy is the one exception: warrant officers in the W1-W2 paygrades are 2.7 percentage points *less* likely to use TA than their E1-E3 counterparts.

Table 2. Probability of TA use: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
DOD occupation	Infantry, Gun Crews, and Seamanship Specialists	-3.7%***	-2.3%***	-0.6%***	-4.2%***	-3.3%***
	Electrical/Mechanical Equipment Repairers	-4.5%***	-2.8%***	-3.7%***	-2.0%***	-3.7%***
	Craftsworkers	-5.0%***	-3.1%***	-3.0%***	-5.1%***	-3.8%***
	Service and Supply Handlers	-3.0%***	-3.9%***	-4.8%***	-2.8%***	-3.9%***
	Functional Support/Admin (comparison group)					
Initial education	No high school degree	-8.1%***	-1.7%***	-0.2%	-2.1%	-5.9%***
	Other nontraditional high school credential	-5.8%***	-1.3%***	-10.4%***	-1.2%***	-4.8%***
	Homeschool	-3.0%***	-5.6%***		-4.2%***	-3.5%***
	Traditional high school diploma (comparison group)					
Paygrade	E4-E6	-22.4%***	-13.4%***	-21.5%***	-17.2%***	-19.8%***
	E7-E9	-10.5%***	-6.6%***	-13.5%***	-1.0%***	-9.8%***
	W1-W2	16.1%***	-2.7%***		8.1%***	13.1%***
	W3-W5	7.3%***	3.1%***		4.5%***	6.6%***
	E1-E3 (comparison group)					
Race	Black	3.9%***	2.6%***	3.8%***	3.7%***	3.6%***
	White (comparison group)					
Service	Navy					3.0%***
	Air Force					9.5%***
	Marine Corps					-1.9%***
	Army (comparison group)					
Sample size		2,750,157	1,409,530	2,130,980	734,454	7,025,121
Total R-squared		0.068	0.061	0.067	0.073	0.069

Source: CNA analysis of DMDC and TA data.

*** Statistically significant at the 1-percent level.

The marginal effects of gender, marital status, and number of dependents on the probability that enlisted Servicemembers use TA are shown in Table 3. The different characteristics of Servicemembers result in 12 different demographic "groups" to consider. All effects are shown relative to the comparison group of unmarried men without children. Women without dependents are most likely to use TA, regardless of their marital status. Married men without dependents also are more likely to use TA than the comparison group, but they are still less likely than women without dependents. The group that is consistently less likely than the comparison group to use TA, for all Services, is unmarried men with dependents. This could be because it is the group most frequently deployed, as found for the Navy and Marine Corps by Quester and Shuford (2016) [26]. Of interest, Sailors with 3 or more dependents are less likely than the comparison group to use TA, regardless of gender or marital status. In other Services, these same groups are more likely to use TA. It might be worth exploring why this apparent disadvantage for Sailors with many dependents exists in the Navy but not in the other Services.

Table 3. Probability of TA use: Marginal effects of gender, marital status, and dependents, enlisted only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	4.6%	-3.1%	4.9%	1.7%	2.9%
Female, married, 1-2 dependents	7.4%	-0.3%	6.7%	3.9%	5.1%
Female, married, 0 dependents	9.6%	4.4%	10.0%	7.0%	8.4%
Female, unmarried, 3+ dependents	3.7%	-2.4%	3.2%	1.9%	2.1%
Female, unmarried, 1-2 dependents	6.5%	0.4%	5.0%	4.1%	4.3%
Female, unmarried, 0 dependents	8.7%	5.1%	8.3%	7.2%	7.6%
Male, married, 3+ dependents	3.2%	-1.2%	4.1%	2.3%	2.3%
Male, married, 1-2 dependents	3.4%	0.1%	3.8%	0.2%	2.2%
Male, married, 0 dependents	4.4%	3.8%	6.3%	3.3%	4.6%
Male, unmarried, 3+ dependents	-1.2%	-5.0%	-2.2%	-1.0%	-2.3%
Male, unmarried, 1-2 dependents	-1.0%	-3.7%	-2.5%	-3.1%	-2.4%
Male, unmarried, 0 dependents	Comparison group				

Source: CNA analysis of DMDC and TA data.

[a]. The marginal effects shown in this table are computed by summing marginal effects for female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 1-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix D.

Officers

Table 4 contains our results on the characteristics associated with TA use for officers. Officers in a number of occupations are statistically significantly more or less likely than those in Tactical Operations (the comparison group) to use TA. Intelligence Officers, Scientists and Professionals, and Health Care Officers are all *less* likely to use TA than their counterparts; Administrators also are less likely to use TA in most Services but are in fact *more* likely to use TA in the Navy. There are similarly inconsistent results across Services for Engineering and Maintenance Officers. These Service-level differences in the role of occupation in determining TA use are not entirely surprising because the cultures within these occupational groups likely vary greatly from Service to Service.

In terms of initial education, we find that officers who had high school diplomas or less (suggesting that they were initially enlisted accessions) are among the least likely to use TA, while those with associate or professional degrees are more likely than their bachelor-degree-holding counterparts to use TA.[24] Thus, for the officer population, as we found for the enlisted, there seems to be a baseline minimum education level for future TA use: those officers who begin service with high school diplomas or less are not as likely to use TA, while those who begin service with associate or professional degrees are more likely to use TA (with the exception of the Army).

As we found for the enlisted, more junior officers are the most likely to use TA. These effects are sizable: officers in the O4 and O5 paygrades are 5 to 12 percentage points less likely to use TA than their O1-O3 counterparts, and officers in the O6-O10 paygrades are 4 to 18 percentage points less likely. In both cases, the largest negative effects are found in the Navy. In terms of race, we find that black officers are more likely than their white counterparts to use TA, as was the case for enlisted—suggesting that DOD's TA program may be providing educational opportunities to a population with a general education disadvantage in the population at large. Finally, we find that TA use is most common among Navy officers, followed by those in the Marine Corps, Air Force, and Army, respectively.

[24] This is true in all Services except the Army, where those with an associate or professional degree are actually less likely to use TA.

Table 4. Probability of TA use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
DOD occupation	Intelligence Officers	-0.4%	-4.0%***	-6.1%***	-4.0%***	-2.6%***
	Engineering and Maintenance Officers	-1.7%***	10.8%***	-5.1%***	4.6%***	0.1%
	Scientists and Professionals	-6.3%***	0.4%	-10.9%***	-13.3%***	-5.9%***
	Health Care Officers	-4.7%***	-7.0%***	-6.6%***	--	-7.2%***
	Administrators	-1.8%***	6.8%***	-4.9%***	-3.9%***	-1.0%***
	Tactical Operations Officers (comparison group)					
Initial education	High school	-6.0%***	-12.0%***	-1.6%***	-11.8%***	-8.2%***
	Homeschool	-16.9%**	-13.4%*	--	-28.3%**	-19.3%***
	Adult education	-1.6%*	10.5%***	3.8%***	-12.7%***	8.0%***
	Associate degree	-3.1%***	3.0%***	8.6%***	4.9%***	1.6%***
	Professional degree	-1.9%***	8.6%***	11.0%***	14.2%***	6.3%***
	Other nontraditional high school credential	-1.6%	-11.0%***	13.3%	-9.3%*	-5.5%***
	Bachelor's degree (comparison group)					
Paygrade	O4-O5	-5.4%***	-12.6%***	-10.9%***	-8.6%***	-10.1%***
	O6-O10	-11.9%***	-18.2%***	-4.4%***	-15.6%***	-12.1%***
	O1-O3 (comparison group)					
Race	Black	5.5%***	4.7%***	1.0%***	4.7%***	4.7%***
	White (comparison group)					
Service	Navy					13.5%***
	Air Force					7.1%***
	Marine Corps					10.0%***
	Army (comparison group)					
Sample size		245,305	145,355	302,652	53,542	746,854
Total R-squared		0.123	0.089	0.251	0.105	0.153

Source: CNA analysis of DMDC and TA data.

[a]. Statistical significance at the 1-, 5-, and 10-percent levels is denoted by ***, **, and *, respectively.

The marginal effects of gender, marital status, and dependents on the probability that officers use TA are shown in Table 5. The most striking finding is that women with dependents are less likely than their unmarried male-with-no-dependents counterparts to use TA *regardless* of marital status. Women with 3 or more dependents are less likely to use TA in all Services, whether they are married or not; the resulting percentage-point decrease in the likelihood of TA use for this demographic group is as large as 13.8 and 11.7 for married women in the Air Force and Marine Corps and 12.10 and 11.7 for unmarried women in these Services. Women with 1-2 dependents also are less likely to use TA, except in the Army. In that Service, married women with 1-2 dependents are 3.1 percentage points *more* likely to use TA than their counterparts, and unmarried women with 1-2 dependents are 1 percentage point more likely. It may be worth exploring why the presence of dependents is an apparent disadvantage for female officers in all other Services but an apparent *advantage* for female Army officers.

Table 5. Probability of TA use: Marginal effects of gender, marital status, and dependents, officers only, FY99-FY15[a]

Demographic group (number of dependents)	Army	Navy	Air Force	Marine Corps	DOD
Female, married (3+)	-0.4%	-5.1%	-13.8%	-11.7%	-9.3%
Female, married (1-2)	3.1%	-2.3%	-10.5%	-5.6%	-5.6%
Female, married (0)	8.1%	0.0%	-5.3%	0.0%	-0.6%
Female, unmarried (3+)	-2.5%	-5.1%	-12.1%	-11.7%	-9.3%
Female, unmarried (1-2)	1.0%	-2.3%	-8.8%	-5.6%	-5.6%
Female, unmarried (0)	6.0%	0.0%	-3.6%	0.0%	-0.6%
Male, married (3+)	2.8%	0.0%	-9.4%	-0.2%	-4.5%
Male, married 1-2	4.9%	1.1%	-2.3%	1.4%	-0.1%
Male, married 0	4.9%	0.0%	1.4%	1.4%	2.1%
Male, unmarried 3+	-2.1%	0.0%	-10.8%	-1.6%	-6.6%
Male, unmarried 1-2	0.0%	1.1%	-3.7%	0.0%	-2.2%
Male, unmarried (0) (comparison group)					

Source: CNA analysis of DMDC and TA data.

[a] The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 10-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix D.

Overall, for both officers and enlisted, we find that:

- There are significant relationships between occupation and the probability of TA use.
- More junior Servicemembers are *more* likely to use TA than their more senior counterparts.
- A minimum, baseline level of education is necessary for Servicemembers to use TA.
- TA use is more common among black Servicemembers than among their white counterparts.

TA super users

In this subsection, we present our findings on the Servicemember characteristics associated with TA super use, defined as taking at least the median level of credits or the median level of courses in a given year. The estimations that generated these results are all *conditional* on a Servicemember using TA in a given year. That is, they address the question, "*Given* that a Servicemember used TA—i.e., took at least one course in a particular FY—what are the determinants of whether that Servicemember was a super user in that FY?" We are primarily interested in super use because we expect that it may be correlated with positive TA outcomes. Those who are more active TA users (taking a greater number of credits or courses) may use this benefit with longer term educational objectives in mind. As we did in the previous subsection, we first present our enlisted results; officer results follow.

Enlisted

Table 6 presents our results on the most important determinants of TA super use for enlisted Servicemembers. As was the case for the TA use results, the numbers in this table represent the percentage-point change in the likelihood of TA super use (conditional on being a TA user) that is associated with each characteristic, relative to the comparison group. Although there were some significant occupational effects, they were relatively small and therefore are not repeated.[25] In terms of initial education, we find that homeschooled enlisted are less likely to be TA super users than their traditional-high-school-diploma-holding counterparts, but marginal effects vary for those with associate or professional degrees. Associate degrees are correlated with a higher likelihood of TA super use in the Army and Navy, perhaps indicating that the Servicemembers with these degrees are motivated to obtain the necessary additional

[25] Complete regression results can be found in Appendix D.

education to acquire a bachelor's or more advanced degree. It is unclear, however, why we would only see evidence of this effect in two of the four Services. The results for professional degrees are similarly mixed.

Table 6. Probability of TA super use: Marginal effect of military and demographic characteristics, enlisted only, FY99-FY15[a]

Character-istic		Army	Navy	Air Force	Marine Corps	DOD
Initial education	Homeschool	-2.6%***	-3.6%**		-0.4%	-4.1%***
	Associate degree	4.2%***	2.3%***	-0.2%***	-0.7%**	0.3%***
	Professional degree	3.1%***	-0.5%	-4.8%***	1.5%	2.9%***
	Traditional high school diploma (comparison group)					
Paygrade	E4-E6	0.6%***	5.2%***	0.3%***	1.3%***	1.3%***
	E7-E9	0.8%***	7.4%***	0.5%***	1.0%***	1.8%***
	E1-E3 (comparison group)					
Service	Navy					-8.4%***
	Air Force					12.7%***
	Marine Corps					7.2%***
	Army (comparison group)					
Sample size		1,274,716	658,206	1,179,775	338,446	3,451,143
Total R-squared		0.067	0.023	0.012	0.067	0.081

Source: CNA analysis of DMDC and TA data.

[a.] Statistical significance at the 1-, 5-, and 10-percent levels is denoted by ***, **, and *, respectively.

Among the population of enlisted Servicemembers who use any TA, those in more senior paygrades are more likely to be super users. The only sizable effects, however, are in the Navy. In that Service, being in the E4-E6 paygrades is associated with a 5-percentage-point increase in the likelihood of being a TA super user; being in the E7-E9 paygrades is associated with a 7-percentage-point increase. These marginal effects are noticeably smaller in all other Services, at less than 2 percentage points. It is not entirely clear why these Service-level differences would exist. Higher paygrade Sailors' greater proclivity for TA super use may be related to Service culture or internal policies.[26] Nonetheless, this could be an important difference if super use is found to be a significant predictor of TA "success," as it sometimes is.[27] Finally, we find that TA

[26] Further analysis would be needed to either confirm or refute these potential reasons for the Navy's higher TA use among more senior Sailors.

[27] This will be shown in the subsequent section.

super use is most common among enlisted TA users in the Air Force, followed by the Marine Corps, Army, and Navy (in descending order). The fact that Navy TA users are the least likely to be TA super users—and, as we show shortly, to be consecutive TA users—may reflect the unique nature of sea duty and the Navy's resulting deployment cycles. These differences also are likely influenced by Service culture and perhaps variation in the types of people who access into each of the four Services. If they differ, on average, in terms of their long-term goals and motivations, this could influence their proclivity for TA super use.

The marginal effects of gender, marital status, and dependents on the probability that enlisted Servicemembers are TA super users are shown in Table 7. Demographics play a much smaller role in determining which Servicemembers are likely to *super use* TA than in determining the Servicemembers most likely to *use* TA.

Table 7. Probability of TA super use: Marginal effects of gender, marital status, and dependents, enlisted only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	0.2%	2.5%	0.5%	2.9%	0.7%
Female, married, 1-2 dependents	2.1%	2.9%	0.5%	2.6%	1.5%
Female, married, 0 dependents	2.7%	2.8%	0.6%	2.1%	1.7%
Female, unmarried, 3+ dependents	-0.6%	2.5%	0.4%	2.3%	0.5%
Female, unmarried, 1-2 dependents	1.3%	2.9%	0.4%	2.0%	1.3%
Female, unmarried, 0 dependents	1.9%	2.8%	0.5%	1.5%	1.5%
Male, married 3+ dependents	1.2%	2.1%	0.2%	1.4%	1.0%
Male, married, 1-2 dependents	1.6%	2.4%	0.2%	1.1%	1.3%
Male, married, 0 dependents	1.2%	1.1%	0.1%	0.6%	0.6%
Male, unmarried, 3+ dependents	-2.5%	-1.3%	-0.2%	0.0%	-1.4%
Male, unmarried, 1-2 dependents	-1.0%	-1.2%	-0.2%	0.0%	-0.9%
Male, unmarried, 0 dependents (comparison group)					

Source: CNA analysis of DMDC and TA data.

[a] The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 5-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix D.

As Table 7 reveals, all effects are relatively small: no demographic group is more than 2.9 percentage points more likely or more than 2.5 percentage points less likely to super use than the comparison group (unmarried men without dependents). In general,

women (regardless of marital or dependent status) are more likely to be super users, as are married men (regardless of their dependent status). The only demographic group that is less likely to be TA super users is unmarried men with dependents, although the effects are small (and there is no effect in the Marine Corps). Thus, overall, it does not appear that demographics plays a significant role in determining whether particular TA users are more or less likely to be super users.

Officers

Table 8 contains our results for the characteristics that are the strongest determinants of whether officers who use TA also are super users. Once again, occupation effects were small, and are therefore not presented (but can be found in the full results in Appendix D). The one occupational group with a relatively sizable correlation with TA super use was intelligence officers, but only in the Army and Navy (not shown here). In those two Services, Intelligence officers are significantly less likely to be TA super users than their Tactical Operations Officer counterparts (the comparison group). In terms of initial education, we find that those with less than traditional high school degrees, those with high school degrees, or those homeschooled are generally less likely to be TA super users, and these effects are predominantly found for the Army and Navy. This suggests that, in these Services, TA-using officers who entered the Service with less than bachelor's degrees (thus advancing from enlisted to officer at some point in their military careers) are less likely to be super users than those who entered with bachelor's degrees. This suggests that the officers most likely to be TA super users are those working toward more advanced degrees; perhaps those with concrete TA goals in mind are those more likely to use TA in a more concentrated manner (taking more courses and/or credits in a given year).

Paygrade effects are small. The largest effect is that O4-O5 Navy officers are 2.6 percentage points less likely to super use TA than their O1-O3 counterparts. Similarly, there was only one significant race/ethnicity effect: black Navy officers are 3.3 percentage points more likely to be TA super users than their white counterparts.

The only other sizable determinant of officer TA super use is Service affiliation. Among all officers who use TA in a given year, we find that those most likely to be TA super users are in the Air Force, followed by the Marine Corps, Army, and Navy, in descending order. Notably, this is the same order of super use likelihood that we found for enlisted. This may suggest that Service culture and policy (which would affect both enlisted and officers) influence the *ability* of Servicemembers to be TA super users. That is, this may be more a story of how many courses or credits Servicemembers are *able* to take in a given FY as opposed to how many they *desire* to take in a given FY. Further investigation into differences in Service cultures and policies (and their corresponding effect on how Servicemembers use the TA program) would be necessary to completely tease out these effects.

Table 8. Probability of TA super use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a]

Characteristic		Army	Navy	Air Force	Marine Corps	DOD
Initial education	No high school degree	-13.7%***	-13.6%**	-0.1%	3.5%	-3.3%***
	High school	-8.7%***	-4.9%***	0.6%***	1.5%**	-3.8%***
	Homeschool	-83.2%**	-14.9%			-26.3%**
	Associate degree	-7.6%***	-0.2%	1.0%**	1.8%	-2.3%***
	Professional degree	-0.8%	0.9%	-6.8%***	-0.6%	-1.6%***
	Bachelor's degree (comparison group)					
Service	Navy					-4.0%***
	Air Force					15.1%***
	Marine Corps					10.2%***
	Army (comparison group)					
Sample size		48,195	33,786	91,965	13,457	187,403
Total R-squared		0.051	0.021	0.018	0.038	0.099

Source: CNA analysis of DMDC and TA data.

[a]. Statistical significance at the 1-, 5-, and 10-percent levels is denoted by ***, **, and *, respectively.

Table 9 shows the marginal effects of gender, marital status, and dependents on the probability that officers are TA super users. As was the case with enlisted, demographics play a much smaller role in determining which Servicemembers are likely to *super use* TA than in determining the Servicemembers most likely to *use* TA. The only demographic groups that have a sizable correlation with the probability of TA super use are the female groups in the Marine Corps; female Marines, regardless of marital or dependents status, are 5.4 percentage points less likely to be TA super users than the comparison group (unmarried men without dependents). Although the effects are small, we find that Servicemembers with 3 or more dependents are less likely to be TA super users in the Army and Navy, regardless of gender or marital status. This suggests that officers with many dependents may find it difficult to juggle the responsibilities of parenthood, their jobs, and also being students. In the Air Force, these effects are only present for women; in the Marine Corps, they are only present for married women. Thus, once again, Service-level differences are important and it is unclear whether the main drivers of these differences are culture, policy, the type of people drawn to each Service, or something else entirely.

Table 9. Probability of TA super use: Marginal effects of gender, marital status, and dependents, officers only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	-1.10%	-1.60%	-0.10%	-5.40%	-0.40%
Female, married, 1-2 dependents	1.10%	0.00%	-0.10%	-5.40%	0.20%
Female, married, 0 dependents	1.10%	0.00%	-0.10%	-5.40%	0.70%
Female, unmarried, 3+ dependents	-2.20%	-1.60%	-0.30%	0.00%	-1.10%
Female, unmarried, 1-2 dependents	0.00%	0.00%	-0.30%	0.00%	-0.50%
Female, unmarried, 0 dependents	0.00%	0.00%	-0.30%	0.00%	0.00%
Male, married 3+ dependents	-1.10%	-1.60%	0.20%	0.00%	-0.40%
Male, married, 1-2 dependents	1.10%	0.00%	0.20%	0.00%	0.20%
Male, married, 0 dependents	1.10%	0.00%	0.20%	0.00%	0.70%
Male, unmarried, 3+ dependents	-2.20%	-1.60%	0.00%	0.00%	-1.10%
Male, unmarried, 1-2 dependents	0.00%	0.00%	0.00%	0.00%	-0.50%
Male, unmarried, 0 dependents (comparison group)					

Source: CNA analysis of DMDC and TA data.

[a] The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 10-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix D.

Overall, for both officers and enlisted, we find that:

- Demographics play a much smaller role in determining who super uses TA than in determining who uses TA.
- There are relatively small effects of occupation on the probability of TA super use.
- The role of initial education in determining the likelihood of TA super use varies by Service.
- TA super use is most likely for officers in the Air Force, followed by the Marine Corps, Army, and Navy.

TA consecutive users

In this subsection, we present our findings on the Servicemember characteristics associated with consecutive TA use, which is defined as taking at least one course in consecutive years. The estimations that generated these results are all *conditional* on a Servicemember using TA in a given year. That is, they address the question, *"Given* that a Servicemember used TA (i.e., took at least one course in a particular FY), what are the determinants of whether that Servicemember also used TA in the previous FY, thus making this a year of *consecutive* TA use?" Once again, we are primarily interested in this metric because we expect it may be correlated with positive TA outcomes. That is, those who are more consistent TA users may be more likely to experience positive TA outcomes, such as attaining any degrees, attaining bachelor's degrees or higher, or attaining high course completion rates. We first discuss our findings for enlisted Servicemembers and then turn to a discussion of our findings for officers.

Enlisted

Table 10 presents results on Servicemembers' characteristics associated with consecutive TA use. There are a number of sizable and significant occupation effects and all are negative, indicating that the enlisted Servicemembers in these occupations are statistically significantly *less* likely to consecutively use TA than those in Functional Support/Admin (the comparison group). The largest negative effects, across the Services, were found for the Infantry, Gun Crews, and Seamanship Specialists occupation, followed by Electrical/Mechanical Equipment Repairers and Craftsworkers. Given that an enlisted Servicemember is a TA user in a given FY, he or she is notably less likely to be a *consecutive* TA user if in one of these three occupations.

In terms of initial education, the two results consistent across all Services are that enlisted Servicemembers who assess with bachelor's degrees or professional degrees are less likely to be consecutive TA users than their traditional-high-school-diploma-holding counterparts. With the exception of the Air Force, those with a nontraditional high school credential also are less likely to consecutively use TA. These findings suggest that the comparison group—those with traditional high school diplomas—are the enlisted Servicemembers most likely to be consecutive TA users, and any initial education levels greater or less than this makes consistent TA use (perhaps toward the attainment of a degree) less likely.

As we found in our estimations of TA super use, we also find that, among all enlisted Servicemembers using TA, those in more senior paygrades are more likely to use TA in consecutive years. Both E4-E6 and E7-E9 Servicemembers are more likely to consecutively use TA, with substantial effects ranging from 15 percentage points for E4-E6s and E7-E9s in the Marine Corps to nearly 35 percentage points for E7-E9s in the Air Force. Effects for Warrant Officers vary by Service: there is a positive association between being in the W1-W2 paygrades and consecutive TA use in the Army but a negative association in the Navy. To the extent that consecutive TA use is important for positive TA outcomes (and we will see in the subsequent section that it sometimes is), these findings could suggest that the more senior enlisted, on average, will be more likely to experience such outcomes.

Finally, Service affiliation is a significant determinant of consecutive TA use, as it has been for our other measures of participation in the TA program. The only sizable effect, however, is for Airmen, who are 6.5 percentage points more likely than their enlisted counterparts in the Army to consecutively use TA. This could be because the nature of assignments and occupations in the Air Force is more compatible with regular, consistent TA use than in the Army, but further research would be necessary to fully disentangle these differences.

Table 11 shows the marginal effects of gender, marital status, and dependents on the probability that enlisted Servicemembers are consecutive TA users. The most notable pattern in Table 11 is that women are significantly (and sizably) more likely to consecutively use TA, *regardless* of their marital or dependent statuses. In addition, the population of unmarried men without dependents is the least likely to consecutively use TA. Once again, it will be important to tie these findings to ultimate outcomes, evaluating whether the notably higher likelihood of women to consecutively use TA translates into a higher likelihood of completing courses or earning degrees.

Table 10. Probability of consecutive TA use (in years): Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
DOD occupation	Infantry, Gun Crews, and Seamanship Specialists	-7.9%***	-4.6%***	-7.7%***	-15.1%***	-8.0%***
	Service and Supply Handlers	-3.7%***	-1.4%***	-1.1%***	-6.9%***	-2.8%***
	Electronic Equipment Repairers	-1.8%***	-4.0%***	-1.7%***	-1.7%***	-2.4%***
	Electrical/Mechanical Equipment Repairers	-6.0%***	-5.1%***	-4.3%***	-7.3%***	-5.4%***
	Craftsworkers	-4.8%***	-4.8%***	-2.9%***	-7.2%***	-4.3%***
	Functional Support/Admin (comparison group)					
Initial education	No high school degree	8.4%***	-5.3%***	6.2%**	-5.3%	3.1%***
	Bachelor's degree	-7.3%***	-1.7%***	-10.1%***	-6.7%***	-7.5%***
	Professional degree	-4.9%***	-3.0%*	-27.0%***	-7.1%*	-5.4%***
	Other nontraditional high school credential	-3.1%***	-3.8%***	4.5%**	-4.1%***	-3.9%***
	Traditional high school diploma (comparison group)					
Paygrade	E4-E6	24.3%***	19.9%***	26.2%***	15.9%***	23.2%***
	E7-E9	27.9%***	20.9%***	34.9%***	15.2%***	28.0%***
	W1-W2	11.9%***	-12.4%***		-1.5%	4.0%***
	E1-E3 (comparison group)					
Service	Navy					-1.4%***
	Air Force					6.5%***
	Marine Corps					0.8%***
	Army (comparison group)					
Sample size		1,274,716	658,206	1,179,775	338,446	3,451,143
Total R-squared		0.115	0.080	0.102	0.137	0.105

Source: CNA analysis of DMDC and TA data.

[a.] Statistical significance at the 1-, 5-, and 10-percent levels is denoted by ***, **, and *, respectively.

Table 11. Probability of consecutive TA use (in years): Marginal effects of gender, marital status, and dependents, enlisted only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	11.5%	10.2%	6.6%	8.1%	9.2%
Female, married, 1-2 dependents	11.9%	9.1%	7.6%	11.0%	10.2%
Female, married, 0 dependents	10.2%	8.3%	6.3%	8.7%	8.5%
Female, unmarried, 3+ dependents	10.8%	10.2%	8.2%	7.4%	9.4%
Female, unmarried, 1-2 dependents	11.2%	9.1%	9.2%	10.3%	10.4%
Female, unmarried, 0 dependents	9.5%	8.3%	7.9%	8.0%	8.7%
Male, married 3+ dependents	4.3%	3.3%	1.6%	2.3%	3.2%
Male, married, 1-2 dependents	3.4%	3.2%	2.3%	3.0%	3.1%
Male, married, 0 dependents	3.0%	0.0%	-0.3%	0.7%	1.4%
Male, unmarried, 3+ dependents	1.3%	3.3%	1.9%	1.6%	1.8%
Male, unmarried, 1-2 dependents	0.4%	3.2%	2.6%	2.3%	1.7%
Male, unmarried, 0 dependents (comparison group)					

Source: CNA analysis of DMDC and TA data.

[a]. The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 5-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix D.

Officers

Table 12 presents our results on the determinants of Servicemembers' consecutive TA use. The relationship between occupation and the likelihood of consecutive TA use varies by Service: Intelligence Officers are less likely to be consecutive TA users in the Air Force but more likely in the Navy; Health Care Officers are less likely in the Air Force but more likely in the Army. Similarly, Scientists and Professionals are less likely to be consecutive TA users in the Air Force but more likely in both the Army and the Navy. These differences may suggest that, for a given occupation, Servicemembers' responsibilities vary by Service, making consecutive TA use more feasible in some Services than others. It also could suggest that the type of Servicemember drawn to the occupation varies by Service; in this case, the long-term educational goals of Servicemembers may vary, aligning more closely with consistent (and therefore consecutive) TA use in some Services than others.

Table 12. Probability of consecutive TA use (in years): Marginal effects of military and demographic characteristics, officers only, FY99-FY15

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
DOD occupation	Intelligence Officers	-0.3%	3.1%**	-6.0%***	1.5%	-2.6%***
	Scientists and Professionals	4.1%***	8.1%***	-2.0%**	2.4%	2.3%***
	Health Care Officers	3.2%***	0.6%	-8.2%***		-2.5%***
	Administrators	1.9%***	3.5%***	-2.1%***	6.0%***	0.6%
	Tactical Operations Officers (comparison group)					
Initial education	High school	6.0%***	6.7%***	1.7%**	4.5%***	3.7%***
	Professional degree	-15.9%***	-1.8%*	-28.7%***	-10.0%***	-12.1%***
	Other nontraditional high school credential	14.6%***	18.9%***	29.9%**	13.0%	14.7%***
	Bachelor's degree (comparison group)					
Paygrade	O4-O5	2.9%***	-1.2%	-12.5%***	1.2%	-4.5%***
Services	Navy					2.2%***
	Air Force					15.4%***
	Marine Corps					3.1%***
	Army (comparison group)					
Sample size		48,195	33,786	91,965	13,457	187,403
Total R-squared		0.097	0.061	0.088	0.064	0.076

Source: CNA analysis of DMDC and TA data.

[a.] Statistical significance at the 1-, 5-, and 10-percent levels is denoted by ***, **, and *, respectively.

Our findings on incoming education levels suggest that consecutive TA use is most common for officers who advanced via the enlisted-to-officer (E-O) commissioning route. Specifically, officers whose incoming education levels were no high school degree (not shown), traditional high school degree, or "other" nontraditional high school credential are significantly *more* likely than their bachelor-degree-holding counterparts to use TA consecutively. Those Servicemembers whose incoming education levels were high school degree or less *must* have accessed as enlisted Servicemembers, and likely then used TA benefits to meet their longer term educational goals *while* in Service. That is, they used their TA to acquire a bachelor's degree or more, making them eligible for the E-O commissioning process. The other consistent education finding is that those officers who access with a professional degree are *less* likely to use TA in consecutive years. This population, on average, may not be as likely to be working toward additional degrees.

The other military characteristics associated with officers' likelihood of consecutively using TA are paygrade and Service affiliation. Those in the O4-O5 paygrades are more likely to consecutively use TA than their O1-O3 counterparts in the Army, and notably less likely to consecutively use TA in the Air Force (12.5 percentage points less likely). In terms of Service affiliation, we find that Air Force officers are the most likely to consecutively use TA, followed by those in the Marine Corps, Navy, and Army (in descending order). These differences could relate to differences in internal Service policies or to differences in the average *incoming* education levels for each Service's officers (resulting in differences in average educational goals).

Table 13 shows the marginal effects of gender, marital status, and dependents on the probability that officers are consecutive TA users. With the exception of two demographic groups in the Marine Corps (female, married, 3+ dependents and female, married, 0 dependents), all of the nonzero marginal effects in this table are positive, suggesting that, among all TA users, unmarried men without dependents are the least likely to be consecutive TA users. The largest effects are found for married women with dependents, followed by unmarried women with dependents and married men with dependents. This might suggest that the pursuit of further education with concrete goals in mind (such as degree attainment) is more likely for these populations; their responsibilities to others may serve as an impetus for improving their economic prospects via additional education. Overall, there does appear to be a role for gender, marital status, and dependent status in determining whether a particular TA-using officer will be a consecutive TA user.

Table 13. Probability of consecutive TA use (in years): Marginal effects of gender, marital status, and dependents, officers only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	7.5%	5.9%	8.2%	-5.9%	6.7%
Female, married, 1-2 dependents	9.9%	3.1%	9.2%	6.9%	6.9%
Female, married, 0 dependents	4.0%	3.1%	6.5%	-5.9%	4.8%
Female, unmarried, 3+ dependents	7.5%	2.8%	5.0%	0.0%	4.6%
Female, unmarried, 1-2 dependents	9.9%	0.0%	6.0%	12.8%	4.8%
Female, unmarried, 0 dependents	4.0%	0.0%	3.3%	0.0%	2.7%
Male, married 3+ dependents	7.0%	5.9%	4.9%	5.0%	5.4%
Male, married, 1-2 dependents	6.9%	3.1%	5.9%	5.0%	5.6%
Male, married, 0 dependents	3.5%	3.1%	3.2%	5.0%	3.5%
Male, unmarried, 3+ dependents	0.0%	0.0%	0.0%	0.0%	0.0%
Male, unmarried, 1-2 dependents	2.5%	0.0%	0.0%	12.8%	0.0%
Male, unmarried, 0 dependents (comparison group)					

Source: CNA analysis of DMDC and TA data.

[a]. The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 10-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix D.

Overall, for both officers and enlisted, we find the following:

- The role of occupation in determining the likelihood of consecutive TA use varies by Service.
- Those who enter the Service with high school degrees are among the most likely to consecutively use TA, regardless of whether they remain enlisted or ultimately become commissioned officers.
- Midgrade Servicemembers are much more likely than their junior counterparts to consecutively use TA.
- Consecutive TA use is most common in the Air Force.
- Unmarried men without dependents are among the least likely to consecutively use TA; women with dependents are among the most likely.

FY14/FY15 estimations

In addition to the estimations presented in this section, we also ran estimations that were restricted to FY14 and FY15 but were otherwise the same. The sample was segmented in this way because a number of fundamental changes were made to the TA program in FY14. Namely, the program became more standardized, and a DOD Instruction changed the voluntary education "agreement" to be with the Secretary of Defense, rather than with installation commanding officers, as had previously been the case. These segmented estimations were run to analyze if the TA user results differed after the policy changes were implemented. To conserve space, we summarize only the main differences between the segmented sample and the full sample here.[28] Overall, we find that:

- In FY14 and FY15, senior enlisted (E7-E9) were *more* likely to use TA than their E1-E3 counterparts, while they were *less* likely in the whole-sample estimations. This may suggest that the FY14 policy changes led to a greater appreciation of using TA to acquire additional education among the senior enlisted.

- In FY14 and FY15, TA use was more common among officers whose initial education levels were either high school or other nontraditional high school credential. This suggests that there has been an increase in TA participation among E-O Servicemembers.

- In FY14 and FY15, Navy enlisted were *less* likely to use TA than their Army counterparts, but Navy TA users were *more* likely to be TA super users and consecutive users than were Army TA users. That is, in recent years, Navy enlisted use TA less frequently but, when they do use it, they are more likely to do so with greater frequency—perhaps because they are more likely to be degree seekers.

[28] Complete regression results can be found in Appendix E.

Likelihood of Positive Outcomes for TA Users

The relationship between Servicemember characteristics and positive outcomes for TA users is a main focus of this report. Understanding the factors that predict successful TA outcomes will help policy-makers better understand the populations that are most benefiting from TA. In addition, this information can help policy-makers identify groups that might need more counseling to achieve their educational goals and get the most out of their TA benefits. Keep in mind, however, that the positive/negative outcomes that we observe could be related to the value of receiving course credits and degrees for certain groups compared to others. In other words, if one group would derive a greater benefit from completing a bachelor's degree and, therefore, might be more incentivized to do so, we might see higher bachelor's degree graduation rates for that particular group compared to others.

In this section, we present findings on the determinants of receiving any degree, receiving a bachelor's degree or higher, and the course completion rate. Specifically, we answer three questions. Among Servicemembers who use TA:

- What are the military and demographic characteristics that determine whether they complete degrees while using TA?
- What are the military and demographic characteristics that determine whether they complete bachelor's degrees or higher while using TA?
- What are the military and demographic characteristics that determine their course completion rates while using TA?

As mentioned previously, we estimate these relationships for enlisted and officer Servicemembers separately. We also estimate these relationships for each Service individually and then for DOD overall. Because of the volume of results, we present a consolidated version of our estimation output in the tables in this section. Specifically, in each table, we present those factors whose marginal effect on the outcome in question was frequently 3 percentage points or greater. We include only those findings that have potential policy implications.[29] The marginal effects presented in these tables represent the average relationship between each factor and the particular outcome, holding all other variables constant at their average values (examples are provided in the subsequent discussion).

[29] See Appendix F for complete results, including the estimated effects for all characteristics.

Determinants of receiving any degree

In this subsection, we summarize our results on the relationship between Servicemember characteristics and the likelihood of receiving any degree while using TA. We first discuss findings for the enlisted population; officer results follow.

Enlisted

Table 14 summarizes the main factors related to receiving any degree for enlisted TA users. The numbers presented in this table are the percentage-point changes in the likelihood of receiving a degree while using TA that are associated with each characteristic, relative to the comparison group. Several interesting findings emerge from this table. First, consecutive TA users are *more* likely to receive degrees in the Navy, Air Force, and DOD overall but *less* likely to receive degrees in the Army and Marine Corps models. Meanwhile, the opposite is true for super users; super users are *less* likely to receive degrees in the Navy, Air Force, and DOD overall, while they are *more* likely to receive degrees in the Army and Marine Corps. However, the magnitude of these effects is stronger in the Navy and Air Force compared to the Army and Marine Corps. Therefore, it could be that being a super user or consecutive user does not have a strong effect on the likelihood that a Soldier or Marine receives a degree, but it is an important characteristic for the other Services. The intuition behind this result for the Navy and the Air Force is not completely clear, but one hypothesis could be that consecutive use could signal persistence toward a degree, while super use could signal overexertion and burnout before one receives a degree.

We also find that the educational sector of the school in which TA courses are taken is an important determinant of degree completion. For DOD overall, students taking courses exclusively at private for-profit (PFP) institutions are 0.9 percentage point more likely to receive degrees than those who take most of their courses in the public (PUB) sector. This relationship is even stronger for Army and Air Force students (2 and 2.5 percentage points, respectively). These findings differ from what is generally found in the civilian literature—that students at PFP institutions are *less* likely to receive degrees than those in other educational sectors [8]. This finding could be because PFP institutions provide Servicemembers with greater flexibility than traditional institutions [19-22]. However, PFP students in the Navy and Marine Corps are less likely to receive degrees than their public institution peers (-1.4 percentage point and -0.2 percentage point, respectively); this finding is more consistent with the civilian literature [8]. These outcome differences between the Services could exist if, for example, the flexibility of the degree programs is more important in the Army and Air Force than in the Navy and Marine Corps, but more research would be necessary to confirm this hypothesis.

Table 14. Probability of receiving any degree by FY15: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
TA user type	Consecutive user	-1.1%***	8.1%***	8.9%***	-1.3%***	4.0%***
	Super user	0.3%*	-11.1%***	-11.9%***	0.5%***	-4.9%***
Educational sector	Most courses private for-profit (PFP)	2.0%***	-1.4%***	2.5%***	-0.2%**	0.9%***
	Most courses private not-for-profit (PNFP)	-0.2%*	3.2%***	5.3%***	0.0%	2.5%***
	Most courses PUB (comparison group)					
Initial education	Associate degree	-1.6%***	1.3%***	8.1%***	0.7%**	4.9%***
	Bachelor's degree	2.3%***	-0.9%*	8.3%***	0.7%**	3.8%***
	Professional degree	-4.2%***	-4.0%**	-4.0%***	-0.4%	-5.4%***
	Traditional high school diploma (comparison group)					
Pay-grade	E4-E6	-1.3%***	0.3%	-2.4%***	-0.1%	-1.6%***
	E7-E9	4.0%***	7.8%***	6.8%***	0.7%***	5.1%***
	W1-W2	0.4%	14.3%***		-1.6%***	3.5%***
	W3-W5	-1.3%***	5.8%***		-1.1%*	0.2%
	E1-E3 (comparison group)					
Race	Black	-0.5%***	-0.7%***	-0.6%***	0.0%	-0.7%***
	Hispanic	-0.3%***	0.1%	-0.5%***	-0.2%**	-0.3%***
	White (comparison group)					
Service	Navy					7.8%***
	Air Force					-1.6%***
	Marine Corps					-4.5%***
	Army (comparison group)					
Sample size		438,891	222,904	331,454	137,771	1,131,020
Adjusted R-squared		0.2526	0.2653	0.2805	0.0572	0.2428

Source: CNA analysis of DMDC and TA data.

[a]. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively.

We explore whether the educational attainment of Servicemembers at accession is related to degree completion. In general, enlisted Servicemembers who have associate or bachelor's degrees when they begin using TA are more likely to graduate than their counterparts with high school degrees. On one hand, a prior postsecondary degree could indicate the Servicemember's ability to persist until degree completion. On the other hand, enlisted Servicemembers who have professional degrees at accession are less likely to graduate while using TA. Because these Servicemembers already have

achieved high educational attainment before using TA, the marginal benefit of an additional degree might not provide sufficient incentive.

Furthermore, we find that senior enlisted Servicemembers are more likely to attain degrees than their more junior enlisted peers. Specifically, those in the E7-E9 and W1-W2 paygrades have the highest likelihood of degree completion. This differs from the results for TA use. Younger enlisted Servicemembers were more likely to use TA, but they are in fact *less* likely to receive degrees. Of course, this may be because many Servicemembers leave service before accruing sufficient credits to earn a degree, especially since so many transition after serving only one term and are limited in their ability to use TA in their first few years of service. We see a similar pattern in the results for racial/ethnic characteristics. Black and Hispanic Servicemembers are more likely to use TA than their white counterparts, but, as we show in Table 14, they are *less* likely to receive degrees.

Finally, we examine the marginal effects of each Service compared with the Army. Navy enlisted Sailors are more likely to receive degrees than Army Soldiers, but enlisted Airmen and Marines are less likely than enlisted Soldiers to receive degrees. These Service-level differences could be related to a number of things, including Service culture, differences in Servicemembers' educational objectives across Services, or Servicemembers' ability to take sufficient courses and credits for graduation in each Service. Further research would be required to determine *why* degree attainment is more likely among enlisted Servicemembers in the Navy but less likely in the Air Force and Marine Corps.

We also analyze the relationship between gender, marital status, and number of dependents and the likelihood that a Servicemember receives a degree (see Table 15). DOD-wide, unmarried women without dependents are the least likely to receive degrees, followed by unmarried women with 1-2 dependents. Different patterns emerge in the individual Services. For example, women with 3 or more dependents (both married and unmarried) in the Army are almost 3 percentage points less likely to receive degrees compared with their male unmarried peers without dependents. Meanwhile, in the Navy, women with 3 or more dependents outperform the comparison group by almost 5 percentage points. This is the largest difference we observe for this set of demographic characteristics. Although women with several dependents are more likely to use TA than their male, unmarried peers without dependents, these results imply that they are less likely to receive a degree in the Army, but more likely in the Navy. This might suggest that juggling motherhood, service affiliation, and school commitments is especially demanding for women in the Army compared with women in the Navy. Meanwhile, the effects for men are closer to zero, which implies that dependents, regardless of the Servicemember's marital status, do not seem to jeopardize a man's likelihood of getting a degree.

Table 15. Probability of receiving any degree by FY15: Marginal effects of gender, marital status and dependents, enlisted only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	-2.50%	4.80%	-1.00%	-0.30%	0.10%
Female, married, 1-2 dependents	-2.40%	1.00%	-1.20%	-0.40%	-1.30%
Female, married, 0 dependents	-1.40%	-0.40%	-0.50%	-0.10%	-1.50%
Female, unmarried, 3+ dependents	-2.70%	4.60%	-1.70%	-0.70%	-0.20%
Female, unmarried, 1-2 dependents	-2.60%	0.80%	-1.90%	-0.80%	-1.60%
Female, unmarried, 0 dependents	-1.60%	-0.60%	-1.20%	-0.50%	-1.80%
Male, married, 3+ dependents	-0.90%	2.80%	0.20%	0.20%	0.10%
Male, married, 1-2 dependents	-0.80%	1.60%	0.00%	0.10%	0.10%
Male, married, 0 dependents	0.20%	1.60%	0.70%	0.40%	0.60%
Male, unmarried, 3+ dependents	-1.10%	1.20%	-0.50%	-0.20%	-0.50%
Male, unmarried, 1-2 dependents	-1.00%	0.00%	-0.70%	-0.30%	-0.50%
Male, unmarried, 0 dependents	Comparison group				

Source: CNA analysis of DMDC and TA data.

[a] The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 1-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix F.

Officers

Table 16 reports the marginal effects of military and demographic characteristics on the likelihood that officers receive degrees. Several interesting results emerge for this population. First, DOD-wide, officers who are consecutive or super users are more likely to receive degrees than those who are not. These results, however, are not consistent across the Services. The marginal effects for consecutive and super users are large and positive when significant with one exception—super users in the Navy. That group has a large, negative, and statistically significant effect, suggesting that Navy super users are notably less likely to receive degrees than their non-super-using counterparts.

Furthermore, officers who take most of their courses at PFP institutions are more likely to receive degrees than those who take most of their courses at public institutions. Officers exclusively attending PNFP institutions are even *more* likely to receive degrees than PFP students when compared with public institution students. These results could be related to a number of factors, including greater flexibility of PFPs, differences in

quality of coursework/instruction, or the selection of Servicemembers who have the ultimate goal of degree attainment into PNFP, PFP, and PUB institutions.

Table 16. Probability of receiving any degree by FY15: Marginal effects of military and demographic characteristics, officer only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
TA user type	Consecutive user	4.4%***	4.2%***	-0.6%	-0.4%	3.1%***
	Super user	17.0%***	-11.3%***	1.8%**	0.6%	1.3%*
Educational sector	Most courses PFP	1.7%**	0.0%	2.0%***	-0.3%	1.7%***
	Most courses PNFP	11.6%***	4.9%***	3.0%***	0.2%	6.8%***
	Most courses PUB (comparison group)					
DOD officer occupation	Engineering and Maintenance	4.4%***	2.4%***	-0.9%***	0.1%	0.0%***
	Health Care	-5.5%***	-6.2%***	0.3%		0.0%***
	Administrators	6.1%***	1.6%	-0.9%**	-0.8%	0.0%***
	Tactical Operations (comparison group)					
Initial education	High school	1.6%**	10.1%***	8.9%***	0.9%	6.2%***
	Adult education	-3.6%**	0.9%	6.2%***	5.3%**	0.0%
	Associate degree	2.7%*	6.0%***	7.6%***	1.3%	4.5%***
	Professional degree	-7.5%***	-3.2%***	0.4%	-2.7%*	-4.5%***
	Other credential	5.7%*	13.0%***	29.2%***	0.3%	8.5%***
	Bachelor's degree (comparison group)					
Pay-grade	O4-O5	8.4%***	-4.5%***	-3.2%***	1.1%	0.5%*
	O6-O10	0.8%	-6.9%***	-4.2%***	-0.7%	-6.2%***
	O1-O3 (comparison group)					
Race	Black	1.3%**	0.5%	-0.7%*	0.4%	0.7%**
	Hispanic	1.1%	2.3%**	0.0%	-1.2%*	1.0%**
	White (comparison group)					
Service	Navy					-2.2%***
	Air Force					-21.5%***
	Marine Corps					-22.9%***
	Army (comparison group)					
Sample size		32,318	20,157	46,975	7,541	106,991
Adjusted R-squared		0.2211	0.1944	0.1210	0.0326	0.1918

Source: CNA analysis of DMDC and TA data.

[a]. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively.

Officer occupation is another important factor in degree attainment. We find that occupation results differ for each Service, but Engineering and Maintenance Officers,

Health Care Officers, and Administrators have the strongest relationships with the probability of degree attainment when compared with Tactical Operations Officers.

The education level with which a Servicemember begins his or her military career is another important predictor of whether an officer receives a degree while using TA. An officer with a high school diploma, an associate degree, or a nontraditional high school credential at accession is more likely to receive a degree while using TA than an officer with a bachelor's degree at accession. Because a Servicemember must have a bachelor's degree to be commissioned as an officer, those who begin their military careers with less education but are ultimately officers are enlisted-to-officer transitions. It is not surprising that E-O officers are more likely to get degrees than other officers since acquiring a bachelor's degree is a prerequisite for being an E-O officer. This also implies that TA is successful in helping enlisted Servicemembers to receive officer commissions.

Table 17 shows the number Servicemembers who were enlisted when they started using TA but have an officer paygrade the last time we observe them. These represent the E-to-O transitions that occur while Servicemembers are using TA.

Table 17. Distribution of last observed paygrade for enlisted accessions who transition to officers while using TA, FY99-FY15

Final paygrade	Number	Percentage
O-1	8,954	0.18
O-2	13,471	0.27
O-3	31,795	0.64
O-4	12,668	0.26
O-5	1,339	0.03
O-6	2	0.00
Total	68,229	1.38

Source: CNA analysis of DMDC and TA data.

We also find, as shown in Table 16, that midgrade officers (O4-O5) are slightly more likely to receive degrees than more junior officers, but senior officers are much less likely to receive degrees than junior officers. This result could imply that midgrade officers stand to benefit the most from additional postsecondary degrees, and/or that midgrade officers have an easier time completing the necessary coursework required to obtain degrees. Conversely, the lower degree attainment among junior officers could simply be because many junior officers do not stay to make it to the midgrade or senior officer ranks—that is, they leave before being able to finish a degree on TA. More research would be needed to confirm either of these hypotheses.

In addition, the race/ethnicity results for the "any degree" outcome differ for officers and enlisted. Black and Hispanic officers are more likely to receive degrees than white and non-Hispanic officers, while these groups were less likely to receive degrees among the enlisted population. Because these minority officers already have earned degrees, it shows that they are a select group of blacks and Hispanics; therefore, we might not expect the results from this group to mirror findings in the civilian literature, as was the case for the enlisted population results. Finally, officers in the Army are more likely to graduate with degrees than officers from any of the others Services. Again, this result could imply that Army officers stand to benefit the most from additional postsecondary degrees and/or that Army officers have an easier time completing the necessary coursework required to obtain degrees. More research would be needed to confirm either of these hypotheses.

Table 18 reports the marginal effects of gender, marital status, and number of dependents on an officer's likelihood of receiving a degree. We see a slightly different pattern for these factors when comparing officers and enlisted. For example, male officers who are unmarried and have 3 or more dependents are the least likely to receive degrees DOD-wide, whereas, for the enlisted population, female Servicemembers with 3 or more dependents are the least likely group to receive degrees. In addition, the marginal effects of being a married woman are larger in absolute value in all dependent categories compared with the marginal effects of being an unmarried woman. This suggests that female officers with spouses have a more difficult time balancing their commitments at home, work, and school. Conversely, it could be that there are greater incentives for single women to complete degrees because they are the primary breadwinners; the marginal benefit to the household for married women may not be sufficient to encourage degree attainment. Finally, it appears that Navy officers with any number of dependents, both men and women, complete degrees at lower rates than their peers without dependents. This suggests that officer parents in the Navy might need more counseling support to finish degree programs.

Table 18. Probability of receiving any degree by FY15: Marginal effects of gender, marital status and dependents, officer only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	2.30%	-5.10%	-1.70%	0.00%	-1.20%
Female, married, 1-2 dependents	-1.70%	-2.90%	-1.10%	0.00%	-1.10%
Female, married, 0 dependents	-5.30%	0.20%	-0.40%	0.00%	-1.30%
Female, unmarried, 3+ dependents	2.30%	-5.30%	-1.30%	0.00%	-1.00%
Female, unmarried, 1-2 dependents	-1.70%	-3.10%	-0.70%	0.00%	-0.90%
Female, unmarried, 0 dependents	-5.30%	0.00%	0.00%	0.00%	-1.10%

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Male, married, 3+ dependents	2.40%	-1.40%	-1.30%	0.00%	-0.40%
Male, married, 1-2 dependents	0.00%	0.80%	0.50%	0.00%	0.00%
Male, married, 0 dependents	0.00%	3.90%	1.20%	0.00%	1.40%
Male, unmarried, 3+ dependents	2.40%	-5.30%	-2.50%	0.00%	-1.80%
Male, unmarried, 1-2 dependents	0.00%	-3.10%	-0.70%	0.00%	-1.40%
Male, unmarried, 0 dependents	Comparison group				

Source: CNA analysis of DMDC and TA data.

a. The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 1-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix F.

Determinants of receiving a bachelor's degree (or higher)

In this subsection, we estimate the relationship between Servicemember characteristics and the likelihood of receiving a bachelor's degree or higher while using TA.

Enlisted

Our findings regarding the relationships between demographic and military characteristics and the likelihood of receiving any degree were somewhat different from the relationships for the likelihood of receiving a bachelor's degree or higher. Table 19 reports the marginal effects of these characteristics for the enlisted population. Consecutive users are less likely to receive bachelor's degrees or higher in the Army, Navy, and Marine Corps, but more likely to receive these degrees in the Air Force. These results are somewhat counterintuitive for the Army, Navy, and Marine Corps; we would expect consecutive use to be associated with a higher likelihood of receiving any degree. In addition, super use is associated with a lower likelihood of receiving bachelor's degrees or higher in *all* of the Services. These results might stem from the large number of enlisted users who do not intend to pursue bachelor's degrees when using TA. These results suggest that those who are using TA in a concentrated (super users) and persistent (consecutive users) manner might be more likely to be pursuing associate degrees or some type of certificate.

Similar to the any-degree results, we see that students attending most of their courses at PFP and PNFP institutions are, in general, more likely to receive bachelor's degrees or higher than are their majority PUB-institution-attending peers. Again, this might be a result of the greater flexibility that private institutions provide military students.

Table 19. Probability of receiving a bachelor's degree or higher using TA by FY15: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
TA user type	Consecutive user	-4.1%***	-1.1%***	8.1%***	-1.1%***	-0.1%
	Super user	-2.4%***	-8.9%***	-12.5%***	-0.3%**	-5.9%***
Educational sector	Most courses PFP	3.4%***	2.2%***	2.7%***	-0.1%***	2.4%***
	Most courses PNFP	2.9%***	3.9%***	5.6%***	0.3%***	3.8%***
	Most courses PUB (comparison group)					
Initial education	Associate degree	3.2%***	10.1%***	8.6%***	1.6%***	8.5%***
	Bachelor's degree	4.8%***	5.8%***	7.0%***	1.4%***	6.2%***
	Professional degree	-0.6%*	2.5%**	-5.3%***	0.5%	-1.8%***
	Traditional high school diploma (comparison group)					
Pay-grade	E4-E6	-1.6%***	-1.5%***	-2.5%***	-0.2%***	-1.9%***
	E7-E9	1.8%***	3.8%***	6.5%***	0.5%***	3.4%***
	W1-W2	-5.1%***	0.6%		-2.7%***	-3.0%***
	W3-W5	-3.0%***	1.3%		-1.8%***	-2.0%***
	E1-E3 (comparison group)					
Race	Black	-0.3%***	-0.8%***	-0.5%***	0.0%	-0.7%***
	Hispanic	-0.4%***	-0.6%***	-0.5%***	-0.2%***	-0.5%***
	White (comparison group)					
Service	Navy					2.8%***
	Air Force					1.9%***
	Marine Corps					-2.2%***
	Army (comparison group)					
Sample size		438,891	222,904	331,454	137,771	1,131,020
Adjusted R-squared		0.2309	0.2352	0.2836	0.0527	0.2356

Source: CNA analysis of DMDC and TA data.

[a.] Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively.

Furthermore, in each Service, those who already have associate or bachelor's degrees at accession are more likely to graduate with bachelor's degrees or higher compared with those who have only high school diplomas when they join the military. This is not surprising since these Servicemembers already have shown that they can complete postsecondary degrees. In contrast, those who had professional degrees at accession are less likely to receive bachelor's degrees in the Army or the Air Force compared with those who have high school diplomas, but they are more likely to receive bachelor's degrees or higher in the Navy compared with those who have high school diplomas.

Those with professional degrees in the Army and Air Force might have less of an incentive to finish degrees than those with high school diplomas because a second advanced postsecondary degree may not have as large a marginal benefit as the first postsecondary degree. It is unclear why the effect is only large in the Air Force, so more research would be needed to fully understand this result.

We also find a significant relationship between paygrade and the likelihood of attaining a bachelor's degree or higher. Specifically, E4-E6 Servicemembers and Warrant Officers are *less* likely to receive bachelor's degrees or higher using TA than their E1-E3 counterparts.[30] Meanwhile, E7-E9 Servicemembers are *more* likely than the E1-E3 population to receive bachelor's degrees or higher using TA. These findings are somewhat counterintuitive: if E7-E9 Servicemembers are more likely to receive bachelor's degrees or higher using TA, we would expect the same to be true of E4-E6 Servicemembers (or at least for there to be no statistically significant difference).

There also are significant differences across racial/ethnic groups and by Service affiliation. Black and Hispanic enlisted Servicemembers are less likely to receive bachelor's degrees or higher using TA compared with white and non-Hispanic Servicemembers. This is consistent with our findings for any degree, as well as with the civilian literature, where we see that racial and ethnic minorities are less likely to receive degrees than their white peers [27]. Finally, enlisted Navy and Air Force Servicemembers are more likely to receive bachelor's degrees or higher than their enlisted Army counterparts; however, enlisted Marines are less likely than enlisted Soldiers to receive bachelor's degrees or higher using TA. Thus, TA use is most likely to result in a four-year degree or higher in the Navy and Air Force, less likely in the Army, and least likely in the Marine Corps. We suspect this may be related to differences in the types of occupations and assignments in each Service, in addition to the fact that a large portion of Marines serve only one term, but further research would be necessary to determine why these Service-level differences exist.

In Table 20, we report the relationship between gender, marital status, and the number of dependents and the likelihood that enlisted Servicemembers receive bachelor's degrees or higher using TA. Compared with unmarried male TA users without dependents, female TA users with dependents, both married and unmarried, are the least likely to receive bachelor's degrees or higher, followed by female TA users with no dependents, both married and unmarried, and then male TA users with dependents, both married and unmarried. Thus, it appears that women are most disadvantaged, regardless of their marital or dependent status. However, married men without dependents are more likely to receive bachelor's degrees or higher than unmarried men without dependents. These results suggest that it is more difficult for both

[30] Enlisted personnel who attained degrees and transitioned to officer status are excluded from these numbers since they now count as officers. Those are Servicemembers who, had they stayed enlisted, might have increased degree attainment for the E4-E6 population.

mothers and fathers to persist to graduation for bachelor's degrees or higher than it is for male Servicemembers without children, perhaps because parents do not have sufficient time to dedicate to their education while working full-time in the military. Similarly, the statistically significant marginal effects for women without children suggest that time constraints may be a factor in completion.

Table 20. Probability of receiving a bachelor's degree or higher using TA by FY15: Marginal effects of gender, marital status, and dependents, enlisted only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	-2.40%	-0.90%	-1.30%	-0.40%	-1.70%
Female, married, 1-2 dependents	-1.80%	-1.60%	-1.40%	-0.50%	-1.90%
Female, married, 0 dependents	-1.10%	-0.90%	-0.70%	-0.20%	-1.30%
Female, unmarried, 3+ dependents	-2.50%	-1.00%	-1.90%	-0.60%	-1.90%
Female, unmarried, 1-2 dependents	-1.90%	-1.70%	-2.00%	-0.70%	-2.10%
Female, unmarried, 0 dependents	-1.20%	-1.00%	-1.30%	-0.40%	-1.50%
Male, married, 3+ dependents	-1.60%	0.80%	0.00%	0.00%	-0.80%
Male, married, 1-2 dependents	-1.00%	0.10%	-0.10%	-0.10%	-0.40%
Male, married, 0 dependents	-0.30%	0.80%	0.60%	0.20%	0.20%
Male, unmarried, 3+ dependents	-1.30%	0.00%	-0.60%	-0.20%	-1.00%
Male, unmarried, 1-2 dependents	-0.70%	-0.70%	-0.70%	-0.30%	-0.60%
Male, unmarried, 0 dependents	Comparison group				

Source: CNA analysis of DMDC and TA data.

[a] The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 10-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix F.

Officers

In Table 21, we highlight interesting marginal effects of military and demographic characteristics on the likelihood that officers using TA receive bachelor's degrees or

higher. These results are very similar to officers' results for any degree; this is not surprising since officers using TA are most likely pursuing at least bachelor's degrees. TA officers who are consecutive users are more likely to receive bachelor's degrees or higher in the Army, the Navy, and DOD-wide; however, we find no statistically significant effects of consecutive TA use in the Air Force or Marine Corps. This result is similar to what we found in the any-degree and the TA-user estimations, and it could be that consecutive users are more persistent in the Army and Navy and therefore more likely to continue taking courses until they earn their degrees. Super users are more likely to receive bachelor's degrees or higher in the Army and the Air Force, while they are less likely to complete bachelor's degrees or higher in the Navy, and the marginal effect is not significant in the Marine Corps. It is not clear why these differences exist across the Services, so further research is needed to disentangle these differences.

Educational sector also is an important determinant of bachelor's or higher degree attainment using TA. Similar to the previous results that we have discussed, we find that TA-using officers taking most of their courses at PFP and PFNP institutions are more likely to graduate with bachelor's degrees or higher than those predominantly taking courses at PUB institutions. Again, this might be because private institutions offer curricula that can better accommodate a Servicemember's schedule.

In addition, officer occupation is related to bachelor's or higher degree attainment using TA. We see that Engineering Maintenance Officers and Administrators are more likely and Health Care Officers are less likely than Tactical Operations Officers to receive bachelor's degrees or higher while using TA. On one hand, this suggests that the marginal benefit of receiving an additional degree in the Engineering Maintenance and the Administrative occupations could be higher than in the Tactical Operations occupation, and lower in the Health Care Officer occupation. On the other hand, people may self-select into certain occupations based on their educational ambitions, which could contribute to these occupational differences.

Next, we see that the education level with which a Servicemember begins his or her military career is an important predictor of whether an officer receives a bachelor's degree or higher while using TA. Those who begin their careers with high school diplomas, associate degrees, or other nontraditional high school credentials (meaning they were initially enlisted and transitioned to the officer ranks) are more likely to receive bachelor's degrees or higher while using TA than officers who begin their military careers with bachelor's degrees. Because they are making E-O transitions, they potentially started using TA with this educational goal in mind, making them more likely to attain at least bachelor's degrees.

Table 21. Probability of receiving a bachelor's degree or higher using TA by FY15: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
TA user type	Consecutive user	4.0%***	3.2%***	-0.7%	-0.2%	2.3%***
	Super user	16.6%***	-12.9%***	1.8%**	0.6%	1.1%
Educational sector	Most courses PFP	2.6%***	1.3%*	2.1%***	-0.3%	2.1%***
	Most courses PNFP	12.7%***	6.1%***	3.1%***	0.4%	7.2%***
	Most courses PUB (comparison group)					
DOD occupation	Engineering and Maintenance Officers	4.6%***	-1.1%	-0.8%***	0.2%	2.6%***
	Health Care Officers	-5.3%***	-5.2%***	-0.2%		-3.0%***
	Administrators	6.5%***	-0.3%	-1.0%***	-0.7%	4.0%***
	Tactical Operations Officers (comparison group)					
Initial education	High school	-0.8%	3.5%***	8.0%***	0.3%	3.1%***
	Adult education	-4.1%**	-1.6%	5.9%***	6.2%***	-0.9%
	Associate degree	3.0%*	7.6%***	7.6%***	0.9%	5.4%***
	Professional degree	-7.9%***	-3.2%***	0.3%	-2.6%**	-4.1%***
	Other credential	3.7%	3.0%	29.8%***	1.2%	3.7%**
	Bachelor's degree (comparison group)					
Pay-grade	O4-O5	9.2%***	-1.2%*	-2.9%***	1.4%**	2.0%***
	O6-O10	1.6%	-3.3%**	-3.9%***	-0.5%	-3.8%***
	O1-O3 (comparison group)					
Race	Black	1.4%**	0.4%	-0.6%*	0.3%	0.7%**
	Hispanic	1.1%	1.9%*	0.0%	-1.3%**	0.9%**
	White (comparison group)					
Service	Navy					-5.1%***
	Air Force					-21.2%***
	Marine Corps					-22.2%***
	Army (comparison group)					
Sample size		32,318	20,157	46,975	7,541	106,991
Adjusted R-squared		0.2173	0.1387	0.1148	0.0255	0.1707

Source: CNA analysis of DMDC and TA data.

[a]. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively.

Officer rank also is related to a bachelor's or higher degree attainment using TA. Midgrade officers (O4-O5) are most likely to receive bachelor's degrees or higher using TA compared with senior officers (O6-O10) and the O1-O3 comparison group. As was the case with enlisted Servicemembers, the lower attainment rate for the O1-O3 officers may be because they transitioned out of service before being able to complete their degrees. These were the same results we saw for the any-degree outcome, and the same intuition applies here as well. That is, either midgrade officers have a greater potential benefit of receiving additional bachelor's degrees or higher, or it is easier for them to complete the coursework required, as compared with senior and junior officers. We also observe parallel results for the racial, ethnic, and Service controls between the bachelor's degree or higher and the any-degree estimations, with parallel interpretations as in the previous model.

In Table 22, we report the relationship between gender, marital status, and number of dependents and the likelihood that officers receive bachelor's degrees or higher using TA. These results are less intuitive than and differ from what we found for the enlisted population. DOD-wide, married and unmarried women without dependents complete bachelor's degrees or higher at the lowest rates, compared with unmarried men without dependents. Yet, DOD-wide, there is no statistical difference in the likelihood that an unmarried woman with 3 or more dependents will complete a bachelor's degree or higher using TA compared with an unmarried man without dependents. For the enlisted population, we found that these unmarried women with dependents were the *least* likely to complete degrees.

The results differ by Service as well. In fact, when comparing the Army and Navy, results have the opposite signs in almost every category. For example, compared with unmarried men without dependents, unmarried women with 3 or more dependents are 3.5 percentage points *more* likely to complete bachelor's degrees or higher using TA in the Army, and 3.1 percentage points *less* likely to complete bachelor's degrees or higher in the Navy. Meanwhile, none of the marginal effects are statistically significant for Marine Corps officers. These results suggest that Service-specific policies and incentives for officers to receive bachelor's degrees or higher are potentially driving these results. The marginal benefit of this kind of degree could be higher for these women than others. However, these data are insufficient to confirm any of these theories; a more detailed analysis, by Service, would be needed to fully explain these results.

Table 22. Probability of receiving a Bachelor's degree or higher using TA by FY15: Marginal effects of gender, marital status and dependents, officer only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	3.50%	-0.50%	-1.30%	0.00%	-0.40%
Female, married, 1-2 dependents	-1.80%	1.00%	-1.10%	0.00%	-1.10%
Female, married, 0 dependents	-5.30%	2.60%	-0.40%	0.00%	-1.70%
Female, unmarried, 3+ dependents	3.50%	-3.10%	-0.90%	0.00%	0.00%
Female, unmarried, 1-2 dependents	-1.80%	-1.60%	-0.70%	0.00%	-0.70%
Female, unmarried, 0 dependents	-5.30%	0.00%	0.00%	0.00%	-1.30%
Male, married, 3+ dependents	3.30%	-0.50%	-1.20%	0.00%	0.30%
Male, married, 1-2 dependents	0.00%	1.00%	0.40%	0.00%	0.10%
Male, married, 0 dependents	0.00%	2.60%	1.10%	0.00%	1.00%
Male, unmarried, 3+ dependents	3.30%	-3.10%	-2.30%	0.00%	-0.70%
Male, unmarried, 1-2 dependents	0.00%	-1.60%	-0.70%	0.00%	-0.90%
Male, unmarried, 0 dependents	Comparison group				

Source: CNA analysis of DMDC and TA data.

[a]. The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 10-percent level or better. Thus, any demographic group's marginal effect that is non-zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service—full results can be found in Appendix F.

Determinants of course completion rate

Finally, we estimate the relationship between Servicemember characteristics and course completion rates while using TA. Course completion rates are an important outcome to consider because they are the most basic measure of TA success—indicating whether a Servicemember passed a course, regardless of whether those credits are later used to attain a degree. Failing courses is costly to Servicemembers for a number of reasons. First, according to policy, they must pay back the tuition for any courses they fail. Second, there is a loss of time spent on coursework that did not culminate in a productive outcome. Finally, there are implications for morale and quality of life when Servicemembers experience failure: a demoralized force may, in fact, be a less ready force. Thus, it is important to understand the determinants of Servicemembers' course completion rates.

Enlisted

Table 23 reports the marginal effects of Servicemembers' characteristics on their cumulative completion rates while using TA for the enlisted population. Consecutive and super users have higher overall completion rates in each Service. These categories of users might represent more dedicated students who are therefore more likely to complete TA-funded courses. We also see that enlisted Servicemembers taking most of their courses at PFP and PNFP institutions are more likely to complete courses than students taking most of their courses at public institutions. Again, increased flexibility at private institutions most likely explains this result.

Table 23. TA cumulative course completion rate by FY15: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
TA user type	Consecutive user	10.3%***	19.8%***	7.1%***	12.0%***	11.7%***
	Super user	12.2%***	1.9%***	7.3%***	11.1%***	8.7%***
Educational sector	Most courses PFP	3.6%***	0.6%***	1.3%***	1.2%***	2.0%***
	Most courses PNFP	4.4%***	4.7%***	4.1%***	7.4%***	4.9%***
	Most courses PUB (comparison group)					
Initial education	Associate degree	4.0%***	2.4%***	1.4%***	1.6%**	2.0%***
	Bachelor's degree	6.1%***	3.2%***	4.7%***	1.6%	5.0%***
	Professional degree	2.1%***	4.3%***	4.5%***	-8.1%*	4.3%***
	Traditional high school diploma (comparison group)					
Pay-grade	E4-E6	9.5%***	8.2%***	6.7%***	8.8%***	8.2%***
	E7-E9	14.0%***	11.5%***	10.3%***	13.0%***	12.3%***
	W1-W2	-0.8%	-0.7%		-2.2%	-1.3%**
	W3-W5	-0.2%	0.1%		0.6%	-0.1%
	E1-E3 (comparison group)					
Race	Black	-7.5%***	-6.9%***	-6.7%***	-7.3%***	-7.0%***
	Hispanic	-2.0%***	-1.6%***	-1.7%***	-3.0%***	-2.1%***
	White (comparison group)					
Service	Navy					8.1%***
	Air Force					10.1%***
	Marine Corps					6.7%***
	Army (comparison group)					
Sample size		477,832	243,446	359,198	154,151	1,234,627
Adjusted R-squared		0.1210	0.1212	0.0954	0.0990	0.1330

Source: CNA analysis of DMDC and TA data.

[a.] Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively.

Those who begin their military careers with associate, bachelor's, or professional degrees have higher overall TA-funded course completion rates than those who begin their careers with only high school diplomas. This is to be expected since those with any type of postsecondary degree have previously completed college courses, proving that they have the ability to do so.

Paygrade also has a relationship with enlisted Servicemember TA-funded course completion rates. Midgrade (E4-E6) and senior (E7-E9) enlisted Servicemembers are more likely, and Warrant Officers are less likely, than E1-E3 Servicemembers to complete TA-funded courses. Black enlisted Servicemembers have a 7-percentage-point lower course completion rate than white Servicemembers, while Hispanic enlisted Servicemembers have a 2-percentage-point lower course completion rate than non-Hispanic Servicemembers. This result is consistent with literature finding that racial and ethnic minorities have worse educational outcomes than their peers [27]. Finally, Air Force enlisted Servicemembers complete TA-funded courses at the highest rates, followed by Navy, Marine Corps, and Army enlisted Servicemembers.

Table 24 reports results on how gender, marital status, and the number of dependents are related to cumulative course completion rates for enlisted Servicemembers. Women, both married and unmarried, with 3 or more dependents have the lowest course completion rates, followed by unmarried women with 1-2 dependents, unmarried men with 3 or more dependents, unmarried men with 1-2 dependents, and then married women with 1-2 dependents. All married men and married women with no dependents are more likely to complete courses compared with unmarried men with no dependents (the comparison group). These results suggest that it is more difficult for both male and female parents to complete courses than those who are not parents, and among parents it is more difficult for the unmarried than the married.

Table 24. Cumulative TA-funded course completion rates: Marginal effects of gender, marital status and dependents, enlisted only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	-4.10%	-1.80%	-0.50%	-1.90%	-2.30%
Female, married, 1-2 dependents	-0.90%	-1.30%	1.30%	-2.10%	-0.20%
Female, married, 0 dependents	1.40%	1.00%	2.10%	-1.20%	1.30%
Female, unmarried, 3+ dependents	-5.50%	-2.80%	-2.60%	-2.90%	-3.80%
Female, unmarried, 1-2 dependents	-2.30%	-2.30%	-0.80%	-3.10%	-1.70%
Female, unmarried, 0 dependents	0.00%	0.00%	0.00%	-2.20%	-0.20%
Male, married, 3+ dependents	-0.80%	1.60%	2.10%	0.30%	0.40%
Male, married, 1-2 dependents	0.60%	1.60%	2.10%	0.10%	1.00%
Male, married, 0 dependents	1.40%	1.60%	2.10%	1.00%	1.50%
Male, unmarried, 3+ dependents	-2.20%	0.00%	0.0%	-0.70%	-1.10%

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Male, unmarried, 1-2 dependents	-0.80%	0.00%	0.00%	-0.90%	-0.50%
Male, unmarried, 0 dependents	Comparison group				

Source: CNA analysis of DMDC and TA data.

[a.] The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are summed are statistically significant at the 10-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix F.

Officers

Table 25 reports the marginal effects of officers' military and demographic characteristics on their cumulative TA-funded course completion rates. The signs on the officer marginal effects are generally the same across Services for each factor; we therefore only summarize the TA-funded results here. We find significant relationships between cumulative DOD-wide course completion and a number of characteristics, including the frequency/consistency of TA use, educational sector, initial education level (when starting to use TA), paygrade, racial/ethnic group, and Service affiliation.

First, both consecutive and super TA users have higher course completion rates than those who are not such TA users. These characteristics might signal officers who are perhaps more dedicated to their coursework while they are taking courses and, therefore, more likely to complete those courses.

In terms of educational sector, we find that those who take most of their courses in the PFP sector have lower course completion rates than those who take most of their courses in the public sector. This result differs from what was seen in previous results (enlisted course completion, enlisted and officer bachelor's or higher degree completion, enlisted and officer any-degree completion) where the PFP sector was positively related to these outcomes. This result is more consistent with what is seen in the literature when it comes to the outcomes of PFP students [8]. Conversely, officers who take most of their courses in the PNFP sector have higher course completion rates, on average, compared to their majority-PUB-sector peers. This result is more consistent with the previous results and previous literature on PNFP students, which show that PNFP students have the highest graduation rates of any sector [8].

Table 25. TA cumulative course completion rate by FY15: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a]

Characteristics		Army	Navy	Air Force	Marine Corps	DOD
TA user type	Consecutive user	17.0%***	14.5%***	16.7%***	17.6%***	16.1%***
	Super user	0.1%	-2.0%**	-7.8%***	-5.2%***	-5.1%***
Educational sector	Most courses PFP	-3.3%***	-0.2%	-0.9%***	-3.1%***	-1.7%***
	Most courses PNFP	3.2%***	3.1%***	2.6%***	4.3%***	3.0%***
	Most courses PUB (comparison group)					
Initial education	High school	-2.2%***	-0.8%	-1.7%***	2.1%**	-1.1%***
	Adult education	-3.5%***	-3.3%***	-2.3%***	-1.6%	-2.5%***
	Associate degree	0.7%	0.0%	1.3%**	2.0%	0.9%**
	Professional degree	-3.3%***	-2.0%***	2.3%***	-0.9%	-0.9%**
	Other credential	-5.7%***	-2.7%	-6.1%	1.7%	-4.0%***
	Bachelor's degree (comparison group)					
Pay-grade	O4-O5	2.5%***	1.5%***	0.3%	1.9%**	1.7%***
	O6-O10	6.4%***	3.0%***	3.0%***	11.1%*	4.1%***
	O1-O3 (comparison group)					
Race	Black	-5.7%***	-3.2%***	-4.5%***	-7.5%***	-5.1%***
	Hispanic	-2.1%***	-0.9%	-1.7%***	-0.9%	-1.5%***
	White (comparison group)					
Service	Navy					4.9%***
	Air Force					4.8%***
	Marine Corps					3.8%***
	Army (comparison group)					
Sample size		33,611	20,558	48,170	7,803	110,142
Adjusted R-squared		0.1129	0.0674	0.0814	0.0919	0.0950

Source: CNA analysis of DMDC and TA data.

[a]. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively.

Education level at accession also has a significant relationship to officers' cumulative course completion rates while using TA. Those with associate degrees at accession have higher TA-funded course completion rates (likely while they are enlisted Servicemembers) compared with their counterparts who have bachelor's degrees at accession. This is not surprising since these associate degree students are only two credit years away from receiving bachelor's degrees and have a strong incentive to earn their bachelor's degrees to receive officer commissions. However, officers with high school diplomas, other nontraditional high school credentials, or some adult education have *lower* course completion rates, on average, than their bachelor's-degree-holding

counterparts. These students are farther away from receiving bachelor's degrees and, therefore, have not yet experienced as much success in postsecondary education as those who have associate degrees. Those who begin their military careers with professional degrees also have lower TA-funded course completion rates, on average, than those who begin their military careers with bachelor's degrees. Since these officers already have professional degrees, they might have less incentive than their peers to perform well in TA courses.

In addition, both midgrade (O4-O5) and senior (O6-O10) officers have higher TA-funded course completion rates than their junior (O1-O3) officer counterparts. This suggests that these more senior officers are either more dedicated to completing their coursework, compared to more junior officers, or it is somehow easier for more senior officers to complete courses. We also find that black officers and Hispanic officers have lower TA-funded course completion rates than their white and non-Hispanic peers. This result differs from the degree completion results, where black and Hispanic officers are more likely than white and non-Hispanic officers to complete degrees. Therefore, if black and Hispanic officers are completing courses at lower rates than white and non-Hispanic officers, they must be spending more of their TA benefits on courses but graduating at higher rates. Finally, Army officers have lower TA-funded course completion rates compared with officers in other Services. Because Army officers are receiving degrees at higher rates than their peers in other Services, they also must be spending more TA dollars on coursework than TA-using officers in other Services, if they are completing courses at lower rates.

Table 26 reports the relationship between gender, marital status, and number of dependents and officers' TA-funded course completion rates. We find that, regardless of the number of dependents, married female and male officers have higher course completion rates than the comparison group (unmarried male officers without dependents). This could imply that having the support of a spouse makes course completion (while working) more feasible, or perhaps that those officers who have spouses and are choosing to sacrifice free time to attend school and work full-time are dedicated to completing their coursework. The only groups less likely than the comparison group to complete courses are unmarried men and women with 3 or more dependents. These results suggest that it might be difficult for single parents with lots of dependents to balance work and school.

Table 26. Cumulative TA-funded course completion rates: Marginal effects of gender, marital status and dependents, officer only, FY99-FY15[a]

Demographic group	Army	Navy	Air Force	Marine Corps	DOD
Female, married, 3+ dependents	1.60%	2.20%	2.30%	7.30%	2.00%
Female, married, 1-2 dependents	1.60%	2.20%	2.50%	7.30%	2.60%
Female, married, 0 dependents	1.60%	2.20%	3.10%	7.30%	2.60%
Female, unmarried, 3+ dependents	0.00%	0.00%	-0.80%	3.90%	-0.60%
Female, unmarried, 1-2 dependents	0.00%	0.00%	-0.60%	3.90%	0.00%
Female, unmarried, 0 dependents	0.00%	0.00%	0.00%	3.90%	0.00%
Male, married, 3+ dependents	1.60%	2.20%	2.30%	3.40%	2.00%
Male, married, 1-2 dependents	1.60%	2.20%	2.50%	3.40%	2.60%
Male, married, 0 dependents	1.60%	2.20%	3.10%	3.40%	2.60%
Male, unmarried, 3+ dependents	0.00%	0.00%	-0.80%	0.00%	-0.60%
Male, unmarried, 1-2 dependents	0.00%	0.00%	-0.60%	0.00%	0.00%
Male, unmarried, 0 dependents	Comparison group				

Source: CNA analysis of DMDC and TA data.

[a]. The marginal effects shown in this table are computed by summing the marginal effects for the female, dependents, and married characteristics, as well as their interaction terms, as appropriate. All summed effects shown are statistically significant at the 10-percent level or better. Thus, any demographic group's marginal effect that is not zero can be thought of as statistically significantly different from the effect for unmarried men without dependents (the comparison group). Significance for individual characteristics varies by estimation and Service; full results can be found in Appendix F.

Summary

Several overarching themes emerge from our analysis of the relationship between military and demographic characteristics and positive TA outcomes (any degree, bachelor's or higher, course completion rates). First, we find that those Servicemembers who are most likely to use TA sometimes have the lowest completion rates. For example, among enlisted Servicemembers, racial and ethnic minorities attain degrees and complete courses at lower rates, even though they are more likely to use TA than their white and non-Hispanic counterparts. Next, we find that gender, marital status, and the number of dependents are important determinants of positive TA outcomes. In general, the lowest rates of positive TA outcomes are among unmarried women with dependents. This implies that single mothers may struggle to find sufficient time to juggle their full-time jobs in uniform, their familial responsibilities, and their educational goals.

Educational sector also is an important determinant of positive TA outcomes. Enlisted Servicemembers taking most of their TA-funded courses in the PFP and PNFP sectors generally outperform (both in degree attainment and course completion) those who take most of their courses in the public sector. This deviates from the trends found in the civilian literature, where students in the PFP sector are less likely to graduate and have lower course completion rates. In addition, compared with officers who take most of their courses in the public sector, officers who take most of their TA-funded courses in the PFP or PNFP sectors are more likely to attain degrees, but they have lower course completion rates if they take most of their courses in the PFP sector. This implies that while officers *graduate* from the PFP sector at higher rates, they *complete courses* in this sector at lower rates. Since course completion is the most basic measure of success and represents the immediate return on TA spending, this suggests that officers taking most of their courses in the PFP sector might be using TA dollars less efficiently than those who take most of their courses in the public sector.

Education status at accession also is an important determinant of positive TA outcomes. In general, those who have previously attained some type of postsecondary degree before beginning TA use have more positive outcomes while using TA. This is to be expected because these Servicemembers already have proved that they can be successful in college-level courses and can persist to degree attainment. Finally, we do not see any consistent pattern in positive TA outcomes by Service.

Concluding Remarks and Counseling Recommendations

Off-duty education is not without risks. Prior research has demonstrated that engagement in the education system can have adverse effects for those who do not ultimately attain a degree—such Servicemembers might acquire debt in pursuit of their education but never receive the full benefit from taking on that debt. In addition, evidence exists that the variance has increased in *both* college graduates' earning and debt levels over the past several decades—making college more worthwhile for some (those with ultimately higher earnings) but no longer financially worthwhile for others (those with higher debt). For those who experience bouts of underemployment, do not complete their degrees, or have more debt than their future incomes can support, college can in fact be a poor investment. With these risks in mind, we have focused this report on identifying the Servicemember characteristics related to TA use and positive education outcomes and highlighting those groups that could potentially benefit from further counseling to ensure that they are using TA efficiently to achieve their desired educational goals.

Throughout this report, we have identified the Servicemember characteristics—both demographic and military—that are associated with the likelihood that a given Servicemember uses TA, is a TA super user, is a TA consecutive user, and has positive TA outcomes (attains any degree, a bachelor's degree or higher, or a high course completion rate) *conditional* on TA use. These estimations have allowed us to identify the subpopulations that we consider in greatest need of TA counseling: those who are least likely to use TA as well as those who are more likely to use TA but less likely to experience positive TA outcomes.

First, there are a number of Servicemember subpopulations that are less likely to experience positive TA outcomes simply because they are less likely to *use* TA at all. Among the enlisted, TA use is significantly less likely for those in the following occupations: Infantry, Gun Crews, and Seamanship Specialties; Electrical/Mechanical Equipment Repairers; Craftsworkers; and Service and Supply Handlers. The officers least likely to use TA are Intelligence Officers, Scientists and Professionals, and Health Care Officers. We also find that more senior Servicemembers are less likely to use TA, among both officers and enlisted: those in the E4-E6, E7-E9, O4-O5, and O6-O10 paygrades are less likely to use TA than their E1-E3 and O1-O3 counterparts. In the case of both occupational and paygrade differences, further research is required to disentangle the *reasons* for lower TA use among certain groups. It could be, for example, that Servicemembers in these occupations, on average, have less *interest* in using TA and furthering their education; conversely, it could be that there are occupational barriers to TA use, such as job responsibilities and deployment

frequency. Similarly, more senior Servicemembers may be less likely to use TA because they already have fulfilled their educational goals, or they may find that their leadership and other responsibilities make it too difficult to juggle school, family, and a successful military career. That said, the most important role that DOD and the Services can play in encouraging TA use and educational attainment is to remove potential barriers and provide sufficient guidance. More senior Servicemembers, for example, could be counseled on the benefits of getting additional education, perhaps in the form of an advanced degree (if this is desirable). Servicemembers in the noted occupations could be counseled on ways to successfully manage job and school responsibilities.

Other populations are among the least likely to *consecutively* use TA. Consecutive TA use often is found to be positively related to positive TA outcomes (such as cumulative graduation and course completion rates). Therefore, encouraging consecutive TA use could be a way for DOD and the Services to improve overall TA outcomes. Although they are more likely to *use* TA, enlisted Servicemembers in the E1-E3 paygrades are *less* likely to consecutively use TA. At these lower paygrades, these Servicemembers' responsibilities are less than they will be at later career points, making consecutive TA use more possible for this population; in addition, having not yet been promoted to mid-level enlisted ranks, they may be incentivized to consistently use TA to acquire additional education, perhaps as a way to distinguish themselves from their peers. Since using TA consecutively pays dividends for course completion rates—the most fundamental measure of TA success—we recommend counseling these Servicemembers to not only use TA (which they do at higher rates) but to do so with longer term goals in mind, which will encourage them to take courses over several years. Among both officers and the enlisted, we also find a significant negative relationship between being an unmarried man without dependents and consecutive TA use. Once again, this is a demographic group with relatively few familial responsibilities, on average, suggesting that they might have the time to devote to consistent TA use; counseling them to do so could result in long-term benefits for these Servicemembers.

The other main opportunity for providing counseling to Servicemembers lies in those populations that are more likely to *use* TA but less likely to experience positive TA outcomes. Among enlisted, black Servicemembers, those in the E1-E3 paygrades, and women with 3 or more dependents, are all more likely than their counterparts to *use* TA, but they are less likely to attain a degree (and black Servicemembers are among those less likely to earn a bachelor's degree or higher). These groups also have lower course completion rates, all else equal. This suggests that these populations are not lacking in the *desire* for additional education but perhaps could use guidance on how to navigate the educational system and successfully balance their educational and other goals. Among officers, we find that black and Hispanic officers have lower TA-funded course completion rates than their white and non-Hispanic counterparts, although they are *more* likely to attain degrees. We also find significant differences in

TA outcomes by educational sector. Among all TA users—both enlisted and officers—those who took most of their TA-funded courses at PFP or PNFP institutions were more likely to attain degrees, earn bachelor's degrees or higher, and have higher course completion rates. This may be because of the greater flexibility offered by these schools. Ultimately, this suggests that those taking most courses at public institutions are the least likely to experience positive TA outcomes. Such Servicemembers might benefit from early discussions about how achieving success at a public institution while in the military can be challenging and from strategies regarding how to succeed in that environment. There is, of course, no guarantee that this will be sufficient to improve TA outcomes. It may be that public institutions have fewer resources available for counseling Servicemembers and ensuring that they achieve their educational goals.

Table 27 highlights the subpopulations' differences in TA use and course completion rate. We chose course completion rate (and not degree attainment) because it is the most fundamental measure of TA success and does not suffer from the underestimation bias inherent in the degree measures (since many Servicemembers complete degrees after leaving service). In addition, it is the measure with potential immediate effects on overall quality of life and morale (since course noncompletions may cause Servicemembers to feel like failures). This table highlights those subgroups in the highest risk quadrant, where TA use is high but the course completion rate is low, as well as those in other quadrants. Subpopulations in the bottom right quadrant are those that we would suggest are most in need of counseling services.

We note that, although we did find sizable associations between Service affiliation and TA outcomes/use, we do not find these differences to be suggestive of a greater need for counseling in some Services. We find, for example, that enlisted Airmen and Sailors are among the most likely to use TA and to earn bachelor's degrees or higher. In addition, our results suggest that Navy and Marine Corps officers are the most likely to use TA, while Air Force and Marine Corps officers are the most likely to consecutively use TA. Yet because we cannot determine whether such differences are due to Service cultures and policies or the fact that educational goals vary by Service, we do not recommend increasing Service-specific counseling based on these results.

Overall, there is evidence of positive outcomes from TA use among Servicemembers. The program is clearly used to advance Servicemembers' education, in some cases at such levels to allow enlisted Servicemembers to become commissioned officers. And the program is used not only to get traditional four-year degrees but also to get associate degrees and advanced degrees. Servicemembers are thus using TA to meet their specific goals and needs. That said, we have identified some subpopulations whose outcomes would likely improve from focused counseling efforts.

Table 27. Course completion rate and TA use "risk quadrants"

	Probability of TA use	
	Low use	**High use**
Cumulative course completion rate: High completion	**Low risk** • E4-E6, E7-E9 • Enlisted with initial education of associate, bachelor's, or professional degree (E-O transitions) • O4-O5, O6-O10	**Low risk** • Officers with initial education of associate, bachelor's, or professional degree
Cumulative course completion rate: Low completion	**Medium risk** • Officers with initial education of nontraditional high school degree, some adult education (E-O transitions)	**Highest risk** • E1-E3 • W1-W2, W3-W5 • Blacks (enlisted and officers) • Hispanics (enlisted and officers), though small effects • Women with 3 or more dependents

Source: CNA tabulations of TA and DMDC data.

Appendix A: Data Cleaning Process

The course-level TA data required substantial cleaning. Much of this process was similar for the four Services. First, we dropped a large number of extraneous observations. These observations tended to fit several patterns:

- Many courses or institutions were listed as "FEE," "FEES," or something similar.
- Some students had variables with such values as "DUPLICATE – DO NOT USE" or "ERROR."
- Some institution names were not actual institutions (e.g., "A SCHOOL CODE FOR TESTING," "CAMPUS BOOKSTORE," or "EDUCATION").

These observations did not appear to refer to actual courses or institutions and therefore were not relevant to our analysis. Second, some rows of data appeared to be duplicates and were dropped. Leaving these rows would have meant double-counting particular students or courses. When multiple rows differed only in the grade assigned, the highest grade was kept; when they differed only in course end dates, the earliest end date was kept.

Two variables in the Army data required a significant amount of cleaning. First, there was a wider range of possible grades listed than in any of the other Services. To avoid dropping large amounts of data, it was necessary to standardize grades to a pass/fail outcome when possible. Second, many institutions did not have a numeric identifier, and all institutions' names were truncated to 25 characters. In the other three Services, the vast majority of institutions had a unique ID number assigned by the Office of Postsecondary Education (OPE). In the Army data, however, OPE IDs were unavailable for many institutions in early years; the number of unique OPE ID values in the raw data increased by a factor of approximately 25 in 2006 and redoubled in 2010, as can be seen in Table 28.

The first of the Army-specific data issues was solved by assigning each listed grade to one of three categories: completing the class in question, not completing the class in question, or omitting the class from completion rate calculations.[31]

[31] A table containing the different grades in each category is provided in Appendix C.

Table 28. Number of unique OPE ID values by year (Army's raw TA data)

Year	Number of unique OPE ID values[a]	Number of unique institution names
1999	0	**1,603**
2000	0	**1,379**
2001	18	**1,748**
2002	19	**2,407**
2003	25	**5,427**
2004	29	**6,128**
2005	30	**6,880**
2006	791	**7,431**
2007	924	**6,354**
2008	906	**5,248**
2009	894	**5,361**
2010	1,786	**4,135**
2011	1,967	**3,678**
2012	2,530	**2,348**
2013	2,463	**2,308**
2014	2,191	**2,053**
2015	1,842	**1,718**

Source: CNA tabulations of TA data provided by the Army.

[a]. This computation does not include missing values.

We were able to only partially solve the second and third issues with the Army data. First, institution names that did not have OPE ID values but were listed by many students were sometimes alternate spellings, abbreviations, or misspellings of names that *did* have OPE ID values. In many cases, therefore, institution names with missing OPE ID values were matched to corresponding institution names with OPE ID values; this was restricted primarily to groups of institution names totaling 100 or more students, though similarity of institution names frequently made it practical to standardize some smaller groups of institution names as well. These exceptions generally fit one of two patterns:

- Determining how to standardize names and OPE ID values for popular schools sometimes provided information on less popular schools. For instance, standardizing the various listed names for Campbell University (9,015 missing values) also revealed how we should standardize the various listed names for Campbellsville College (8 missing values).

- Institutions with names fitting the format of "University of X – Y Campus" had all campuses standardized. This is partly because there were many ways in which these names could be listed in the data and partly because the process for each university system was similar. Thus, the University of Texas-Austin (14,807 missing values) was standardized along with the University of Texas-Tyler (3 missing values). The exception to this rule was if only one OPE ID value

was listed in the data across all listed campuses; in this case, students were assigned to the main campus.

After institution names were standardized, names then were assigned their modal OPE ID, and vice versa.

Finally, some institution names were dropped from the Army data (after initial cleaning) either because they were indecipherable or because they did not refer to any specific institution. The full list of these names is provided in Table 29.

Table 29. Omitted institutions

Omitted institution names			
1	ADMISSIONS OFFICE	DEPT GRANTS & ADM CONTRAC	STATE OF NEW YORK
1ST CLASS AIR	BURSAR OFFICE	EDUCATION	THEOLOGICAL SEMINARY
A	BURSAR'S OFFICE	GED TESTING CENTER	U
A SCHOOL CODE FOR TESTING	CASHIER'S OFFICE	RESEARCH OFFICE	X
ACCOUNTING DEPARTMENT	CONTROLLERS OFFICE	SPONSORED PROGRAMS	Z

Source: CNA tabulations of TA data provided by the Army.

Appendix B: Dropped Observations

As was discussed in the Data and Methodology section, the data required substantial cleaning to be in a uniform, usable format. Most of this process involved dropping observations, for a number of reasons (e.g., duplicate entries for the same course, institution names such as "Campus Bookstore"). In this appendix, we review, for each Service, the number of observations that were dropped, the reasons they were dropped, and any differences in the distribution of grades or completions that resulted from dropping these observations.

Army

In Table 30, we reveal the sample size reductions that occurred with each step of data cleaning and the resultant dropping of observations. The table shows, for example, that we started with 847,290 unique IDs, in 7,375,964 rows of data. The subsequent row highlights that, when we dropped all observations where the course number was "fee," the number of unique IDs decreased to 846,568 and the number of data rows decreased to 7,370,431. This pattern continues throughout the table, until arriving at the bottom row: our final sample for the Army contained 845,903 unique IDs and 7,169,227 rows of data. The primary question of interest is whether these sample reductions skewed the overall distribution of grades (and, thus, completion and graduation rates). That is, did this data-cleaning process result in dropping observations that had notably higher (or lower) grades than that observed in our final sample, resulting in higher (or lower) course completion and graduation rates? The grade distributions for the dropped observations and final sample are shown in Table 31. Although there are differences, they are not drastic. Most important, the resulting course completion rates for the two samples are strikingly similar: 78.5 percent for the dropped observations and 79.8 percent for the final sample (calculations not shown).

Table 30. Army TA sample size remaining (in IDs and rows of data) after each cleaning procedure

Cleaning procedures	Unique IDs remaining	Rows of data remaining
Initial sample	847,290	7,375,964
Drop if course number = "fee"	846,568	7,370,431
Drop if course title contains "fee" and title is not in approved list	846,291	7,363,644
Drop if missing course start or end date	846,143	7,361,167
Drop if institution name is in list of non-institutions	846,118	7,360,565
Drop duplicate entries (all values equal)	846,118	7,360,298
Drop if course level missing and duplicate in all other values	846, 118	7,357,284
Drop if course grade is "Fee", "Del," "Error," or if it contains "Dup," "DVP", or "DUPL"	846,112	7,357,153
Drop if institution name missing and OPE ID is missing	845,948	7,353,413
Keep highest grade if duplicate courses	845,948	7,351,635
Keep first course date if same course appears more than once	845,948	7,351,525
Drop if institution name in list of non-institutions	845,903	7,350,638
Keep first course end date if same institution listed with slightly different names in same year	845,903	7,347,931
Keep only one occurrence of institution name for any remaining duplicates in same year	845,903	7,347,908
Keep one course number if same course number listed in same year and all else equal	845,903	7,343,008
Standardize sectors across Services (drop duplicate values)	845,903	7,169,227

Source: CNA tabulations of Army TA data.

Table 31. Distribution of Army TA-funded course grades: Dropped observations versus final sample

Dropped observations						Final sample					
Credit		**No credit**		**Unable to determine**		**Credit**		**No credit**		**Unable to determine**	
Grade	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**
missing	3.08%	missing	10.77%	missing	3.49%	missing	1.90%	missing	7.63%	missing	5.34%
A+	0.22%	C+ (grad)	0.02%			A+	0.31%	C (grad)	0.04%		
A	33.14%	C (grad)	0.18%			A	33.53%	D+	0.19%		
A-	2.55%	C- (grad)	0.00%			A-	4.46%	D	0.02%		
B+	1.89%	D+	0.12%			B+	3.14%	F	0.30%		
B	24.70%	D	2.46%			B	20.59%				
B-	0.86%	D-	0.05%			B-	1.92%				
C+ (non-grad)	0.58%	F	4.07%			C+ (non-grad)	1.20%				
C (non-grad)	11.55%					C (non-grad)	9.76%				
C- (non-grad)	0.25%					C- (non-grad)	0.65%				
Total	148,142	**Total**	33,231	**Total**	6,557	**Total**	5,551,846	**Total**	1,234,564	**Total**	382,817

Source: CNA tabulations of Army TA data.

Navy

The corresponding information for the Navy is presented in Table 32 and Table 33. In this case, we started with 310,238 unique IDs in 2,293,814 rows of data. At the end of our data-cleaning processes, the sample contained 309,852 unique IDs in 2,289,133 rows of data. Table 33 shows the grade distributions in the dropped observations and the final sample. Once again, there is notable similarity in the percentage of observations accounted for by each grade. Two exceptions include the fact that our final sample contains a higher percentage of As and a somewhat lower percentage of Bs. If anything, this suggests that our final sample is slightly skewed *toward* course completion.

Table 32. Navy TA sample size remaining (in IDs and rows of data) after each cleaning procedure

Cleaning procedures	Unique IDs remaining	Total rows remaining
Initial sample	310,238	2,293,814
Drop if any variable contains "DO NOT USE," "DUPLICATE," or "MRC"	310,173	2,293,286
Drop if course title contains "FEE" (unless in a list of approved courses)	309,852	2,289,330
If the same course has multiple letter grades and completion statuses, keep highest letter grade/completion status	309,852	2,289,151
If the same course has multiple end dates, keep the earliest one	309,852	2,289,133

Source: CNA tabulations of Navy TA data.

Table 33. Distribution of Navy TA-funded course grades: Dropped observations versus final sample

Dropped observations						Final sample					
Credit		**No credit**		**Impossible to determine**		**Credit**		**No credit**		**Impossible to determine**	
Grade	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**
missing	2.54%	missing	3.55%	missing	8.63%	missing	2.31%	missing	3.58%	missing	4.36%
A	38.58%	C (grad)	0.51%			A	45.84%	C (grad)	0.24%		
B	30.46%	D	2.03%			B	27.82%	D	2.30%		
C (non-grad)	11.17%	F	2.54%			C (non-grad)	10.37%	F	3.16%		
Total	163	**Total**	17	**Total**	17	**Total**	1,976,681	**Total**	212,680	**Total**	99,772

Source: CNA tabulations of Navy TA data.

Air Force

Table 34 and Table 35 present information regarding the Air Force's dropped observations. We started with 440,511 unique IDs in 4,401,827 rows of data. At the end of our data-cleaning processes, the sample contained 440,392 unique IDs in 4,053,637 rows of data. Table 35 compares the grade distributions of the dropped observations and the final sample. Our final sample contains a higher percentage of As and Bs than the dropped sample, resulting in a significant difference in overall course completion rates. Among the dropped sample, only 59 percent of courses were completed, whereas 86.9 percent of those in our final sample were completed (graduate courses with grades of A or B; undergraduate courses with grades of A, B, or C).

Table 34. Air Force TA sample size remaining (in IDs and rows of data) after each TA cleaning procedure

Cleaning procedures	Unique IDs remaining	Total rows remaining
Initial sample	440,511	4,401,827
Drop if any variable is equal to "FEE" or contains "DO NOT USE," "DUPLICATE," or "MRC"	440,399	4,057,648
Drop if completion date is later than 6/1/2016 (includes missing values)	440,395	4,057,565
Drop if course contains "FEE" and is not part of an approved list	440,392	4,054,584
If multiple grades for the same course, keep highest grade/credit combination	440,392	4,053,698
If multiple end dates for the same course, keep the earliest one	440,392	4,053,639
If multiple institutions for the same course , keep at most one with institution name "Unknown"	440,392	4,053,637

Source: CNA tabulations of Air Force TA data.

Table 35. Distribution of Air Force TA-funded course grades: Dropped observations versus final sample

Dropped observations						Final sample					
Credit		No credit		Impossible to determine		Credit		No credit		Impossible to determine	
Grade	Fre-quency	Grade	Fre-quency	Grade	Fre-quency	Grade	Fre-quency	Grade	Fre-quency	Grade	Fre-quency
missing	9.71%	missing	16.70%	missing	11.55%	missing	1.92%	missing	5.17%	missing	0.59%
A	34.76%	C (grad)	0.10%			A+	0.01%	C+ (grad)	0.00%		
B	19.22%	D	1.17%			A	52.92%	C (grad)	0.32%		
C (non-grad)	5.05%	F	1.75%			A-	0.46%	C- (grad)	0.00%		
Total	708	Total	203	Total	119	B+	0.26%	D+	0.01%		
						B	25.02%	D	1.72%		
						B-	0.15%	D-	0.01%		
						C+ (non-grad)	0.07%	E	0.00%		
						C (non-grad)	7.98%	F	3.35%		
						C- (non-grad)	0.03%				
						Total	3,600,653	**Total**	429,030	**Total**	23,956

Source: CNA tabulations of Air Force TA data.

Marine Corps

Finally, Table 36 and Table 37 illustrate the observations dropped in the Marine Corps data and the resulting differences in grade distributions between the dropped observations and our final Marine Corps sample. In this case, the initial sample contained 172,152 unique IDs and 1,070,929 rows of data. After iterating through our cleaning process and the various drops illustrated in Table 36, our final Marine Corps TA sample contained 172,048 unique IDs and 1,066,903 rows of data. As with the other Services, there are some differences in the grade distributions. Namely, our final sample has more As, slightly fewer Bs and Ds, and slightly more Fs. Overall, however, the course completion rates are relatively consistent: 83.7 percent among the dropped observations and 86.8 percent in our final sample.

Table 36. Marine Corps TA sample size remaining (in IDs and rows of data) after each cleaning procedure

Cleaning procedures	Unique IDs remaining	Total rows remaining
Initial sample	172,152	1,070,929
Drop if any variable is equal to "DO NOT USE," "DUPLICATE," or "MRC"	172,138	1,070,746
Drop if course title contains "FEE" (except for approved courses)	172,048	1,066,960
Drop if OPE ID and Institution Name both missing	172,048	1,066,960
If multiple grades for same course, keep highest grade/credit combination	172,048	1,066,910
If multiple end dates for same course, keep earliest end date	172,048	1,066,903

Source: CNA tabulations of Marine Corps TA data.

Thus, although there was some concern that our data-cleaning processes might be dropping observations with higher course completion rates than those in our final sample, our findings in all four Services have shown that the completion rates were often very similar and, when they differed, the dropped observations had *lower* course completion rates. Thus, there is no concern that our completion rates have been skewed downward by our data-cleaning process.

Table 37. Distribution of Marine Corps TA-funded course grades: Dropped observations versus final sample

Dropped observations						Final sample					
Credit		**No credit**		**Impossible to determine**		**Credit**		**No credit**		**Impossible to determine**	
Grade	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**	**Grade**	**Fre-quency**
missing	3.51%	missing	3.51%	missing	14.04%	missing	1.75%	missing	5.02%	missing	3.89%
A	31.58%	D	5.26%			A	46.15%	C (grad)	0.16%		
B	29.82%	F	1.75%			B	26.81%	D	2.29%		
C (non-grad)	10.53%					C (non-grad)	10.45%	F	3.48%		
Total	43	**Total**	6	**Total**	8	**Total**	908,531	**Total**	116,858	**Total**	41,514

Source: CNA tabulations of Marine Corps TA data.

Appendix C: Grades in Army Data

A large number of grades were listed in the Army data. We grouped these to reflect course completion, no course completion, or an inapplicable value. Table 38 shows the list of grades corresponding to course completion, Table 39 shows the list of grades corresponding to incomplete courses, and Table 40 shows the list of grades not used to determine the course completion rate.

Table 38. Grades in Army data: Credit

Complete[a]							
&A	80.3	86.7	90.8	95.4	AC	C+`	NB+
+A	80.7	86.8	90.80	95.5	AD	C-	NC
+B	81	86.8	90.9	95.6	ADT	C.	NC1
-A	81.1	86.9	91	95.8	ADW	C1	P
.A	81.2	87	91-A	96	AE	C2	P+
100	81.25	87.00	91.0	96	AF	C3	P-
100	81.4	87.1	91.00	96.25	AI	CA	P.
102	81.5	87.2	91.1	96.4	ANA	CA-	P1
110	81.6	87.25	91.2	96.5	AP	CB	P2
111	82	87.3	91.4	96.6	APD	CD	P4
2C	82.1	87.4	91.5	96.76	AR	CDR	PA
3P	82.2	87.5	91.6	96.8	AT	CE	PAS
70	82.4	87.55	91.9	96.83	AVP	CERT	PASS
71	82.5	87.6	91.98	97	AW	CERT.	PASSE
72	82.6	87.7	92	97-A	A^	CERTI	PC
73	82.8	87.9	92.	97	A_	CF	PE
73.5	82.9	88	92.00	97.02	B	CI	PF
74	83	88.	92.1	97.2	B+	CL	PG
74.2	83.1	88.1	92.2	97.3	B+-	CN	PI
74.5	83.2	88.2	92.4	97.4	B+A	CNA	PN
75	83.4	88.3	92.5	97.6	B+C	CO	PP
75.00	83.7	88.4	92.50	97.8	B+R	CP	PR
75.6	83.9	88.5	92.6	98	B-	CR	PS
76	84	88.6	92.8	98	B.	CRD	QB

Complete[a]							
76	84.1	88.7	92.89	98.11	B0	CREDI	QB+
76.2	84.2	88.75	92.9	98.3	B00	CRLAB	QC+
76.3	84.3	88.8	93	98.5	B2	CS	RA
76.4	84.4	89	93.00	98.85	B3	CT	RB
76.5	84.5	89.	93.17	98.9	B4	CW	RC
77	84.6	89.00	93.2	98.92	B9	C`	S
77.00	84.7	89.1	93.22	99	B=	G	S+
77.1	84.9	89.2	93.3	99.5	BA	GD	S-
77.25	85	89.3	93.4	99.6	BAI	GED	S-LAB
77.4	85.2	89.4	93.5	99.7	BB	GRAD	SA
77.6	85.21	89.5	93.54	99.75	BC	H	SA-
78	85.25	89.50	93.6	99.8	BC+F	HONOR	SAT
78.2	85.3	89.6	93.7	A	BDFI	HP	SB
78.3	85.4	89.7	93.8	A+	BE	HS	SB+
78.4	85.6	89.71	93.9	A-	BF	I-C	SC
78.5	85.7	89.8	94	A-0	BI	IA	UA
78.6	85.8	89.9	94.00	A-B-	BI+	IA-	WC
78.8	85.92	90	94.1	A-R	BNA	IB	XA
79	86	90.	94.4	A.	BR	IB+	XA-
79.1	86	90.1	94.6	A1	BT	IB-	XB
79.2	86.1	90.2	94.8	A2	B_	IC	XB+
79.3	86.2	90.30	94.83	A3	B`	LB	XB-
79.6	86.25	90.32	95	A=	C	MC	XC
80	86.3	90.4	95.	AA	C+	MK-UP	XC+
80	86.4	90.5	95.00	AB	C+-	NA-	XC-
80	86.5	90.6	95.2	ABS	C+.	NB	YA
80.1	86.6	90.7					

Source: CNA tabulations of TA data provided by the Army.

a. Values highlighted in yellow appear in both the "credit" and "no credit" tables depending on whether the course in question was at the graduate or undergraduate level.

Table 39. Grades in Army data: No credit

Incomplete[a]					
+W	3	63.00	DA	FIW	RC
.07	3.	63.3	DB	FM	RD
.7	3.0	64	DC	FN	RE
.9	3.00	65	DD	FP	RF
0	3.1	65.7	DF	FPAID	SD
0.0	3.11	67	DFA	FQ	SE
0.00	3.15	68	DFAS	FR	SF
0.2	3.2	69	DFFAS	FS	TERMI
0.4	3.24	7	DFR	FW	UD
0.5	3.25	7.0	DFS	FX	UE
0.7	3.3	70	DG	I	UF
0.8	3.4	70.00	DL	I-D	W
0.9	3.5	71	DM	I-F	W-F
1	3.50	72	DMS	IC	W0
1.0	3.6	72.00	DN	IC+	W1
1.1	3.60	73	DNP	ID	W3
1.2	3.67	74	DP	IE	W4
1.3	3.69	75	DR	IF	W6
1.4	3.7	76	DRO	IM	W7
1.5	3.8	77	DROP	IN	W8
1.6	3.9	77.00	DROPP	INC	WC
1.7	3.91	78	DRP	INP	WD
1.8	3.92	78.00	DSA	IP	WE
1.9	3.94	79	DT	IR	WF
12.00	3.98	8	DW	IS	WI
13	30	9	E	ITSHP	WIP
13.32	31	9.0	EC	IU	WITHD
14.68	33	9.9	EL	IW	WL
1W	37	AU	EM	IX	WM
2	39	AUD	EN	NA	WN
2.0	4	AUDIT	EP	NAC	WNA
2.00	4.	C	EQ	NAMNS	WNC
2.1	4.0	C+	EU	NC	WP
2.2	4.00	C-	EX	NCR	WPAID
2.3	4.000	CANCL	F	NE	WPD
2.4	4.2	CB	F&C	NF	WQ
2.5	40	CE	F&W	NG	WR
2.51	42.5	CH	F-RPD	NOGR	WS
2.55	43.5	CHEAT	F.	NONE	WT
2.6	44.	CI	F0	NOPAY	WU
2.7	44.0	CO	F1	NOTP	WV

2.75	5	CON	F2	NOTPD	WW	Source: CNA
2.8	5.0	CT	FA	NP	WX	
2.88	5.00	D	FAIL	NPD	WZ	
2.9	58.00	D&A	FAN	NPP	XD	
2.94	58.03	D+	FC	NR	XE	
2.97	6	D-	FCR	NS	XF	
20	6.0	D1	FE	NW	XW	
25	60	D2	FI	NX	ZF	
28	63	D=	FIN	NY	ZW	

tabulations of TA data provided by the Army.

[a.] Values highlighted in yellow appear in both the "credit" and "no credit" tables depending on whether the course in question was at the graduate or undergraduate level.

Table 40. Grades in Army data: Inapplicable

Inapplicable					
+	AMSTY	MH	R	SR	V
-	ANMST	MHD	R0	SS	VTP
1207	DEPLO	MOB	RCR	SU	WA
150	DFSD	MOBED	RECOU	SVP	WAI
1P	DIS	MP	RETAK	T	WAIV
1X	DISCH	MW	RI	TA	WAIV.
235	EXAM	MX	RJ	TBD	WAIVE
2490	EXCEL	N	RM	TC	WAV
3+	HW	NDB	RNC	TF	WAVER
886	J	O	RP	TM	WAVIE
???	K	OR	RPD	TP	X
AM	L	PAI	RS	TR	X.
AMIST	LAB	PAID	RU	U	X1
AMN	LP	PD	RW	UN	XN
AMNES	LR	PDNA	SCHRE	UNA	XUW
AMNS	LW	PIAD	SFW	UNK	Y
AMNST	M	Q	SH	UW	YL
AMS	M+	QI	SM	UW2	YR
AMSNT	MF	QL	SP	UX	Z

Source: CNA tabulations of TA data provided by the Army.

Appendix D: Complete Regression Results for User, Super User, and Consecutive User Estimations (FY99-FY15)

Tables 41-46 contain the complete regression results for our user, super user, and consecutive user estimations, for FY99-FY15.

Table 41. Complete regression results for probability of TA use: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Infantry, Gun Crews, and Seamanship Specialists	-3.7%*** (0.1%)	-2.3%*** (0.2%)	-0.6%*** (0.2%)	-4.2%*** (0.2%)	-3.3%*** (0.1%)
Electronic Equipment Repairers	-1.8%*** (0.2%)	-1.0%*** (0.2%)	-1.1%*** (0.1%)	0.2% (0.2%)	-1.0%*** (0.1%)
Communications and Intelligence Specialists	-3.0%*** (0.1%)	-0.4%** (0.2%)	-0.2% (0.1%)	-1.4%*** (0.2%)	-1.5%*** (0.1%)
Health Care Specialists	1.4%*** (0.1%)	-3.3%*** (0.2%)	-0.7%*** (0.1%)		-0.4%*** (0.1%)
Other Technical and Allied Specialists	-1.1%*** (0.2%)	-3.4%*** (0.3%)	-1.7%*** (0.2%)	-2.1%*** (0.3%)	-1.7%*** (0.1%)
Electrical/Mechanical Equipment Repairers	-4.5%*** (0.1%)	-2.8%*** (0.2%)	-3.7%*** (0.1%)	-2.0%*** (0.2%)	-3.7%*** (0.1%)
Craftsworkers	-5.0%*** (0.2%)	-3.1%*** (0.2%)	-3.0%*** (0.2%)	-5.1%*** (0.4%)	-3.8%*** (0.1%)
Service and Supply Handlers	-3.0%*** (0.1%)	-3.9%*** (0.2%)	-4.8%*** (0.1%)	-2.8%*** (0.2%)	-3.9%*** (0.1%)
Nonoccupational	-0.3% (0.9%)	0.4% (0.3%)	2.9%*** (0.3%)	18.4%*** (0.3%)	6.0%*** (0.2%)
Unknown Occupation Code	-32.8%*** (2.2%)	32.7% (28.9%)		-18.5% (27.5%)	-29.4%*** (2.2%)
Tactical Operations Officers	-36.7%*** (0.5%)	-18.5%*** (1.6%)		-16.1%*** (1.4%)	-33.1%*** (0.4%)
Intelligence Officers	-36.2%*** (0.8%)	-19.9%*** (1.6%)		-19.2%*** (1.8%)	-32.1%*** (0.6%)
Engineering and Maintenance Officers	-27.4%*** (0.5%)	-11.2%*** (1.1%)		-14.3%*** (1.2%)	-24.2%*** (0.4%)
Scientists and Professionals	-33.9%*** (2.2%)			-16.4%*** (2.9%)	-28.0%*** (1.7%)
Health Care Officers	-35.2%*** (1.7%)	-14.2% (21.4%)			-32.0%*** (1.7%)
Administrators	-36.1%***	-11.6%***		-12.4%***	-27.1%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(0.8%)	(1.5%)		(1.2%)	(0.6%)
Supply, Procurement, and Allied Officers	-29.9%*** (0.7%)	-6.3%*** (2.3%)		-12.0%*** (1.5%)	-25.0%*** (0.6%)
Nonoccupational Officers	-45.0%*** (2.1%)			-30.0%*** (9.7%)	-40.2%*** (2.0%)
Functional Support and Administration	Comparison Group				
No High School Degree	-8.1%*** (0.3%)	-1.7%*** (0.4%)	-0.2% (2.1%)	-2.1% (2.4%)	-5.9%*** (0.2%)
Homeschool	-3.0%*** (0.8%)	-5.6%*** (1.2%)		-4.2%*** (1.2%)	-3.5%*** (0.6%)
Adult Education	0.5%** (0.2%)	-2.5%*** (0.3%)	2.9%*** (0.2%)	-1.3%*** (0.4%)	0.9%*** (0.1%)
Associate Degree	8.5%*** (0.2%)	6.7%*** (0.3%)	10.4%*** (0.1%)	8.6%*** (0.5%)	9.2%*** (0.1%)
Bachelor's Degree	0.5%** (0.2%)	0.7%** (0.3%)	-2.6%*** (0.3%)	1.9%*** (0.7%)	-0.5%*** (0.1%)
Professional Degree	5.8%*** (0.4%)	5.9%*** (1.2%)	-5.1%*** (1.2%)	2.7% (2.8%)	5.5%*** (0.3%)
Other Nontraditional High School Credential	-5.8%*** (0.1%)	-1.3%*** (0.3%)	-10.4%*** (1.4%)	-1.2%*** (0.5%)	-4.8%*** (0.1%)
Other Education	-7.9%*** (0.6%)	-2.1% (2.4%)	3.0% (4.0%)	12.8%*** (1.1%)	-2.2%*** (0.5%)
Education Unknown	-2.0%*** (0.3%)	2.0%*** (0.5%)	-3.2%*** (0.5%)	-2.6%*** (1.0%)	-1.9%*** (0.2%)
High School	Comparison Group				
Unknown Number of Dependents	7.8%*** (0.2%)	14.6% (11.7%)	19.5%*** (0.4%)	1.5%*** (0.5%)	8.6%*** (0.1%)
1 or 2 Dependents	-1.0%*** (0.1%)	-3.7%*** (0.2%)	-2.5%*** (0.1%)	-3.1%*** (0.2%)	-2.4%*** (0.1%)
3 or More Dependents	-1.2%*** (0.1%)	-5.0%*** (0.2%)	-2.2%*** (0.1%)	-1.0%*** (0.3%)	-2.3%*** (0.1%)
0 Dependents	Comparison Group				
E4-E6	-22.4%*** (0.1%)	-13.4%*** (0.2%)	-21.5%*** (0.1%)	-17.2%*** (0.2%)	-19.8%*** (0.1%)
E7-E9	-10.5%*** (0.2%)	-6.6%*** (0.2%)	-13.5%*** (0.2%)	-1.0%*** (0.3%)	-9.8%*** (0.1%)
W1-W2	16.1%*** (0.5%)	-2.7%** (1.2%)		8.1%*** (1.1%)	13.1%*** (0.4%)
W3-W5	7.3%*** (0.5%)	3.1%*** (1.1%)		4.5%*** (1.2%)	6.6%*** (0.4%)
E1-E3	Comparison Group				
Years of Service	-1.4%*** (0.0%)	-1.4%*** (0.0%)	-1.2%*** (0.0%)	-1.3%*** (0.0%)	-1.3%*** (0.0%)
Female	8.7%*** (0.1%)	5.1%*** (0.2%)	8.3%*** (0.1%)	7.2%*** (0.3%)	7.6%*** (0.1%)
Female X Unknown Number of Dependents	-1.5%*** (0.4%)	-8.6% (17.8%)	-2.7%*** (0.6%)	3.8%*** (1.2%)	1.9%*** (0.3%)
Female X 1 or 2	-1.2%***	-1.0%***	-0.8%***	-0.6%	-0.9%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Dependents	(0.2%)	(0.3%)	(0.2%)	(0.5%)	(0.1%)
Female X 3 or More Dependents	-3.8%*** (0.2%)	-2.5%*** (0.3%)	-2.9%*** (0.3%)	-4.3%*** (0.7%)	-3.2%*** (0.1%)
Female X Married	-3.5%*** (0.2%)	-4.5%*** (0.2%)	-4.6%*** (0.2%)	-3.5%*** (0.5%)	-3.8%*** (0.1%)
Married	4.4%*** (0.1%)	3.8%*** (0.1%)	6.3%*** (0.1%)	3.3%*** (0.2%)	4.6%*** (0.1%)
Unmarried	Comparison Group				
Asian	0.4%*** (0.1%)	-1.6%*** (0.2%)	-0.7%*** (0.2%)	-0.8%*** (0.4%)	-0.6%*** (0.1%)
Black	3.9%*** (0.1%)	2.6%*** (0.1%)	3.8%*** (0.1%)	3.7%*** (0.2%)	3.6%*** (0.1%)
Other Race	3.0%*** (0.2%)	-2.1%*** (0.2%)	-0.5%*** (0.1%)	1.2%*** (0.2%)	0.3%*** (0.1%)
Unknown Race	-3.7%*** (1.0%)	-1.3%*** (0.4%)	-2.1%*** (0.4%)	-0.1% (0.4%)	-1.9%*** (0.2%)
White	Comparison Group				
Hispanic	-0.6%*** (0.1%)	-1.4%*** (0.1%)	-0.1% (0.1%)	-1.2%*** (0.2%)	-0.6%*** (0.1%)
Non-Hispanic	Comparison Group				
Navy					3.0%*** (0.1%)
Air Force					9.5%*** (0.1%)
Marine Corps					-1.9%*** (0.1%)
Army	Comparison Group				
Sample size	2,750,157	1,409,530	2,130,980	734,454	7,025,121
Total R^2	0.0689	0.0611	0.0677	0.0730	0.0690

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 42. Complete regression results for probability of TA use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Unknown Occupation Code	-0.8% (1.0%)	-4.0% (7.8%)	-10.8%*** (1.3%)	-15.2%*** (2.4%)	-3.7%*** (0.8%)
General Officers and Executives, NEC	-4.1% (6.2%)	5.6% (4.9%)	1.2% (1.8%)	2.8% (5.4%)	-2.4%** (1.1%)
Intelligence Officers	-0.4% (0.4%)	-4.0%*** (0.7%)	-6.1%*** (0.4%)	-4.0%*** (1.0%)	-2.6%*** (0.3%)
Engineering and Maintenance Officers	-1.7%*** (0.3%)	10.8%*** (0.5%)	-5.1%*** (0.3%)	4.6%*** (0.8%)	0.1% (0.2%)
Scientists and Professionals	-6.3%*** (0.5%)	0.4% (0.8%)	-10.9%*** (0.5%)	-13.3%*** (2.5%)	-5.9%*** (0.3%)
Health Care Officers	-4.7%*** (0.3%)	-7.0%*** (0.5%)	-6.6%*** (0.4%)		-7.2%*** (0.2%)
Administrators	-1.8%*** (0.3%)	6.8%*** (0.6%)	-4.9%*** (0.4%)	-3.9%*** (0.9%)	-1.0%*** (0.2%)
Supply, Procurement, and Allied Officers	0.2% (0.3%)	-1.6%** (0.6%)	-6.1%*** (0.3%)	-2.5%*** (0.7%)	-1.9%*** (0.2%)
Nonoccupational Officers	-4.8%*** (0.9%)	-16.1%*** (0.7%)	4.4%*** (0.5%)	-17.1%*** (0.9%)	-3.9%*** (0.3%)
Tactical Operations Officers	Comparison Group				
No High School Degree	-5.9%*** (1.4%)	-9.7%*** (3.2%)	-8.8%*** (1.1%)	-22.7% (15.5%)	-6.5%*** (0.9%)
High School	-6.0%*** (0.3%)	-12.0%*** (0.4%)	-1.6%*** (0.4%)	-11.8%*** (0.7%)	-8.2%*** (0.2%)
Homeschool	-16.9%** (8.4%)	-13.4%* (7.8%)		-28.3%** (13.0%)	-19.3%*** (5.3%)
Adult Education	-1.6%* (0.8%)	10.5%*** (0.7%)	3.8%*** (0.7%)	-12.7%*** (3.0%)	8.0%*** (0.4%)
Associate Degree	-3.1%*** (0.7%)	3.0%*** (0.9%)	8.6%*** (0.6%)	4.9%*** (1.6%)	1.6%*** (0.4%)
Professional Degree	-1.9%*** (0.5%)	8.6%*** (0.6%)	11.0%*** (0.5%)	14.2%*** (1.7%)	6.3%*** (0.3%)
Other Nontraditional High School Credential	-1.6% (1.6%)	-11.0%*** (2.2%)	13.3% (10.7%)	-9.3%* (4.7%)	-5.5%*** (1.3%)
Other Education	-7.5% (14.7%)	6.6% (6.2%)	-2.6% (9.9%)	26.4%*** (5.1%)	16.4%*** (3.5%)
Education Unknown	-11.0%*** (0.6%)	-5.8%*** (0.5%)	-8.0%*** (0.4%)	-23.5%*** (6.0%)	-6.9%*** (0.3%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	14.3%*** (1.9%)	-23.1% (27.1%)	39.1%*** (2.0%)	24.1%*** (2.5%)	27.8%*** (1.2%)
1 or 2 Dependents	0.3% (0.3%)	1.1%*** (0.4%)	-3.7%*** (0.3%)	-0.5% (0.7%)	-2.2%*** (0.2%)
3 or More Dependents	-2.1%*** (0.3%)	-0.4% (0.4%)	-10.8%*** (0.3%)	-1.6%** (0.8%)	-6.6%*** (0.2%)
0 Dependents	Comparison Group				

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
O4-O5	-5.4%*** (0.3%)	-12.6%*** (0.3%)	-10.9%*** (0.2%)	-8.6%*** (0.6%)	-10.1%*** (0.1%)
O6-O10	-11.9%*** (0.7%)	-18.2%*** (0.8%)	-4.4%*** (0.9%)	-15.6%*** (5.2%)	-12.1%*** (0.5%)
O1-O3	Comparison Group				
Years of Service	-0.9%*** (0.0%)	-1.2%*** (0.0%)	-2.7%*** (0.0%)	-1.7%*** (0.1%)	-1.5%*** (0.0%)
Female	6.0%*** (0.5%)	-0.9% (0.7%)	-3.6%*** (0.4%)	-0.4% (1.4%)	-0.6%* (0.3%)
Female X Unknown Number of Dependents	12.3%*** (3.5%)		1.7% (3.7%)	2.5% (5.1%)	4.0%* (2.3%)
Female X 1 or 2 Dependents	-5.0%*** (0.5%)	-3.4%*** (0.8%)	-1.5%*** (0.5%)	-5.6%*** (2.0%)	-2.8%*** (0.3%)
Female X 3 or More Dependents	-6.4%*** (0.6%)	-5.1%*** (0.9%)	2.3%*** (0.6%)	-10.1%*** (2.2%)	-2.1%*** (0.4%)
Female X Married	-2.8%*** (0.5%)	1.0% (0.8%)	-3.1%*** (0.5%)	-1.4% (1.9%)	-2.1%*** (0.3%)
Married	4.9%*** (0.3%)	-0.6% (0.4%)	1.4%*** (0.3%)	1.4%* (0.7%)	2.1%*** (0.2%)
Asian	-0.9%* (0.5%)	-3.2%*** (0.7%)	-2.5%*** (0.5%)	-2.0% (1.6%)	-2.5%*** (0.3%)
Black	5.5%*** (0.3%)	4.7%*** (0.4%)	1.0%*** (0.4%)	4.7%*** (0.8%)	4.7%*** (0.2%)
Other Race	4.3%*** (0.5%)	-4.0%*** (0.8%)	-0.1% (0.5%)	1.5% (1.2%)	1.7%*** (0.3%)
Unknown Race	-9.8%*** (0.8%)	1.2% (1.2%)	-5.9%*** (0.6%)	-9.9%*** (2.1%)	-6.4%*** (0.5%)
White	Comparison Group				
Hispanic	1.0%** (0.4%)	-1.3%** (0.6%)	1.8%*** (0.4%)	-2.1%** (0.9%)	0.0% (0.3%)
Non-Hispanic	Comparison Group				
Navy					13.5%*** (0.2%)
Air Force					7.1%*** (0.2%)
Marine Corps					10.0%*** (0.3%)
Army	Comparison Group				
Sample size	245,305	145,355	302,652	53,542	746,854
Total R^2	0.1230	0.0891	0.2513	0.1058	0.1535

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 43. Complete regression results for probability of TA super use: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Infantry, Gun Crews, and Seamanship Specialists	0.5%*** (0.1%)	-0.7%*** (0.3%)	0.1% (0.1%)	-1.7%*** (0.1%)	-0.5%*** (0.1%)
Electronic Equipment Repairers	0.4%** (0.2%)	1.8%*** (0.2%)	-0.1%** (0.1%)	-0.2% (0.2%)	0.6%*** (0.1%)
Communications and Intelligence Specialists	-0.4%*** (0.1%)	-0.4%* (0.2%)	0.0% (0.1%)	-0.3% (0.2%)	-0.3%*** (0.1%)
Health Care Specialists	2.0%*** (0.1%)	2.5%*** (0.2%)	0.1% (0.1%)		1.6%*** (0.1%)
Other Technical and Allied Specialists	0.0% (0.2%)	-1.3%*** (0.4%)	-0.1%* (0.1%)	0.1% (0.3%)	-0.1% (0.1%)
Electrical/Mechanical Equipment Repairers	-0.3%*** (0.1%)	1.1%*** (0.2%)	-0.2%*** (0.0%)	-0.5%*** (0.1%)	0.4%*** (0.1%)
Craftsworkers	-0.1% (0.2%)	-0.7%** (0.3%)	-0.3%*** (0.1%)	0.1% (0.3%)	-0.4%*** (0.1%)
Service and Supply Handlers	-0.3%** (0.1%)	-2.9%*** (0.3%)	0.1% (0.1%)	-0.4%** (0.2%)	-0.1%* (0.1%)
Nonoccupational	-3.2%*** (0.8%)	-3.8%*** (0.4%)	-4.1%*** (0.1%)	-1.6%*** (0.2%)	-4.2%*** (0.1%)
Unknown Occupation Code	-1.3% (2.5%)	22.3% (31.3%)		0.2% (21.8%)	-1.5% (2.2%)
Tactical Operations Officers	-4.6%*** (0.7%)	9.2%*** (2.5%)		-1.0% (1.2%)	-4.1%*** (0.5%)
Intelligence Officers	-2.8%*** (1.0%)	2.5% (2.7%)		1.9% (1.6%)	-2.0%*** (0.8%)
Engineering and Maintenance Officers	1.3%* (0.7%)	6.4%*** (1.7%)		-0.4% (1.0%)	1.6%*** (0.5%)
Scientists and Professionals	0.5% (2.6%)			-0.5% (2.5%)	1.4% (1.9%)
Health Care Officers	-0.6% (2.1%)	12.6% (27.4%)			-1.3% (1.8%)
Administrators	-3.1%*** (1.0%)	5.2%** (2.4%)		-0.5% (1.1%)	-0.3% (0.7%)
Supply, Procurement, and Allied Officers	0.6% (0.9%)	13.2%*** (3.3%)		-0.5% (1.2%)	0.8% (0.7%)
Nonoccupational Officers	-0.1% (2.3%)			2.9% (7.7%)	-1.5% (1.9%)
Functional Support and Administration	Comparison Group				
No High School Degree	-1.3%*** (0.3%)	-1.7%*** (0.6%)	1.1% (0.8%)	2.7% (1.8%)	1.6%*** (0.2%)
Homeschool	-2.6%*** (0.8%)	-3.6%** (1.5%)		-0.4% (0.8%)	-4.1%*** (0.5%)
Adult Education	2.1%*** (0.2%)	-0.7%** (0.4%)	0.7%*** (0.1%)	0.6%* (0.3%)	-3.9%*** (0.1%)
Associate Degree	4.2%***	2.3%***	-0.2%***	-0.7%**	0.3%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(0.2%)	(0.4%)	(0.1%)	(0.4%)	(0.1%)
Bachelor's Degree	0.8%*** (0.2%)	-0.3% (0.4%)	-1.2%*** (0.1%)	-0.7% (0.5%)	-0.6%*** (0.1%)
Professional Degree	3.1%*** (0.4%)	-0.5% (1.6%)	-4.8%*** (0.5%)	1.5% (2.2%)	2.9%*** (0.3%)
Other Nontraditional High School Credential	-1.6%*** (0.1%)	-1.2%*** (0.4%)	-2.6%*** (0.6%)	0.2% (0.4%)	-2.0%*** (0.1%)
Other Education	-2.7%*** (0.6%)	-3.6% (3.3%)	-0.5% (1.5%)	-1.8%** (0.8%)	-3.9%*** (0.5%)
Education Unknown	-0.7%** (0.3%)	0.4% (0.7%)	-1.0%*** (0.2%)	0.0% (0.7%)	0.4%* (0.2%)
High School	Comparison Group				
Unknown Number of Dependents	3.8%*** (0.2%)	-9.3% (10.9%)	-1.5%*** (0.1%)	3.6%*** (0.3%)	3.4%*** (0.1%)
1 or 2 Dependents	0.4%*** (0.1%)	1.3%*** (0.2%)	0.1%** (0.0%)	0.5%*** (0.2%)	0.7%*** (0.1%)
3 or More Dependents	-0.2% (0.1%)	1.0%*** (0.2%)	0.1%*** (0.0%)	0.8%*** (0.2%)	0.4%*** (0.1%)
0 Dependents	Comparison Group				
E4-E6	0.6%*** (0.1%)	5.2%*** (0.2%)	0.3%*** (0.0%)	1.3%*** (0.1%)	1.3%*** (0.0%)
E7-E9	0.8%*** (0.2%)	7.4%*** (0.3%)	0.5%*** (0.1%)	1.0%*** (0.2%)	1.8%*** (0.1%)
W1-W2	-4.4%*** (0.7%)	-0.2% (1.8%)		1.4% (1.0%)	-2.8%*** (0.5%)
W3-W5	-0.7% (0.7%)	1.5% (1.7%)		0.9% (1.0%)	0.5% (0.5%)
E1-E3	Comparison Group				
Years of Service	-0.5%*** (0.0%)	-0.3%*** (0.0%)	0.0%*** (0.0%)	0.1%*** (0.0%)	-0.2%*** (0.0%)
Female	1.9%*** (0.1%)	2.8%*** (0.2%)	0.5%*** (0.0%)	1.5%*** (0.2%)	1.5%*** (0.1%)
Female X Unknown Number of Dependents	1.1%*** (0.4%)	11.1% (16.6%)	1.4%*** (0.1%)	-0.8% (0.7%)	-0.8%*** (0.2%)
Female X 1 or 2 Dependents	-1.0%*** (0.2%)	-1.2%*** (0.3%)	-0.2%*** (0.1%)	-0.5% (0.3%)	-0.9%*** (0.1%)
Female X 3 or More Dependents	-2.5%*** (0.2%)	-1.3%*** (0.4%)	-0.2%*** (0.1%)	0.2% (0.5%)	-1.4%*** (0.1%)
Female X Married	-0.4%** (0.2%)	-1.1%*** (0.3%)	0.0% (0.1%)	-0.4% (0.3%)	-0.4%*** (0.1%)
Married	1.2%*** (0.1%)	1.1%*** (0.2%)	0.1%** (0.0%)	0.6%*** (0.2%)	0.6%*** (0.1%)
Asian	-1.4%*** (0.1%)	-0.5%** (0.3%)	0.1% (0.1%)	0.5% (0.3%)	-0.9%*** (0.1%)
Black	0.7%*** (0.1%)	1.3%*** (0.1%)	0.1%*** (0.0%)	0.0% (0.1%)	0.6%*** (0.1%)
Other Race	1.3%*** (0.2%)	0.1% (0.2%)	0.1% (0.1%)	0.0% (0.2%)	1.0%*** (0.1%)
Unknown Race	-0.3% (1.0%)	1.2%** (0.6%)	-0.1% (0.2%)	-0.4% (0.3%)	-0.7%*** (0.2%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
White	Comparison Group				
Hispanic	-1.1%*** (0.1%)	-0.1% (0.2%)	0.1%*** (0.1%)	0.1% (0.1%)	-0.5%*** (0.1%)
Non-Hispanic	Comparison Group				
Navy					-8.4%*** (0.1%)
Air Force					12.7%*** (0.1%)
Marine Corps					7.2%*** (0.1%)
Army	Comparison Group				
Sample size	1,274,716	658,206	1,179,775	338,446	3,451,143
Total R^2	0.0673	0.0228	0.0117	0.0665	0.0806

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 44. Complete regression results for probability of TA super use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Unknown Occupation Code	2.5% (2.3%)	29.2% (28.0%)	0.4% (0.8%)	-1.6% (4.2%)	2.7%** (1.3%)
General Officers and Executives, N.E.C.	32.7% (35.3%)	-13.9% (13.4%)	5.7% (3.5%)	-4.3% (21.8%)	3.9% (3.4%)
Intelligence Officers	-3.0%*** (0.7%)	-3.3%*** (1.2%)	-0.1% (0.2%)	1.6%* (0.9%)	-1.5%*** (0.3%)
Engineering and Maintenance Officers	1.2%** (0.5%)	1.7%** (0.8%)	-0.5%*** (0.1%)	0.7% (0.7%)	0.5%** (0.2%)
Scientists and Professionals	-3.0%*** (1.1%)	-1.1% (1.4%)	-0.9%*** (0.3%)	-1.6% (2.7%)	-1.3%*** (0.4%)
Health Care Officers	1.3%** (0.6%)	-5.1%*** (0.9%)	-0.6%** (0.2%)		-1.5%*** (0.3%)
Administrators	1.6%** (0.6%)	-0.3% (0.9%)	0.0% (0.2%)	1.3%* (0.7%)	0.4% (0.3%)
Supply, Procurement, and Allied Officers	-0.1% (0.6%)	-1.9%* (1.1%)	-0.1% (0.2%)	1.7%*** (0.6%)	-0.3% (0.3%)
Nonoccupational Officers	-1.7% (2.1%)	-7.7%*** (2.1%)	-0.3%* (0.2%)	-4.0%*** (1.2%)	-1.1%*** (0.4%)
Tactical Operations Officers	Comparison Group				
No High School Degree	-13.7%*** (2.7%)	-13.6%** (5.8%)	-0.1% (0.6%)	3.5% (16.2%)	-3.3%*** (1.1%)
High School	-8.7%***	-4.9%***	0.6%***	1.5%**	-3.8%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(0.6%)	(0.9%)	(0.2%)	(0.7%)	(0.3%)
Homeschool	-83.2%** (35.8%)	-14.9% (16.9%)			-26.3%** (11.1%)
Adult Education	-5.2%*** (1.3%)	-0.6% (1.1%)	1.8%*** (0.5%)	2.9% (3.5%)	-1.8%*** (0.5%)
Associate Degree	-7.6%*** (1.6%)	-0.2% (1.5%)	1.0%** (0.4%)	1.8% (1.3%)	-2.3%*** (0.6%)
Professional Degree	-0.8% (1.2%)	0.9% (0.9%)	-6.8%*** (0.3%)	-0.6% (1.3%)	-1.6%*** (0.4%)
Other Nontraditional High School Credential	-4.3% (3.1%)	-0.6% (4.4%)	1.3% (5.2%)	-6.4% (5.2%)	-0.6% (1.9%)
Other Education	14.8% (35.8%)	0.0% (9.3%)	1.0% (5.9%)	-5.1% (3.6%)	-4.8% (3.8%)
Education Unknown	-5.3%*** (1.5%)	-2.5%*** (0.8%)	-0.2% (0.2%)	4.3% (6.2%)	-1.1%*** (0.3%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	6.5%** (3.2%)		-1.3%** (0.6%)	5.6%*** (1.9%)	1.7% (1.2%)
1 or 2 Dependents	-0.9% (0.6%)	-1.3% (0.9%)	0.1% (0.1%)	0.7% (0.8%)	-0.5%** (0.2%)
3 or More Dependents	-2.2%*** (0.7%)	-1.6%* (1.0%)	0.1% (0.1%)	-0.2% (0.9%)	-1.1%*** (0.3%)
0 Dependents	Comparison Group				
O4-O5	0.5% (0.5%)	-2.6%*** (0.7%)	-0.4%*** (0.1%)	-0.1% (0.6%)	-0.8%*** (0.2%)
O6-O10	6.4% (4.0%)	-3.5% (2.2%)	1.7% (1.4%)	6.3% (21.7%)	-1.5% (1.2%)
O1-O3	Comparison Group				
Years of Service	-0.2%*** (0.0%)	-0.1% (0.1%)	0.0% (0.0%)	0.1% (0.1%)	-0.1%*** (0.0%)
Female	-0.6% (0.8%)	-0.8% (1.3%)	-0.3%* (0.2%)	0.0% (1.2%)	-0.5% (0.3%)
Female X Unknown Number of Dependents	3.6% (5.4%)		2.7%** (1.2%)	-0.8% (4.4%)	3.6%* (2.2%)
Female X 1 or 2 Dependents	0.7% (1.1%)	1.5% (1.7%)	0.3% (0.2%)	2.8% (2.2%)	0.5% (0.4%)
Female X 3 or More Dependents	0.0% (1.3%)	0.6% (2.0%)	0.1% (0.4%)	2.0% (2.8%)	-0.4% (0.6%)
Female X Married	-0.6% (1.0%)	-0.9% (1.6%)	0.0% (0.3%)	-5.4%** (2.1%)	-0.4% (0.4%)
Married	1.1%* (0.6%)	1.0% (0.8%)	0.2%* (0.1%)	0.7% (0.8%)	0.7%*** (0.2%)
Asian	-1.0% (0.8%)	-3.0%** (1.4%)	-0.2% (0.3%)	0.7% (1.3%)	-1.0%** (0.4%)
Black	-1.2%*** (0.5%)	3.3%*** (0.7%)	0.1% (0.2%)	0.3% (0.7%)	0.3% (0.2%)
Other Race	-0.1% (0.9%)	0.9% (1.5%)	0.2% (0.2%)	-1.2% (1.0%)	0.3% (0.4%)
Unknown Race	-2.1%	-0.8%	0.0%	-2.7%*	-0.3%

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(1.4%)	(1.9%)	(0.3%)	(1.6%)	(0.5%)
White	Comparison Group				
Hispanic	-1.1% (0.7%)	0.8% (1.0%)	-0.1% (0.2%)	-0.2% (0.8%)	-0.4% (0.3%)
Non-Hispanic	Comparison Group				
Navy					-4.0%*** (0.3%)
Air Force					15.1%*** (0.2%)
Marine Corps					10.2%*** (0.3%)
Army	Comparison Group				
Sample size	48,195	33,786	91,965	13,457	187,403
Total R^2	0.0512	0.0218	0.0185	0.0387	0.0992

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 45. Complete regression results for probability of consecutive TA use: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Infantry, Gun Crews, and Seamanship Specialists	-7.9%*** (0.1%)	-4.6%*** (0.3%)	-7.7%*** (0.2%)	-15.1%*** (0.3%)	-8.0%*** (0.1%)
Electronic Equipment Repairers	-1.8%*** (0.2%)	-4.0%*** (0.2%)	-1.7%*** (0.2%)	-1.7%*** (0.3%)	-2.4%*** (0.1%)
Communications and Intelligence Specialists	-4.0%*** (0.2%)	-3.6%*** (0.2%)	-0.7%*** (0.2%)	-6.1%*** (0.3%)	-3.0%*** (0.1%)
Health Care Specialists	1.2%*** (0.2%)	2.9%*** (0.2%)	1.3%*** (0.2%)		1.7%*** (0.1%)
Other Technical and Allied Specialists	-1.3%*** (0.2%)	-3.1%*** (0.4%)	-1.3%*** (0.2%)	-3.5%*** (0.5%)	-1.5%*** (0.1%)
Electrical/Mechanical Equipment Repairers	-6.0%*** (0.2%)	-5.1%*** (0.2%)	-4.3%*** (0.1%)	-7.3%*** (0.3%)	-5.4%*** (0.1%)
Craftsworkers	-4.8%*** (0.3%)	-4.8%*** (0.3%)	-2.9%*** (0.2%)	-7.2%*** (0.5%)	-4.3%*** (0.2%)
Service and Supply Handlers	-3.7%*** (0.1%)	-1.4%*** (0.3%)	-1.1%*** (0.2%)	-6.9%*** (0.3%)	-2.8%*** (0.1%)
Nonoccupational	-18.5%*** (1.2%)	-11.3%*** (0.4%)	-24.6%*** (0.4%)	-23.3%*** (0.4%)	-18.6%*** (0.2%)
Unknown Occupation Code	24.9%*** (3.7%)	1.5% (33.8%)		-42.6% (45.8%)	31.7%*** (3.7%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Tactical Operations Officers	14.1%*** (1.0%)	23.0%*** (2.8%)		9.4%*** (2.3%)	21.4%*** (0.8%)
Intelligence Officers	20.8%*** (1.4%)	20.9%*** (2.9%)		9.3%*** (3.0%)	26.3%*** (1.1%)
Engineering and Maintenance Officers	23.7%*** (1.0%)	19.4%*** (1.8%)		9.2%*** (2.0%)	27.1%*** (0.8%)
Scientists and Professionals	28.6%*** (3.4%)			8.1%* (4.5%)	28.8%*** (2.7%)
Health Care Officers	17.9%*** (2.8%)	-33.7% (27.6%)			25.5%*** (2.8%)
Administrators	25.5%*** (1.3%)	23.3%*** (2.6%)		14.2%*** (2.1%)	28.3%*** (1.0%)
Supply, Procurement, and Allied Officers	24.9%*** (1.2%)	20.0%*** (3.4%)		8.0%*** (2.4%)	28.7%*** (1.0%)
Nonoccupational Officers	4.1% (3.4%)			-9.7% (16.3%)	13.0%*** (3.3%)
Functional Support and Administration	Comparison Group				
No High School Degree	8.4%*** (0.3%)	-5.3%*** (0.6%)	6.2%** (2.5%)	-5.3% (3.3%)	3.1%*** (0.3%)
Homeschool	0.4% (1.0%)	-1.8% (1.5%)		0.5% (1.6%)	-1.0% (0.7%)
Adult Education	1.2%*** (0.2%)	0.5% (0.4%)	-2.0%*** (0.3%)	0.9%* (0.5%)	-1.0%*** (0.1%)
Associate Degree	-2.6%*** (0.2%)	-0.2% (0.4%)	-3.3%*** (0.2%)	-2.8%*** (0.6%)	-3.8%*** (0.1%)
Bachelor's Degree	-7.3%*** (0.3%)	-1.7%*** (0.4%)	-10.1%*** (0.3%)	-6.7%*** (0.9%)	-7.5%*** (0.2%)
Professional Degree	-4.9%*** (0.4%)	-3.0%* (1.6%)	-27.0%*** (1.8%)	-7.1%* (3.8%)	-5.4%*** (0.4%)
Other Nontraditional High School Credential	-3.1%*** (0.2%)	-3.8%*** (0.4%)	4.5%** (1.8%)	-4.1%*** (0.6%)	-3.9%*** (0.2%)
Other Education	-2.4%*** (0.8%)	-0.5% (3.2%)	-0.5% (4.8%)	-6.1%*** (1.4%)	-3.3%*** (0.7%)
Education Unknown	1.3%*** (0.4%)	-2.7%*** (0.7%)	7.2%*** (0.6%)	6.7%*** (1.2%)	1.9%*** (0.3%)
High School	Comparison Group				
Unknown Number of Dependents	-7.0%*** (0.2%)	6.2% (12.8%)	-17.7%*** (0.5%)	3.6%*** (0.7%)	-7.3%*** (0.2%)
1 or 2 Dependents	0.4%*** (0.2%)	3.2%*** (0.2%)	2.6%*** (0.2%)	2.3%*** (0.3%)	1.7%*** (0.1%)
3 or More Dependents	1.3%*** (0.2%)	3.3%*** (0.3%)	1.9%*** (0.2%)	1.6%*** (0.4%)	1.8%*** (0.1%)
0 Dependents	Comparison Group				
E4-E6	24.3%*** (0.1%)	19.9%*** (0.2%)	26.2%*** (0.1%)	15.9%*** (0.2%)	23.2%*** (0.1%)
E7-E9	27.9%*** (0.2%)	20.9%*** (0.3%)	34.9%*** (0.3%)	15.2%*** (0.5%)	28.0%*** (0.1%)
W1-W2	11.9%***	-12.4%***		-1.5%	4.0%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(1.0%)	(2.1%)		(2.0%)	(0.8%)
W3-W5	4.5%*** (1.0%)	-1.3% (2.0%)		2.9% (2.1%)	2.0%*** (0.8%)
E1-E3	Comparison Group				
Years of Service	0.7%*** (0.0%)	0.6%*** (0.0%)	-0.3%*** (0.0%)	1.0%*** (0.0%)	0.4%*** (0.0%)
Female	9.5%*** (0.2%)	8.3%*** (0.2%)	7.9%*** (0.2%)	8.0%*** (0.4%)	8.7%*** (0.1%)
Female X Unknown Number of Dependents	1.4%*** (0.5%)	-16.4% (19.3%)	-2.5%*** (0.7%)	1.6% (1.5%)	-3.0%*** (0.4%)
Female X 1 or 2 Dependents	1.3%*** (0.3%)	-2.4%*** (0.4%)	-1.3%*** (0.3%)	0.9% (0.7%)	-0.2% (0.2%)
Female X 3 or More Dependents	-0.4% (0.3%)	-1.4%*** (0.5%)	-1.6%*** (0.3%)	-2.2%** (0.9%)	-1.1%*** (0.2%)
Female X Married	-2.3%*** (0.2%)	0.0% (0.3%)	-1.3%*** (0.3%)	0.9% (0.6%)	-1.6%*** (0.1%)
Married	3.0%*** (0.1%)	0.2% (0.2%)	-0.3%** (0.2%)	0.7%** (0.3%)	1.4%*** (0.1%)
Asian	0.6%*** (0.2%)	2.1%*** (0.3%)	4.6%*** (0.3%)	5.2%*** (0.5%)	2.4%*** (0.1%)
Black	0.5%*** (0.1%)	1.6%*** (0.1%)	1.4%*** (0.1%)	-0.6%** (0.2%)	1.2%*** (0.1%)
Other Race	-3.1%*** (0.2%)	1.6%*** (0.2%)	-0.4%** (0.2%)	-2.5%*** (0.3%)	-0.5%*** (0.1%)
Unknown Race	0.7% (1.3%)	3.5%*** (0.6%)	2.1%*** (0.5%)	1.6%*** (0.6%)	2.6%*** (0.3%)
White	Comparison Group				
Hispanic	1.6%*** (0.1%)	2.1%*** (0.2%)	2.2%*** (0.2%)	1.5%*** (0.2%)	1.7%*** (0.1%)
Non-Hispanic	Comparison Group				
Navy					-1.4%*** (0.1%)
Air Force					6.5%*** (0.1%)
Marine Corps					0.8%*** (0.1%)
Army	Comparison Group				
Sample size	1,274,716	658,206	1,179,775	338,446	3,451,143
Total R^2	0.1153	0.0804	0.1020	0.1367	0.1049

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 46. Complete regression results for probability of consecutive TA use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Unknown Occupation Code	8.5%*** (3.0%)	45.2% (34.3%)	-18.9%*** (3.6%)	3.7% (9.3%)	-1.7% (2.2%)
General Officers and Executives, NEC	38.7% (47.6%)	11.9% (14.8%)	-16.8% (14.4%)	50.6% (49.0%)	-4.1% (5.5%)
Intelligence Officers	-0.3% (0.9%)	3.1%** (1.3%)	-6.0%*** (0.7%)	1.5% (1.8%)	-2.6%*** (0.5%)
Engineering and Maintenance Officers	0.3% (0.7%)	0.0% (0.8%)	-2.0%*** (0.5%)	3.1%** (1.4%)	-1.2%*** (0.3%)
Scientists and Professionals	4.1%*** (1.4%)	8.1%*** (1.5%)	-2.0%** (0.9%)	2.4% (5.5%)	2.3%*** (0.7%)
Health Care Officers	3.2%*** (0.8%)	0.6% (1.0%)	-8.2%*** (0.8%)		-2.5%*** (0.5%)
Administrators	1.9%** (0.8%)	3.5%*** (1.0%)	-2.1%*** (0.7%)	6.0%*** (1.5%)	0.6% (0.4%)
Supply, Procurement, and Allied Officers	3.5%*** (0.7%)	-0.1% (1.2%)	-2.0%*** (0.7%)	5.5%*** (1.2%)	0.8%* (0.4%)
Nonoccupational Officers	3.2% (2.8%)	-12.4%*** (2.5%)	-31.8%*** (0.8%)	-27.3%*** (2.6%)	-27.3%*** (0.7%)
Tactical Operations Officers	Comparison Group				
No High School Degree	7.8%** (3.3%)	1.1% (5.8%)	3.4%* (1.9%)	6.3% (34.4%)	5.9%*** (1.6%)
High School	6.0%*** (0.8%)	6.7%*** (0.9%)	1.7%** (0.7%)	4.5%**** (1.5%)	3.7%*** (0.4%)
Homeschool	-55.8% (47.6%)	1.9% (17.2%)			-5.2% (16.0%)
Adult Education	4.2%** (1.7%)	-0.3% (1.1%)	4.1%*** (1.5%)	-1.6% (7.2%)	-2.2%*** (0.7%)
Associate Degree	5.2%** (2.0%)	-0.4% (1.6%)	1.0% (1.3%)	6.4%** (2.7%)	0.4% (0.8%)
Professional Degree	-15.9%*** (1.5%)	-1.8%* (1.0%)	-28.7%*** (1.2%)	-10.0%*** (2.8%)	-12.1%*** (0.6%)
Other Nontraditional High School Credential	14.6%*** (3.9%)	18.9%*** (4.3%)	29.9%** (14.8%)	13.0% (10.5%)	14.7%*** (2.7%)
Other Education	-56.3% (47.6%)	-0.4% (9.9%)	0.7% (21.8%)	11.7%* (6.9%)	5.3% (5.2%)
Education Unknown	1.3% (1.9%)	1.8%* (0.9%)	5.9%*** (0.7%)	-11.8% (13.6%)	3.4%*** (0.5%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	13.3%*** (4.3%)		-13.3%*** (3.0%)	2.5% (4.3%)	-3.9%* (2.1%)
1 or 2 Dependents	3.4%*** (0.8%)	1.3% (1.1%)	2.7%*** (0.5%)	-1.0% (1.9%)	2.1%*** (0.4%)
3 or More Dependents	3.5%*** (0.9%)	2.8%** (1.1%)	1.7%** (0.6%)	0.7% (2.0%)	1.9%*** (0.4%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
0 Dependents	Comparison Group				
O4-O5	2.9%*** (0.7%)	-1.2% (0.7%)	-12.5%*** (0.6%)	1.2% (1.3%)	-4.5%*** (0.4%)
O6-O10	-4.4% (5.2%)	-3.6% (2.4%)	-30.1%*** (5.8%)	-53.7% (48.6%)	-8.3%*** (2.0%)
O1-O3	Comparison Group				
Years of Service	0.7%*** (0.1%)	0.8%*** (0.1%)	1.4%*** (0.1%)	0.6%*** (0.1%)	1.0%*** (0.0%)
Female	4.0%*** (1.1%)	1.6% (1.5%)	3.3%*** (0.7%)	1.4% (2.5%)	2.7%*** (0.5%)
Female X Unknown Number of Dependents	-9.0% (7.2%)		-1.5% (5.6%)	-2.8% (9.7%)	-2.7% (3.9%)
Female X 1 or 2 Dependents	2.5%* (1.5%)	1.0% (1.9%)	-1.5% (1.1%)	12.8%*** (4.8%)	1.1% (0.8%)
Female X 3 or More Dependents	1.2% (1.7%)	-0.3% (2.2%)	-1.0% (1.5%)	6.4% (6.1%)	0.5% (1.0%)
Female X Married	-3.5%*** (1.3%)	-1.4% (1.8%)	0.7% (1.0%)	-10.9%** (4.6%)	-1.4%* (0.7%)
Married	3.5%*** (0.7%)	3.1%*** (1.0%)	3.2%*** (0.5%)	5.0%*** (1.7%)	3.5%*** (0.4%)
Asian	0.6% (1.1%)	2.9%* (1.5%)	1.6%** (0.8%)	4.6%* (2.6%)	1.6%*** (0.6%)
Black	2.4%*** (0.6%)	1.8%** (0.8%)	-2.0%*** (0.7%)	0.3% (1.3%)	1.3%*** (0.4%)
Other Race	-0.9% (1.2%)	-0.4% (1.5%)	0.3% (0.8%)	-0.2% (2.0%)	0.0% (0.6%)
Unknown Race	0.6% (1.8%)	-3.1% (2.1%)	-0.2% (0.9%)	1.1% (3.4%)	0.3% (0.8%)
	Comparison Group				
Hispanic	0.6% (0.9%)	1.1% (1.1%)	0.2% (0.7%)	-1.5% (1.6%)	0.2% (0.5%)
Non-Hispanic	Comparison Group				
Navy					2.2%*** (0.4%)
Air Force					15.4%*** (0.3%)
Marine Corps					3.1%*** (0.5%)
Army	Comparison Group				
Sample size	48,195	33,786	91,965	13,457	187,403
Total R^2	0.0968	0.0610	0.0877	0.0640	0.0757

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Appendix E: Complete Regression Results for User, Super User, and Consecutive User Estimations (FY14/FY15 only)

Tables 47-52 show the complete regression results for our user, super user, and consecutive user estimations, for FY14 and FY15 only.

Table 47. Complete regression results for probability of TA use: Marginal effects of military and demographic characteristics, enlisted only, FY14-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Infantry, Gun Crews, and Seamanship Specialists	-4.6%*** (0.3%)	-1.5%*** (0.5%)	0.0% (0.6%)	-6.1%*** (0.5%)	-3.6%*** (0.2%)
Electronic Equipment Repairers	-3.2%*** (0.4%)	-2.3%*** (0.4%)	-2.4%*** (0.4%)	-1.6%*** (0.6%)	-2.7%*** (0.2%)
Communications and Intelligence Specialists	-2.8%*** (0.3%)	-2.6%*** (0.5%)	-0.7%* (0.4%)	-2.0%*** (0.6%)	-1.9%*** (0.2%)
Health Care Specialists	0.5% (0.3%)	-0.5% (0.4%)	-1.8%*** (0.4%)		-0.4%* (0.2%)
Other Technical and Allied Specialists	-1.4%*** (0.4%)	-5.2%*** (0.9%)	0.4% (0.5%)	-2.4%*** (0.8%)	-1.3%*** (0.3%)
Electrical/Mechanical Equipment Repairers	-5.5%*** (0.3%)	-4.7%*** (0.4%)	-3.4%*** (0.3%)	-4.4%*** (0.5%)	-4.7%*** (0.2%)
Craftsworkers	-3.8%*** (0.5%)	-4.3%*** (0.6%)	-0.5% (0.5%)	-4.5%*** (1.0%)	-2.8%*** (0.3%)
Service and Supply Handlers	-2.3%*** (0.3%)	-2.1%*** (0.5%)	-2.8%*** (0.3%)	-2.6%*** (0.6%)	-2.7%*** (0.2%)
Nonoccupational	-13.6%*** (2.3%)	7.3%** (3.0%)	-4.3%*** (1.1%)	-4.3%*** (1.4%)	-5.6%*** (0.8%)
Unknown Occupation Code	4.1% (5.9%)			-15.1% (40.0%)	7.2% (5.8%)
Tactical Operations Officers	-7.5%*** (1.1%)	9.8%*** (3.1%)		0.3% (3.1%)	-4.0%*** (0.9%)
Intelligence Officers	-7.3%*** (1.5%)	-1.9% (3.5%)		-4.4% (3.5%)	-4.9%*** (1.2%)
Engineering and Maintenance Officers	2.8%** (1.1%)	5.2%** (2.3%)		-3.1% (2.6%)	2.5%*** (0.9%)
Scientists and Professionals	-6.6% (4.3%)			-5.9% (6.1%)	-4.3% (3.5%)
Health Care Officers	-3.0% (3.3%)				-0.3% (3.3%)
Administrators	-3.4%**	9.8%***		-2.4%	-1.0%

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(1.4%)	(3.1%)		(2.8%)	(1.1%)
Supply, Procurement, and Allied Officers	-0.9% (1.4%)	12.4%*** (4.6%)		0.2% (3.2%)	1.7% (1.2%)
Nonoccupational Officers	-17.9%*** (3.0%)			-19.1%* (11.2%)	-14.6%*** (2.9%)
Functional Support and Administration	Comparison Group				
No High School Degree	0.9% (0.8%)	-1.3% (1.2%)	-7.3% (6.5%)	-6.4% (7.1%)	0.1% (0.7%)
Homeschool	-2.4%* (1.4%)	1.8% (2.5%)		1.5% (2.4%)	-1.3% (1.1%)
Adult Education	1.2%*** (0.3%)	-0.1% (0.6%)	6.7%*** (1.1%)	0.7% (1.0%)	0.4%* (0.3%)
Associate Degree	-1.5%*** (0.5%)	1.4%* (0.7%)	0.9%* (0.4%)	-2.5%* (1.4%)	-0.8%*** (0.3%)
Bachelor's Degree	-11.3%*** (0.5%)	-6.0%*** (0.7%)	-13.7%*** (0.7%)	-6.3%*** (2.0%)	-10.7%*** (0.3%)
Professional Degree	-12.9%*** (1.6%)	-15.8%*** (3.1%)	-21.4%*** (3.8%)	-16.1%** (7.2%)	-14.3%*** (1.3%)
Other Nontraditional High School Credential	-3.9%*** (0.3%)	-2.1%*** (0.8%)	3.9% (4.8%)	1.0% (1.4%)	-4.1%*** (0.3%)
Other Education	-2.9%** (1.2%)	-7.2% (6.5%)	19.8%** (9.3%)	-2.9% (5.5%)	-3.3%*** (1.2%)
Education Unknown	1.4%* (0.7%)	-0.3% (1.3%)	-1.7% (1.7%)	1.3% (2.1%)	0.8% (0.6%)
High School	Comparison Group				
Unknown Number of Dependents	-10.8% (23.4%)	30.7%* (15.8%)			19.5% (13.5%)
1 or 2 Dependents	0.5%** (0.2%)	-2.9%*** (0.4%)	-2.2%*** (0.2%)	0.2% (0.4%)	-0.9%*** (0.1%)
3 or More Dependents	-0.5%** (0.2%)	-3.1%*** (0.4%)	-3.7%*** (0.3%)	0.6% (0.5%)	-1.5%*** (0.2%)
0 Dependents	Comparison Group				
E4-E6	-3.9%*** (0.3%)	1.4%*** (0.5%)	-7.7%*** (0.4%)	-1.8%*** (0.5%)	-3.0%*** (0.2%)
E7-E9	7.6%*** (0.5%)	5.4%*** (0.7%)	0.0% (0.6%)	6.3%*** (0.9%)	5.5%*** (0.3%)
W1-W2	14.5%*** (1.0%)	-7.0%*** (2.5%)		7.5%*** (2.4%)	10.3%*** (0.9%)
W3-W5	2.9%*** (1.0%)	-1.1% (2.4%)		0.9% (2.5%)	1.6%* (0.9%)
E1-E3	Comparison Group				
Years of Service	-0.8%*** (0.0%)	-0.9%*** (0.0%)	-1.3%*** (0.0%)	-0.3%*** (0.1%)	-1.0%*** (0.0%)
Female	9.6%*** (0.4%)	6.9%*** (0.6%)	9.8%*** (0.5%)	8.6%*** (0.9%)	9.4%*** (0.3%)
Female X Unknown Number of Dependents		-17.9% (27.2%)			-0.7% (26.8%)
Female X 1 or 2	-0.8%*	0.4%	-0.6%	-0.4%	-0.8%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Dependents	(0.5%)	(0.7%)	(0.5%)	(1.0%)	(0.3%)
Female X 3 or More Dependents	-2.7%*** (0.5%)	0.1% (0.7%)	0.0% (0.5%)	-2.5%** (1.1%)	-1.6%*** (0.3%)
Female X Married	-3.8%*** (0.4%)	-4.1%*** (0.5%)	-5.7%*** (0.4%)	-3.8%*** (0.9%)	-4.6%*** (0.3%)
Married	4.7%*** (0.2%)	2.5%*** (0.3%)	6.7%*** (0.2%)	4.0%*** (0.4%)	4.9%*** (0.1%)
Asian	1.0%*** (0.3%)	-0.4% (0.5%)	0.5% (0.5%)	0.4% (0.9%)	0.8%*** (0.2%)
Black	2.7%*** (0.2%)	4.6%*** (0.3%)	2.1%*** (0.2%)	3.9%*** (0.4%)	3.1%*** (0.1%)
Other Race	-2.0%*** (0.5%)	-0.5% (0.4%)	0.1% (0.4%)	1.7%** (0.7%)	0.2% (0.2%)
Unknown Race	-3.8% (4.4%)	-0.7% (1.0%)	-2.1%** (1.0%)	-1.6% (1.2%)	-1.8%*** (0.6%)
White	Comparison Group				
Hispanic	1.1%*** (0.2%)	1.0%*** (0.3%)	1.3%*** (0.3%)	1.5%*** (0.4%)	1.4%*** (0.1%)
Non-Hispanic	Comparison Group				
Navy					-1.1%*** (0.2%)
Air Force					9.4%*** (0.1%)
Marine Corps					-5.1%*** (0.2%)
Army	Comparison Group				
Sample size	392,510	181,704	321,854	91,676	987,744
Total R^2	0.1591	0.2091	0.1189	0.1957	0.1593

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 48. Complete regression results for probability of TA use: Marginal effects of military and demographic characteristics, officers only, FY14-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Unknown Occupation Code	-1.0% (1.4%)	-9.8% (13.2%)	-2.0% (2.2%)	-3.4%* (2.0%)	-1.6% (1.0%)
General Officers and Executives, NEC	-2.0% (6.6%)	-2.5% (6.6%)	-0.3% (2.2%)	1.3% (7.5%)	-0.7% (1.5%)
Intelligence Officers	0.3% (0.5%)	0.7% (0.9%)	-3.8%*** (0.6%)	-1.6% (1.4%)	-1.2%*** (0.3%)
Engineering and Maintenance Officers	-1.7%*** (0.4%)	6.6%*** (0.7%)	-2.6%*** (0.4%)	3.4%*** (1.1%)	-0.4% (0.3%)
Scientists and Professionals	-0.1% (0.6%)	-0.4% (1.2%)	-5.5%*** (0.7%)	-5.6%* (3.2%)	-1.7%*** (0.4%)
Health Care Officers	-1.5%*** (0.4%)	-3.1%*** (0.7%)	-4.7%*** (0.6%)		-3.6%*** (0.3%)
Administrators	0.1% (0.4%)	6.5%*** (0.8%)	-2.7%*** (0.5%)	1.4% (1.3%)	0.4% (0.3%)
Supply, Procurement, and Allied Officers	1.2%*** (0.4%)	0.5% (0.9%)	-2.7%*** (0.5%)	1.2% (1.0%)	-0.1% (0.3%)
Nonoccupational Officers	0.9% (1.5%)	-10.6%*** (1.2%)	-1.7% (1.2%)	-7.6%*** (1.7%)	-5.5%*** (0.7%)
Tactical Operations Officers	Comparison Group				
No High School Degree	2.3% (1.7%)	6.9%* (3.9%)	-5.0%*** (1.8%)	-4.8% (28.4%)	-1.1% (1.2%)
High School	1.2%*** (0.4%)	3.9%*** (0.7%)	7.2%*** (0.6%)	4.3%*** (1.2%)	2.7%*** (0.3%)
Homeschool	-0.5% (9.1%)	4.9% (8.0%)		-4.0% (13.5%)	0.5% (5.6%)
Adult Education	2.4%** (0.9%)	3.8%*** (1.0%)	2.8%** (1.1%)	7.4%** (3.7%)	3.2%*** (0.6%)
Associate Degree	-0.6% (1.0%)	0.1% (1.4%)	2.1%** (0.9%)	5.9%** (2.8%)	-1.0% (0.6%)
Professional Degree	-5.6%*** (0.7%)	1.6%* (0.9%)	-0.9% (1.0%)	-2.1% (3.0%)	-1.8%*** (0.5%)
Other Nontraditional High School Credential	4.9%*** (1.8%)	6.4%** (2.6%)	10.6% (12.1%)	1.6% (6.1%)	4.7%*** (1.5%)
Other Education	17.0% (15.2%)	-2.6% (7.9%)	22.4% (14.8%)	21.5%* (12.2%)	8.9% (5.6%)
Education Unknown	0.9% (0.8%)	0.2% (0.7%)	-0.1% (0.6%)	-6.2% (5.8%)	0.0% (0.4%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	-1.5% (8.2%)	-3.6% (19.6%)			-2.8% (8.1%)
1 or 2 Dependents	-0.5% (0.4%)	0.6% (0.5%)	-1.4%*** (0.4%)	-1.3% (0.8%)	-1.1%*** (0.2%)
3 or More Dependents	-2.0%*** (0.4%)	-2.1%*** (0.6%)	-7.5%*** (0.4%)	-1.8%* (0.9%)	-5.3%*** (0.2%)
0 Dependents	Comparison Group				
O4-O5	-5.0%*** (0.4%)	-6.4%*** (0.6%)	-8.5%*** (0.5%)	-2.9%** (1.1%)	-8.0%*** (0.3%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
O6-O10	-8.3%*** (0.9%)	-8.8%*** (1.3%)	-7.2%*** (1.2%)	-5.5% (7.3%)	-10.0%*** (0.6%)
O1-O3	Comparison Group				
Years of Service	0.0% (0.0%)	0.2%*** (0.1%)	-0.6%*** (0.0%)	0.0% (0.1%)	0.0% (0.0%)
Female	2.4%*** (0.8%)	1.2% (1.4%)	-2.9%*** (0.8%)	-0.1% (2.8%)	-0.7% (0.5%)
Female X Unknown Number of Dependents					
Female X 1 or 2 Dependents	0.8% (0.8%)	0.2% (1.2%)	1.5%* (0.8%)	1.4% (2.7%)	1.0%* (0.5%)
Female X 3 or More Dependents	-0.5% (0.8%)	-2.1% (1.3%)	4.0%*** (0.8%)	-2.1% (2.9%)	1.3%** (0.5%)
Female X Married	-1.7%** (0.7%)	0.3% (1.2%)	-1.7%** (0.7%)	-5.0%* (2.6%)	-1.1%** (0.5%)
Married	2.8%*** (0.4%)	0.3% (0.7%)	0.9%** (0.4%)	2.7%** (1.0%)	1.4%*** (0.2%)
Asian	1.6%*** (0.6%)	0.4% (1.0%)	0.9% (0.7%)	2.5% (2.0%)	1.1%*** (0.4%)
Black	3.3%*** (0.3%)	4.5%*** (0.6%)	0.3% (0.5%)	2.7%** (1.2%)	3.0%*** (0.3%)
Other Race	1.0% (0.7%)	0.5% (1.0%)	0.0% (0.7%)	2.6%* (1.5%)	0.9%** (0.4%)
Unknown Race	-0.4% (0.9%)	-1.7% (1.8%)	-1.5%* (0.8%)	-2.5% (2.4%)	-1.3%** (0.6%)
White	Comparison Group				
Hispanic	2.5%*** (0.5%)	1.8%** (0.8%)	2.6%*** (0.6%)	-0.4% (1.1%)	2.0%*** (0.3%)
Non-Hispanic	Comparison Group				
Navy					3.0%*** (0.3%)
Air Force					3.8%*** (0.2%)
Marine Corps					0.4% (0.4%)
Army	Comparison Group				
Sample size	58,770	26,677	66,968	9,288	161,703
Total R^2	0.3674	0.2635	0.4177	0.3281	0.3605

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 49. Complete regression results for probability of TA super use: Marginal effects of military and demographic characteristics, enlisted only, FY14-FY15[a,b]

Variable	Army	Navy	Air Force	Marine Corps	DOD
Infantry, Gun Crews, and Seamanship Specialists	-1.0%** (0.4%)	0.7% (0.8%)	-0.1% (0.1%)	-0.3% (0.2%)	-1.3%*** (0.2%)
Electronic Equipment Repairers	0.8% (0.6%)	2.4%*** (0.6%)	0.1% (0.1%)	0.5%* (0.3%)	0.8%*** (0.2%)
Communications and Intelligence Specialists	-0.7% (0.5%)	-0.7% (0.7%)	0.1%* (0.1%)	0.1% (0.2%)	-0.5%** (0.2%)
Health Care Specialists	7.9%*** (0.4%)	5.6%*** (0.6%)	0.1% (0.1%)		4.5%*** (0.2%)
Other Technical and Allied Specialists	-0.2% (0.6%)	-1.8% (1.5%)	0.0% (0.1%)	0.6% (0.4%)	-0.1% (0.3%)
Electrical/Mechanical Equipment Repairers	-0.7% (0.5%)	0.7% (0.6%)	-0.1% (0.1%)	-0.8%*** (0.2%)	0.0% (0.2%)
Craftsworkers	1.2% (0.8%)	0.5% (1.0%)	0.2% (0.1%)	0.0% (0.4%)	0.5% (0.3%)
Service and Supply Handlers	0.4% (0.4%)	-2.8%*** (0.7%)	0.1% (0.1%)	-0.3% (0.2%)	-0.2% (0.2%)
Nonoccupational	7.3%* (4.0%)	-9.6%*** (3.0%)	-0.1% (0.2%)	-0.1% (0.6%)	2.0%*** (0.7%)
Unknown Occupation Code	13.2% (8.2%)				13.3%** (6.0%)
Tactical Operations Officers	3.5%* (2.0%)	19.3%*** (5.8%)		1.2% (1.5%)	3.9%*** (1.3%)
Intelligence Officers	5.5%** (2.6%)	-7.0% (7.8%)		1.2% (1.8%)	4.4%** (1.7%)
Engineering and Maintenance Officers	11.4%*** (2.0%)	7.2% (4.5%)		0.9% (1.3%)	9.9%*** (1.3%)
Scientists and Professionals	16.6%** (7.6%)			1.8% (3.2%)	13.9%*** (4.8%)
Health Care Officers	9.7%* (5.6%)				10.0%** (4.2%)
Administrators	10.2%*** (2.5%)	9.9% (6.1%)		1.2% (1.4%)	8.3%*** (1.6%)
Supply, Procurement, and Allied Officers	12.1%*** (2.4%)	16.9%* (8.5%)		1.1% (1.6%)	11.2%*** (1.6%)
Nonoccupational Officers	7.0% (4.8%)			1.7% (10.8%)	6.1%* (3.5%)
Functional Support and Administration	Comparison Group				
No High School Degree	-1.5% (1.4%)	-1.1% (2.0%)	0.5% (1.5%)	1.2% (4.5%)	-0.9% (0.8%)
Homeschool	-4.9%*** (1.9%)	2.2% (3.5%)		0.4% (1.0%)	-3.9%*** (1.1%)
Adult Education	2.2%*** (0.5%)	0.7% (1.0%)	-0.1% (0.3%)	-0.5% (0.5%)	0.7%** (0.3%)
Associate Degree	2.0%*** (0.7%)	3.3%*** (1.0%)	-0.4%*** (0.1%)	-0.3% (0.6%)	1.1%*** (0.3%)

Variable	Army	Navy	Air Force	Marine Corps	DOD
Bachelor's Degree	-3.5%*** (0.8%)	-4.1%*** (1.1%)	-0.6%*** (0.2%)	0.4% (0.9%)	-2.4%*** (0.4%)
Professional Degree	-1.6% (3.2%)	-6.8% (6.0%)	0.5% (1.0%)	1.4% (5.1%)	-1.0% (1.9%)
Other Nontraditional High School Credential	-1.9%*** (0.5%)	-0.4% (1.3%)	0.6% (1.0%)	-1.3%* (0.7%)	-1.7%*** (0.4%)
Other Education	-1.4% (2.0%)	9.1% (11.6%)	0.3% (1.6%)	1.0% (2.7%)	-1.4% (1.4%)
Education Unknown	2.0% (1.2%)	-2.3% (2.2%)	0.0% (0.4%)	-0.8% (0.8%)	1.3%* (0.7%)
High School	Comparison Group				
Unknown Number of Dependents	-76.0%* (43.0%)	-19.2% (16.7%)			-28.1%** (12.2%)
1 or 2 Dependents	1.1%*** (0.3%)	-0.7% (0.5%)	0.0% (0.1%)	0.5%*** (0.2%)	0.8%*** (0.1%)
3 or More Dependents	0.8%** (0.4%)	0.2% (0.6%)	-0.1% (0.1%)	0.3% (0.2%)	0.8%*** (0.2%)
0 Dependents	Comparison Group				
E4-E6	1.6%*** (0.4%)	1.4%** (0.6%)	0.0% (0.1%)	0.3% (0.2%)	0.7%*** (0.2%)
E7-E9	3.4%*** (0.7%)	5.3%*** (1.0%)	0.0% (0.1%)	0.4% (0.4%)	2.6%*** (0.3%)
W1-W2	-3.9%** (1.8%)	-6.8% (5.3%)		-0.2% (1.2%)	-3.2%*** (1.2%)
W3-W5	-2.6% (2.0%)	3.5% (4.8%)		0.0% (1.2%)	-1.5% (1.3%)
E1-E3	Comparison Group				
Years of Service	-0.1%*** (0.0%)	-0.5%*** (0.1%)	0.0%* (0.0%)	0.0% (0.0%)	-0.2%*** (0.0%)
Female	4.2%*** (0.6%)	2.0%** (0.8%)	0.0% (0.1%)	1.0%*** (0.3%)	1.9%*** (0.3%)
Female X Unknown Number of Dependents		32.8% (30.3%)			44.6%* (23.3%)
Female X 1 or 2 Dependents	-0.5% (0.6%)	0.6% (0.9%)	0.0% (0.1%)	-1.0%*** (0.4%)	-0.5%* (0.3%)
Female X 3 or More Dependents	-1.3%* (0.7%)	-1.3% (1.0%)	-0.1% (0.1%)	-1.0%** (0.5%)	-1.1%*** (0.3%)
Female X Married	-2.2%*** (0.6%)	-1.1% (0.8%)	0.1% (0.1%)	0.1% (0.4%)	-1.0%*** (0.3%)
Married	3.2%*** (0.3%)	1.9%*** (0.4%)	0.0% (0.0%)	0.0% (0.2%)	1.4%*** (0.1%)
Asian	-0.4% (0.5%)	0.0% (0.7%)	-0.1% (0.1%)	0.2% (0.4%)	-0.1% (0.2%)
Black	0.9%*** (0.3%)	1.3%*** (0.4%)	0.0% (0.1%)	-0.1% (0.2%)	0.7%*** (0.1%)
Other Race	-3.6%*** (0.8%)	-0.1% (0.5%)	-0.1% (0.1%)	-0.3% (0.3%)	-0.3% (0.2%)
Unknown Race	7.3%	-0.8%	0.1%	-0.9%	-0.1%

Variable	Army	Navy	Air Force	Marine Corps	DOD
	(7.3%)	(1.6%)	(0.2%)	(0.6%)	(0.7%)
White	Comparison Group				
Hispanic	-1.9%*** (0.4%)	-0.5% (0.4%)	0.1% (0.1%)	0.3%* (0.2%)	-0.7%*** (0.2%)
Non-Hispanic	Comparison Group				
Navy					3.8%*** (0.2%)
Air Force					24.8%*** (0.2%)
Marine Corps					24.7%*** (0.2%)
Army	Comparison Group				
Sample size	152,446	68,983	154,071	30,285	405,785
Total R^2	0.0232	0.0154	0.0023	0.0152	0.1251

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 50. Complete regression results for probability of TA super use: Marginal effects of military and demographic characteristics, officers only, FY14-FY15[a,b]

Variable	Army	Navy	Air Force	Marine Corps	DOD
Unknown Occupation Code	4.8% (8.7%)		4.1%** (2.0%)	1.1% (2.0%)	1.6% (3.7%)
General Officers and Executives, N.E.C.				-1.5% (4.1%)	14.3% (13.8%)
Intelligence Officers	-1.6% (2.1%)	-7.1%** (3.4%)	-0.1% (0.4%)	0.9% (1.1%)	-2.1%** (0.8%)
Engineering and Maintenance Officers	3.8%** (1.5%)	1.3% (2.4%)	0.1% (0.3%)	-0.5% (0.8%)	1.4%** (0.6%)
Scientists and Professionals	7.9%*** (2.9%)	0.0% (4.9%)	0.2% (0.5%)	0.0% (3.9%)	1.4% (1.1%)
Health Care Officers	6.5%*** (1.9%)	-3.9% (2.7%)	0.3% (0.5%)		1.5%* (0.9%)
Administrators	6.7%*** (1.8%)	0.3% (2.7%)	0.6% (0.4%)	0.0% (1.0%)	2.3%*** (0.7%)
Supply, Procurement, and Allied Officers	4.8%*** (1.7%)	-5.6% (3.4%)	0.3% (0.4%)	1.4%* (0.7%)	0.5% (0.7%)
Nonoccupational Officers	2.2% (6.9%)	-17.6%** (7.6%)	-0.8% (0.5%)	1.3% (2.2%)	-1.8% (1.4%)
Tactical Operations Officers	Comparison Group				
No High School Degree	-4.1%	12.5%	3.8%		0.9%

Variable	Army	Navy	Air Force	Marine Corps	DOD
	(7.9%)	(13.0%)	(5.4%)		(4.5%)
High School	4.9%** (2.0%)	0.2% (3.5%)	1.5%** (0.6%)	0.7% (1.0%)	1.5% (0.9%)
Homeschool	-52.7% (43.3%)	-11.7% (26.0%)			-29.0%* (15.8%)
Adult Education	-3.3% (3.4%)	2.8% (4.3%)	6.4%*** (1.9%)	0.4% (2.9%)	1.5% (1.5%)
Associate Degree	3.6% (5.6%)	3.5% (7.2%)	3.0%** (1.3%)	1.6% (2.3%)	2.7% (2.3%)
Professional Degree	-28.2%*** (6.4%)	-4.1% (3.7%)	-3.1%** (1.2%)	1.5% (2.2%)	-6.8%*** (1.8%)
Other Nontraditional High School Credential	20.9%*** (7.6%)	-4.6% (8.8%)	1.7% (8.1%)	0.1% (6.9%)	6.6%* (3.9%)
Other Education	32.7% (43.1%)	-29.3% (29.4%)	0.3% (8.1%)	1.1% (7.1%)	-3.8% (12.0%)
Education Unknown	3.0% (3.9%)	-1.2% (2.2%)	-0.8%** (0.3%)	-0.2% (4.3%)	-0.9% (0.8%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	43.5% (43.1%)				34.6% (29.7%)
0 Dependents	Comparison Group				
1 or 2 Dependents	-3.0%** (1.5%)	-1.8% (2.0%)	-0.1% (0.2%)	-0.1% (0.7%)	-1.0%** (0.5%)
3 or More Dependents	-5.3%*** (1.7%)	-3.7% (2.3%)	-0.2% (0.3%)	-1.1% (0.7%)	-2.8%*** (0.6%)
O4-O5	-4.2%** (1.6%)	-1.8% (2.4%)	0.3% (0.6%)	-0.1% (0.9%)	-2.9%*** (0.8%)
O6-O10	15.1% (20.1%)	-11.7% (9.7%)	-19.7%*** (4.5%)		-11.0%* (5.6%)
O1-O3	Comparison Group				
Years of Service	0.0% (0.2%)	0.0% (0.2%)	0.0% (0.0%)	0.0% (0.1%)	0.1% (0.1%)
Female	-4.9% (3.0%)	3.0% (4.5%)	-0.2% (0.4%)	-2.3% (2.0%)	-0.8% (1.0%)
Female X 1 or 2 Dependents	3.9% (3.1%)	-3.2% (4.3%)	0.2% (0.4%)	3.5% (2.1%)	0.7% (1.0%)
Female X 3 or More Dependents	7.1%** (3.3%)	-0.3% (5.2%)	0.5% (0.7%)	6.3%** (2.7%)	2.5%* (1.4%)
Female X Married	-0.3% (2.5%)	-3.7% (4.1%)	0.0% (0.4%)	-4.4%** (2.1%)	-0.9% (1.0%)
Married	1.8% (1.4%)	-1.1% (2.2%)	0.1% (0.2%)	0.5% (0.7%)	0.6% (0.5%)
Asian	-0.7% (2.1%)	-2.8% (3.6%)	-0.4% (0.4%)	1.0% (1.4%)	-0.9% (0.9%)
Black	-0.1% (1.4%)	3.7%* (2.1%)	-0.3% (0.4%)	0.0% (1.0%)	0.2% (0.7%)
Other Race	0.9% (2.9%)	5.6%* (3.1%)	0.2% (0.5%)	0.6% (1.2%)	1.3% (1.0%)

Variable	Army	Navy	Air Force	Marine Corps	DOD
Unknown Race	3.4% (3.0%)	-12.4%* (6.7%)	0.7% (0.5%)	0.2% (1.5%)	0.8% (1.2%)
White	Comparison Group				
Hispanic	-0.2% (1.9%)	4.2% (2.6%)	0.1% (0.4%)	0.7% (0.9%)	0.6% (0.8%)
Non-Hispanic	Comparison Group				
Navy					6.2%*** (0.8%)
Air Force					25.9%*** (0.65)
Marine Corps					27.1*** (1.0%)
Army	Comparison Group				
Sample size	8,151	3,671	13,083	1,288	26,193
Total R^2	0.0459	0.0345	0.0148	0.1020	0.1523

Source: CNA analysis of DMDC and TA data.

[a.] Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

[b.] Additional controls not shown include state of residence and cohort year.

Table 51. Complete regression results for probability of consecutive TA use: Marginal effects of military and demographic characteristics, enlisted only, FY14-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Infantry, Gun Crews, and Seamanship Specialists	-4.6%*** (0.4%)	-1.7%** (0.8%)	-2.5%*** (0.8%)	-5.2%*** (0.9%)	-4.1%*** (0.3%)
Electronic Equipment Repairers	-1.1%* (0.6%)	-1.2%* (0.6%)	-1.5%*** (0.5%)	-0.5% (1.0%)	-1.3%*** (0.3%)
Communications and Intelligence Specialists	-2.2%*** (0.5%)	-1.4%* (0.7%)	-0.2% (0.5%)	-1.3% (0.9%)	-1.4%*** (0.3%)
Health Care Specialists	0.1% (0.5%)	-0.6% (0.7%)	-0.5% (0.5%)		0.0% (0.3%)
Other Technical and Allied Specialists	-1.7%*** (0.7%)	-5.2%*** (1.5%)	-1.6%** (0.7%)	-0.7% (1.4%)	-1.7%*** (0.4%)
Electrical/Mechanical Equipment Repairers	-3.2%*** (0.5%)	-2.1%*** (0.6%)	-4.3%*** (0.4%)	-1.8%** (0.9%)	-3.4%*** (0.3%)
Craftsworkers	-3.8%*** (0.8%)	-2.1%** (1.0%)	-3.5%*** (0.6%)	-4.1%** (1.7%)	-3.2%*** (0.4%)
Service and Supply Handlers	-1.8%*** (0.4%)	-0.7% (0.7%)	-3.3%*** (0.4%)	-1.8%* (0.9%)	-2.1%*** (0.3%)
Nonoccupational	-13.8%*** (4.1%)	-13.3%*** (3.1%)	-22.8%*** (1.2%)	-8.9%*** (2.6%)	-18.7%*** (1.0%)
Unknown Occupation Code	27.2%***				28.3%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(8.5%)				(8.4%)
Tactical Operations Officers	11.2%*** (2.0%)	14.0%** (5.9%)		12.2%** (6.0%)	12.5%*** (1.7%)
Intelligence Officers	15.0%*** (2.7%)	4.6% (7.9%)		13.8%* (7.0%)	15.0%*** (2.3%)
Engineering and Maintenance Officers	22.2%*** (2.0%)	15.1%*** (4.6%)		9.6%* (5.3%)	20.9%*** (1.7%)
Scientists and Professionals	42.7%*** (7.7%)			1.8% (12.4%)	30.1%*** (6.5%)
Health Care Officers	13.8%** (5.7%)				15.2%*** (5.6%)
Administrators	23.3%*** (2.5%)	17.4%*** (6.2%)		10.0%* (5.7%)	20.3%*** (2.1%)
Supply, Procurement, and Allied Officers	22.4%*** (2.5%)	18.7%** (8.6%)		3.0% (6.2%)	20.6%*** (2.1%)
Nonoccupational Officers	-6.3% (4.9%)			-47.5% (43.0%)	-4.6% (4.8%)
Functional Support and Administration	Comparison Group				
No High School Degree	-1.3% (1.4%)	-4.9%** (2.0%)	3.1% (9.5%)	9.6% (16.4%)	-2.3%** (1.1%)
Homeschool	-1.0% (1.9%)	-1.8% (3.6%)		-3.1% (3.9%)	-1.4% (1.5%)
Adult Education	0.5% (0.5%)	0.4% (1.0%)	2.4% (1.8%)	-0.9% (1.8%)	1.0%*** (0.4%)
Associate Degree	2.5%*** (0.7%)	2.5%** (1.0%)	3.1%*** (0.6%)	6.1%** (2.4%)	2.9%*** (0.4%)
Bachelor's Degree	-1.5%* (0.8%)	1.7% (1.1%)	-1.9%* (1.0%)	1.7% (3.3%)	-0.5% (0.5%)
Professional Degree	-3.3% (3.3%)	-0.3% (6.1%)	-9.0% (6.4%)	7.2% (18.8%)	-3.0% (2.6%)
Other Nontraditional High School Credential	-4.2%*** (0.5%)	-2.5%** (1.3%)	1.5% (6.6%)	-2.7% (2.5%)	-3.9%*** (0.5%)
Other Education	-2.5% (2.0%)	3.3% (11.6%)	7.5% (10.4%)	-9.8% (10.1%)	-2.3% (1.9%)
Education Unknown	1.7% (1.3%)	-0.7% (2.2%)	5.5%** (2.3%)	0.2% (3.2%)	2.1%** (0.9%)
High School	Comparison Group				
Unknown Number of Dependents	-86.9%** (43.9%)	5.9% (16.8%)			-6.2% (16.4%)
1 or 2 Dependents	-0.9%*** (0.3%)	2.9%*** (0.6%)	2.7%*** (0.3%)	0.9% (0.7%)	1.2%*** (0.2%)
3 or More Dependents	0.8%** (0.4%)	3.7%*** (0.6%)	3.1%*** (0.4%)	2.3%*** (0.9%)	2.1%*** (0.2%)
0 Dependents	Comparison Group				
E4-E6	13.1%*** (0.4%)	7.2%*** (0.6%)	10.7%*** (0.4%)	6.8%*** (0.9%)	10.1%*** (0.3%)
E7-E9	18.0%*** (0.7%)	6.3%*** (1.0%)	24.1%*** (0.8%)	7.1%*** (1.5%)	16.2%*** (0.4%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
W1-W2	2.7% (1.9%)	-11.0%** (5.4%)		-9.1%* (5.0%)	-0.9% (1.6%)
W3-W5	4.7%** (2.0%)	-5.2% (4.9%)		-1.9% (5.2%)	2.1% (1.7%)
E1-E3	Comparison Group				
Years of Service	0.0% (0.0%)	0.1% (0.1%)	-0.7%*** (0.0%)	0.5%*** (0.1%)	-0.2%*** (0.0%)
Female	4.7%*** (0.6%)	3.0%*** (0.8%)	5.2%*** (0.6%)	2.1% (1.4%)	4.3%*** (0.4%)
Female X Unknown Number of Dependents		-20.7% (30.8%)			-5.8% (31.4%)
Female X 1 or 2 Dependents	1.2%* (0.7%)	1.9%** (0.9%)	1.3%** (0.6%)	1.3% (1.6%)	1.7%*** (0.4%)
Female X 3 or More Dependents	-0.4% (0.7%)	1.1% (1.0%)	-0.6% (0.7%)	-0.5% (1.9%)	-0.1% (0.4%)
Female X Married	0.0% (0.6%)	-2.0%** (0.8%)	-2.3%*** (0.6%)	1.1% (1.5%)	-1.0%*** (0.4%)
Married	2.2%*** (0.3%)	1.5%*** (0.4%)	2.6%*** (0.3%)	0.4% (0.7%)	2.0%*** (0.2%)
Asian	-0.3% (0.5%)	0.2% (0.8%)	1.0% (0.7%)	-0.9% (1.6%)	0.0% (0.3%)
Black	0.6%** (0.3%)	0.6% (0.4%)	0.2% (0.3%)	-0.3% (0.7%)	0.4%** (0.2%)
Other Race	-3.2%*** (0.8%)	-0.3% (0.5%)	-0.5% (0.5%)	-2.8%** (1.1%)	-0.7%** (0.3%)
Unknown Race	-2.3% (7.4%)	1.0% (1.6%)	0.0% (1.3%)	-3.7%* (2.2%)	-0.5% (0.9%)
White	Comparison Group				
Hispanic	-0.8%** (0.4%)	0.6% (0.4%)	-0.8%** (0.4%)	-0.3% (0.7%)	-0.5%** (0.2%)
Non-Hispanic	Comparison Group				
Navy					1.1%*** (0.2%)
Air Force					4.5%*** (0.2%)
Marine Corps					1.0%*** (0.35)
Army	Comparison Group				
Sample size	152,446	68,983	154,071	30,285	405,785
Total R^2	0.2731	0.3156	0.2647	0.3095	0.2792

Source: CNA analysis of DMDC and TA data.

[a.] Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

[b.] Additional controls not shown include state of residence and cohort year.

Table 52. Complete regression results for probability of consecutive TA use: Marginal effects of military and demographic characteristics, officers only, FY14-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Unknown Occupation Code	3.4% (8.4%)		6.1% (7.4%)	9.0% (10.3%)	3.8% (4.8%)
General Officers and Executives, NEC				-2.4% (20.0%)	-1.2% (17.7%)
Intelligence Officers	-0.6% (2.0%)	-1.5% (3.6%)	-4.7%*** (1.3%)	2.3% (5.1%)	-3.8%*** (1.0%)
Engineering and Maintenance Officers	-0.9% (1.4%)	3.3% (2.5%)	-0.7% (1.0%)	-3.9% (3.8%)	-1.4%* (0.7%)
Scientists and Professionals	2.8% (2.8%)	-3.4% (5.2%)	-4.8%*** (1.7%)	-34.3%* (19.7%)	-3.1%** (1.5%)
Health Care Officers	1.6% (1.8%)	-1.2% (2.8%)	-7.1%*** (1.8%)		-2.6%** (1.1%)
Administrators	0.3% (1.7%)	3.7% (2.8%)	-4.1%*** (1.3%)	6.3% (4.8%)	-1.6% (0.9%)
Supply, Procurement, and Allied Officers	2.5% (1.6%)	-0.2% (3.6%)	-0.2% (1.3%)	6.4%* (3.5%)	0.5% (0.9%)
Nonoccupational Officers	12.3%* (6.7%)	-3.9% (8.1%)	-15.9%*** (1.9%)	-15.8% (11.0%)	-13.9%*** (1.9%)
Tactical Operations Officers	Comparison Group				
No High School Degree	12.3%* (6.7%)	-3.9% (8.1%)	-15.9%*** (1.9%)	-15.8% (11.0%)	-13.9%*** (1.9%)
High School	1.0% (1.9%)	-5.4% (3.7%)	-4.3%* (2.2%)	2.0% (5.0%)	-1.2% (1.2%)
Homeschool	-47.8% (42.4%)	7.3% (27.4%)			-7.4% (20.0%)
Adult Education	-3.1% (3.3%)	-4.6% (4.6%)	-18.9%*** (6.7%)	-8.5% (13.9%)	-1.9% (1.9%)
Associate Degree	2.1% (5.4%)	-6.6% (7.7%)	-12.1%** (4.6%)	2.8% (11.3%)	-3.8% (3.0%)
Professional Degree	-4.7% (6.2%)	0.3% (4.0%)	-8.8%* (4.5%)	2.8% (10.8%)	-3.5% (2.3%)
Other Credential	15.3%** (7.3%)	4.6% (9.3%)	-24.6% (25.5%)	-1.2% (31.7%)	7.5% (4.9%)
Other	-54.7% (42.2%)	-29.4% (31.2%)	-33.6% (25.3%)	42.2% (32.7%)	-14.8% (15.2%)
Education Unknown	-6.4%* (3.7%)	0.8% (2.3%)	2.3%* (1.2%)	-0.3% (21.4%)	0.1% (1.0%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	60.5% (42.2%)				50.6% (39.3%)
1 or 2 Dependents	-3.1%** (1.5%)	0.0% (2.2%)	0.6% (0.8%)	-0.2% (3.5%)	-0.2% (0.7%)
3 or More Dependents	-4.5%*** (1.6%)	5.6%** (2.5%)	-0.4% (1.3%)	1.6% (3.8%)	-0.2% (0.9%)
0 Dependents	Comparison Group				
O4-O5	2.8%*	2.6%	-15.1%***	2.0%	-0.5%

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(1.6%)	(2.6%)	(2.3%)	(4.5%)	(1.0%)
O6-O10	-5.3% (19.5%)	-2.6% (10.3%)	-27.5% (18.2%)		-8.4% (7.2%)
O1-O3	Comparison Group				
Years of Service	0.5%*** (0.2%)	0.2% (0.2%)	1.1%*** (0.2%)	0.2% (0.4%)	0.7%*** (0.1%)
Female	0.8% (3.0%)	-0.4% (4.8%)	5.1%*** (1.6%)	7.0% (10.3%)	4.0%*** (1.4%)
Female X Unknown Number of Dependents					
Female X 1 or 2 Dependents	5.3%* (3.1%)	4.2% (4.6%)	-5.3%*** (1.7%)	-3.2% (11.2%)	-1.7% (1.5%)
Female X 3 or More Dependents	3.1% (3.2%)	1.8% (5.5%)	-3.4% (2.7%)	-15.6% (13.4%)	-2.4% (1.8%)
Female X Married	-5.3%** (2.5%)	-2.5% (4.4%)	0.5% (1.6%)	-14.7% (10.2%)	-2.4%* (1.3%)
Married	3.3%** (1.3%)	5.1%** (2.3%)	1.7%** (0.8%)	6.5%* (3.5%)	3.0%*** (0.6%)
Asian	-1.5% (2.1%)	9.7%** (3.9%)	1.1% (1.4%)	15.5%** (6.7%)	1.3% (1.1%)
Black	0.5% (1.3%)	2.9% (2.3%)	-1.5% (1.3%)	7.3% (4.6%)	-0.3% (0.8%)
Other Race	-0.5% (2.8%)	-6.7%** (3.3%)	1.5% (1.6%)	-3.2% (5.6%)	-1.4% (1.3%)
Unknown Race	1.9% (2.9%)	-10.3% (7.1%)	2.2% (1.7%)	-2.1% (7.2%)	0.9% (1.5%)
White	Comparison Group				
Hispanic	-0.9% (1.8%)	6.6%** (2.7%)	-1.0% (1.3%)	-0.5% (4.4%)	0.1% (1.0%)
Non-Hispanic	Comparison Group				
Navy					5.0%*** (1.0%)
Air Force					13.9%*** (0.7%)
Marine Corps					2.3%* (1.3%)
Army	Comparison Group				
Sample size	8,151	3,671	13,083	1,288	26,193
Total R^2	0.3145	0.2834	0.4028	0.3606	0.3646

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Appendix F: Complete Regression Results for Any Degree, Bachelor's Degree or Higher, and TA-Funded Course Completion Rate (FY99-FY15)

Tables 53-58 show the complete regression results for any degree, Bachelor's degree or higher, and the TA-funded course completion rate, for FY99-FY15.

Table 53. Complete regression results for probability of attaining any degree, conditional on TA use: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Percent of Years Consecutive User	-1.1%*** (0.2%)	8.1%*** (0.3%)	8.9%*** (0.3%)	-1.3%*** (0.2%)	4.0%*** (0.1%)
Percent of Years Super User	0.3%* (0.2%)	-11.1%*** (0.3%)	-11.9%*** (0.3%)	0.5%*** (0.2%)	-4.9%*** (0.1%)
Most Courses PFP	2.0%*** (0.1%)	-1.4%*** (0.2%)	2.5%*** (0.1%)	-0.2%** (0.1%)	0.9%*** (0.1%)
Most Courses PNFP	-0.2%* (0.1%)	3.2%*** (0.2%)	5.3%*** (0.1%)	0.0% (0.1%)	2.5%*** (0.1%)
Most Courses OTH	-2.5%*** (0.5%)	-6.6%*** (1.9%)	-0.1% (0.9%)	0.4% (1.2%)	-2.2%*** (0.4%)
Most Courses PFP and PNFP	-1.5%** (0.7%)	-1.2% (1.1%)	-5.7%*** (0.5%)	0.4% (0.5%)	-2.8%*** (0.4%)
Most Courses PFP and PUB	-2.8%*** (0.3%)	1.6%** (0.7%)	-1.6%*** (0.4%)	0.5%** (0.3%)	-0.9%*** (0.2%)
Most Courses PFP and OTH	-1.2% (2.7%)	1.8% (10.7%)	-3.0% (6.1%)	-0.7% (4.9%)	-0.2% (2.5%)
Most Courses PNFP and PUB	0.5% (0.4%)	-0.1% (0.6%)	-3.9%*** (0.3%)	0.0% (0.3%)	-1.6%*** (0.2%)
Most Courses PNFP and OTH	-0.4% (2.6%)	-1.7% (15.9%)	-0.7% (4.6%)	-2.3% (4.3%)	-1.3% (2.3%)
Most Courses PUB and OTH	1.7% (1.3%)	-4.6% (8.1%)	2.0% (3.1%)	-0.8% (4.6%)	1.2% (1.3%)
Most Courses PFP, PNFP, and PUB	-1.2% (1.9%)	1.1% (3.3%)	-6.1%*** (1.3%)	-0.5% (1.3%)	-2.6%*** (0.9%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Most Courses PFP, PNFP, and OTH	-13.0% (10.5%)		-43.7%* (25.4%)		-19.1%* (10.4%)
Most Courses PFP, PUB, and OTH	1.4% (5.1%)	29.7% (22.4%)	-4.0% (10.4%)	-1.5% (11.8%)	3.4% (4.7%)
Most Courses PNFP, PUB, and OTH	-1.7% (5.9%)	-14.8% (22.4%)	-4.1% (6.6%)		-2.4% (4.4%)
Most Courses PFP, PNFP, PUB, and OTH	-4.2% (16.6%)				-3.6% (18.0%)
Most Courses PUB	Comparison Group				
Total Credits in Prior Year	0.5%*** (0.0%)	0.8%*** (0.0%)	0.4%*** (0.0%)	0.1%*** (0.0%)	0.5%*** (0.0%)
Infantry, Gun Crews, and Seamanship Specialists	0.7%*** (0.1%)	-1.2%*** (0.3%)	0.4%* (0.2%)	0.4%*** (0.1%)	0.7%*** (0.1%)
Electronic Equipment Repairers	0.0% (0.2%)	2.1%*** (0.3%)	-0.6%*** (0.2%)	0.3%** (0.1%)	0.6%*** (0.1%)
Communications and Intelligence Specialists	0.2%* (0.1%)	0.0% (0.3%)	-0.2% (0.2%)	0.2% (0.1%)	0.2%** (0.1%)
Health Care Specialists	1.1%*** (0.1%)	0.1% (0.3%)	-0.7%*** (0.2%)		0.2%* (0.1%)
Other Technical and Allied Specialists	0.1% (0.2%)	0.1% (0.5%)	0.4%* (0.2%)	-0.3% (0.2%)	0.3%* (0.1%)
Electrical/Mechanical Equipment Repairers	0.3%** (0.1%)	-1.0%*** (0.2%)	-0.8%*** (0.1%)	0.3%*** (0.1%)	-0.4%*** (0.1%)
Craftsworkers	0.4% (0.3%)	-0.2% (0.4%)	0.0% (0.2%)	0.2% (0.2%)	0.3%** (0.1%)
Service and Supply Handlers	0.1% (0.1%)	-1.5%*** (0.3%)	-0.3%* (0.2%)	0.1% (0.1%)	0.0% (0.1%)
Nonoccupational	8.3%*** (2.3%)	-2.8%*** (0.6%)	-2.6%*** (0.8%)	0.0% (0.4%)	-1.5%*** (0.4%)
Unknown Occupation Code	-4.0% (2.9%)	-9.2% (31.6%)			-9.0%*** (3.1%)
Tactical Operations Officers	7.8%*** (0.5%)	6.0%*** (2.2%)		1.5%** (0.7%)	3.1%*** (0.5%)
Intelligence Officers	7.9%*** (0.8%)	8.6%*** (2.3%)		3.4%*** (1.0%)	5.3%*** (0.7%)
Engineering and Maintenance Officers	11.3%*** (0.5%)	4.3%*** (1.4%)		3.5%*** (0.6%)	6.9%*** (0.5%)
Scientists and Professionals	9.5%*** (2.4%)			-0.7% (1.7%)	0.4% (2.1%)
Health Care Officers	12.2%*** (1.8%)				9.0%*** (1.9%)
Administrators	9.5%***	2.5%		1.7%***	1.5%**

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(0.7%)	(2.1%)		(0.6%)	(0.6%)
Supply, Procurement, and Allied Officers	9.8%*** (0.7%)	-4.6% (3.4%)		3.0%*** (0.8%)	4.3%*** (0.7%)
Nonoccupational Officers	2.6% (2.2%)			-0.7% (3.8%)	-1.9% (2.2%)
Functional Support and Administration	Comparison Group				
No High School Degree	1.0%*** (0.3%)	-2.5%*** (0.6%)	0.8% (2.7%)	-0.8% (1.2%)	-0.9%*** (0.3%)
Homeschool	-1.2% (0.7%)	-3.2%** (1.6%)		0.6% (0.6%)	-0.7% (0.6%)
Adult Education	1.3%*** (0.2%)	0.4% (0.4%)	-4.6%*** (0.3%)	0.0% (0.2%)	0.8%*** (0.1%)
Associate Degree	-1.6%*** (0.2%)	1.3%*** (0.4%)	8.1%*** (0.2%)	0.7%** (0.3%)	4.9%*** (0.1%)
Bachelor's Degree	2.3%*** (0.2%)	-0.9%* (0.4%)	8.3%*** (0.3%)	0.7%** (0.4%)	3.8%*** (0.2%)
Professional Degree	-4.2%*** (0.4%)	-4.0%** (1.7%)	-4.0%*** (1.3%)	-0.4% (1.6%)	-5.4%*** (0.4%)
Other Nontraditional High School Credential	-1.2%*** (0.1%)	-1.0%** (0.4%)	-4.6%** (1.8%)	-0.1% (0.2%)	-0.7%*** (0.1%)
Other Education	-1.2%** (0.6%)	3.2% (3.7%)	-2.0% (4.8%)	-0.5% (0.6%)	-1.5%** (0.6%)
Education Unknown	0.2% (0.3%)	-1.4%* (0.8%)	0.4% (0.7%)	0.7% (0.5%)	0.2% (0.3%)
High School	Comparison Group				
Unknown Number of Dependents	1.1%*** (0.3%)	34.0% (22.4%)	1.6%** (0.8%)	0.4% (0.3%)	0.8%*** (0.2%)
1 or 2 Dependents	-1.0%*** (0.1%)	0.1% (0.3%)	-0.7%*** (0.2%)	-0.3%*** (0.1%)	-0.5%*** (0.1%)
3 or More Dependents	-1.1%*** (0.1%)	1.2%*** (0.3%)	-0.5%*** (0.2%)	-0.2%* (0.1%)	-0.5%*** (0.1%)
0 Dependents	Comparison Group				
E4-E6	-1.3%*** (0.2%)	0.3% (0.3%)	-2.4%*** (0.2%)	-0.1% (0.1%)	-1.6%*** (0.1%)
E7-E9	4.0%*** (0.2%)	7.8%*** (0.4%)	6.8%*** (0.3%)	0.7%*** (0.2%)	5.1%*** (0.1%)
W1-W2	0.4% (0.5%)	14.3%*** (1.8%)		-1.6%*** (0.6%)	3.5%*** (0.5%)
W3-W5	-1.3%*** (0.5%)	5.8%*** (1.5%)		-1.1%* (0.6%)	0.2% (0.5%)
E1-E3	Comparison Group				
Years of Service	0.1%***	0.1%***	-0.1%***	0.0%	0.0%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
Female	-1.6%*** (0.2%)	-0.6%* (0.3%)	-1.2%*** (0.2%)	-0.5%*** (0.2%)	-1.8%*** (0.1%)
Female X Unknown Number of Dependents	0.7% (0.5%)	-46.5% (31.6%)	-0.5% (1.2%)	1.0% (0.7%)	-0.7% (0.5%)
Female X 1 or 2 Dependents	0.1% (0.2%)	1.4%*** (0.4%)	0.1% (0.3%)	0.0% (0.3%)	0.7%*** (0.2%)
Female X 3 or More Dependents	0.3% (0.2%)	4.0%*** (0.5%)	0.3% (0.3%)	0.2% (0.3%)	2.1%*** (0.2%)
Female X Married	0.1% (0.2%)	-1.4%*** (0.4%)	-0.2% (0.2%)	0.1% (0.2%)	-0.3%** (0.1%)
Married	0.2%** (0.1%)	1.6%*** (0.2%)	0.7%*** (0.1%)	0.4%*** (0.1%)	0.6%*** (0.1%)
Asian	0.3%** (0.2%)	0.6%** (0.3%)	-0.1% (0.3%)	-0.1% (0.2%)	0.2%* (0.1%)
Black	-0.5%*** (0.1%)	-0.7%*** (0.2%)	-0.6%*** (0.1%)	0.0% (0.1%)	-0.7%*** (0.1%)
Other Race	-0.7%*** (0.2%)	0.5%* (0.2%)	-0.7%*** (0.2%)	-0.1% (0.1%)	-0.9%*** (0.1%)
Unknown Race	-0.2% (1.0%)	0.4% (0.6%)	-0.3% (0.5%)	0.1% (0.2%)	0.2% (0.3%)
White	Comparison Group				
Hispanic	-0.3%*** (0.1%)	0.1% (0.2%)	-0.5%*** (0.2%)	-0.2%** (0.1%)	-0.3%*** (0.1%)
Non-Hispanic	Comparison Group				
Navy					7.8%*** (0.1%)
Air Force					-1.6%*** (0.1%)
Marine Corps					-4.5%*** (0.1%)
Army	Comparison Group				
Sample size	438,891	222,904	331,454	137,771	1,131,020
Adjusted R^2	0.2526	0.2653	0.2805	0.0572	0.2428

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 54. Complete regression results for probability of attaining any degree, conditional on TA use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Percent of Years Consecutive User	4.4%*** (1.1%)	4.2%*** (1.3%)	-0.6% (0.6%)	-0.4% (1.1%)	3.1%*** (0.5%)
Percent of Years Super User	17.0%*** (1.6%)	-11.3%*** (1.9%)	1.8%** (0.7%)	0.6% (1.3%)	1.3%* (0.7%)
Most Courses PFP	1.7%** (0.7%)	0.0% (0.8%)	2.0%*** (0.3%)	-0.3% (0.6%)	1.7%*** (0.3%)
Most Courses PNFP	11.6%*** (0.5%)	4.9%*** (0.6%)	3.0%*** (0.2%)	0.2% (0.5%)	6.8%*** (0.2%)
Most Courses OTH	-7.8%*** (1.8%)	-9.8% (6.6%)	0.8% (1.4%)	-0.6% (6.3%)	-6.3%*** (1.1%)
Most Courses PFP and PNFP	-20.7%*** (4.0%)	10.1%* (5.5%)	-4.6%*** (1.6%)	-2.6% (3.7%)	-5.9%*** (1.7%)
Most Courses PFP and PUB	-3.4% (3.6%)	2.2% (4.0%)	-0.2% (1.9%)	-3.1% (3.3%)	-0.9% (1.7%)
Most Courses PFP and OTH	-6.1% (15.8%)	5.1% (38.2%)	-4.0% (8.8%)		-1.3% (8.9%)
Most Courses PNFP and PUB	-9.9%*** (2.5%)	0.0% (2.7%)	-0.2% (1.5%)	-1.4% (2.4%)	-4.0%*** (1.2%)
Most Courses PNFP and OTH	-8.3% (8.6%)	5.7% (38.2%)	-3.7% (8.1%)		-6.0% (6.0%)
Most Courses PUB and OTH	13.7%* (7.1%)	13.4% (38.2%)	4.7% (5.8%)	-0.5% (19.0%)	7.4% (4.8%)
Most Courses PFP, PNFP, and PUB	-20.0% (19.2%)	15.6% (18.8%)	-4.1% (10.6%)		-2.7% (9.2%)
Most Courses PFP, PNFP, and OTH	1.6% (38.7%)				-17.4% (31.8%)
Most Courses PFP, PUB, and OTH	19.2% (38.5%)	5.6% (38.2%)			-8.5% (22.4%)
Most Courses PNFP, PUB, and OTH	-32.1% (38.5%)				-18.4% (31.7%)
Most Courses PFP, PNFP, PUB, and OTH					
Most Courses PUB	Comparison Group				
Total Credits in Prior Year	0.5%*** (0.0%)	0.6%*** (0.0%)	0.2%*** (0.0%)	0.1%*** (0.0%)	0.4%*** (0.0%)
Unknown Occupation Code	4.0%* (2.3%)	-41.7%** (18.8%)	-4.1%** (1.8%)	-0.6% (1.3%)	91.4% (1.3%)
General Officers and Executives, NEC	6.1% (11.1%)	2.9% (8.3%)	0.0% (1.7%)	1.2% (4.5%)	0.0%*** (1.7%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Intelligence Officers	-1.5% (0.9%)	1.2% (1.2%)	-0.3% (0.4%)	-1.2% (0.9%)	0.1%*** (0.4%)
Engineering and Maintenance Officers	4.4%*** (0.7%)	2.4%*** (0.8%)	-0.9%*** (0.3%)	0.1% (0.7%)	0.0%*** (0.3%)
Scientists and Professionals	0.6% (1.1%)	-3.5%** (1.5%)	0.0% (0.5%)	-1.0% (2.1%)	27.2% (0.5%)
Health Care Officers	-5.5%*** (0.7%)	-6.2%*** (0.9%)	0.3% (0.4%)		0.0%*** (0.4%)
Administrators	6.1%*** (0.8%)	1.6% (1.0%)	-0.9%** (0.4%)	-0.8% (0.8%)	0.0%*** (0.4%)
Supply, Procurement, and Allied Officers	-1.4%* (0.7%)	-0.9% (1.2%)	-0.1% (0.4%)	0.3% (0.6%)	15.7% (0.3%)
Nonoccupational Officers	0.5% (2.8%)	3.3%* (1.9%)	6.0%*** (1.2%)	0.9% (1.4%)	0.0%*** (0.9%)
Tactical Operations Officers	Comparison Group				
No High School Degree	1.6% (2.9%)	17.4%*** (5.2%)	2.0%* (1.2%)	-1.1% (12.6%)	2.1% (1.3%)
High School	1.6%** (0.7%)	10.1%*** (0.9%)	8.9%*** (0.4%)	0.9% (0.7%)	6.2%*** (0.3%)
Homeschool	12.6% (17.2%)	-11.6% (11.9%)		0.5% (10.3%)	-1.6% (7.5%)
Adult Education	-3.6%** (1.7%)	0.9% (1.2%)	6.2%*** (0.8%)	5.3%** (2.5%)	0.0% (0.6%)
Associate Degree	2.7%* (1.6%)	6.0%*** (1.6%)	7.6%*** (0.7%)	1.3% (1.5%)	4.5%*** (0.6%)
Professional Degree	-7.5%*** (1.3%)	-3.2%*** (1.0%)	0.4% (0.6%)	-2.7%* (1.4%)	-4.5%*** (0.5%)
Other Nontraditional High School Credential	5.7%* (3.1%)	13.0%*** (3.7%)	29.2%*** (10.6%)	0.3% (3.7%)	8.5%*** (1.9%)
Other Education	63.8%** (27.2%)	2.8% (10.5%)	31.5%** (12.2%)	1.7% (4.5%)	5.8% (5.4%)
Education Unknown	-3.2%** (1.6%)	-0.1% (0.9%)	-0.2% (0.4%)	-2.9% (4.8%)	-4.7%*** (0.5%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	-1.9% (6.9%)		7.2% (10.6%)	2.8% (4.2%)	4.1% (4.3%)
1 or 2 Dependents	0.3% (0.8%)	-3.1%*** (1.0%)	-0.7%** (0.3%)	-1.0% (0.7%)	-1.4%*** (0.3%)
3 or More Dependents	2.4%*** (0.8%)	-5.3%*** (0.9%)	-2.5%*** (0.4%)	0.0% (0.7%)	-1.8%*** (0.3%)
0 Dependents	Comparison Group				
O4-O5	8.4%*** (0.7%)	-4.5%*** (0.8%)	-3.2%*** (0.3%)	1.1% (0.7%)	0.5%* (0.3%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
O6-O10	0.8% (1.5%)	-6.9%*** (1.6%)	-4.2%*** (0.9%)	-0.7% (4.4%)	-6.2%*** (0.7%)
O1-O3	Comparison Group				
Years of Service	0.0% (0.1%)	0.2%*** (0.1%)	0.4%*** (0.0%)	0.0% (0.1%)	0.3%*** (0.0%)
Female	-5.3%*** (1.5%)	0.0% (1.7%)	0.1% (0.6%)	-0.4% (1.6%)	-1.1%* (0.6%)
Female X Unknown Number of Dependents	7.6% (17.1%)		1.7% (18.4%)	13.4%* (8.0%)	11.2% (9.2%)
Female X 1 or 2 Dependents	3.6%** (1.6%)	3.0% (1.9%)	0.4% (0.7%)	-1.5% (2.0%)	1.6%** (0.7%)
Female X 3 or More Dependents	5.2%*** (1.5%)	1.1% (1.9%)	1.2%* (0.7%)	-1.7% (2.0%)	1.9%*** (0.7%)
Female X Married	-1.1% (1.2%)	-3.7%** (1.6%)	-1.6%*** (0.6%)	0.3% (1.7%)	-1.6%*** (0.6%)
Married	0.8% (0.7%)	3.9%*** (0.9%)	1.2%*** (0.3%)	0.1% (0.7%)	1.4%*** (0.3%)
Asian	-1.0% (1.0%)	0.5% (1.3%)	-1.0%** (0.5%)	-0.4% (1.3%)	-0.4% (0.5%)
Black	1.3%** (0.6%)	0.5% (0.8%)	-0.7%* (0.4%)	0.4% (0.7%)	0.7%** (0.3%)
Other Race	2.7%** (1.1%)	2.3%* (1.4%)	0.0% (0.5%)	1.4% (1.0%)	1.0%** (0.5%)
Unknown Race	3.9%** (2.0%)	-1.5% (2.0%)	-0.5% (0.6%)	-0.7% (1.7%)	-0.3% (0.7%)
White	Comparison Group				
Hispanic	1.1% (0.9%)	2.3%** (1.0%)	0.0% (0.4%)	-1.2%* (0.7%)	1.0%** (0.4%)
Non-Hispanic	Comparison Group				
Navy					-2.2%*** (0.3%)
Air Force					-21.5%*** (0.3%)
Marine Corps					-22.9%*** (0.4%)
Army	Comparison Group				
Sample size	32,318	20,157	46,975	7,541	106,991
Adjusted R^2	0.2211	0.1944	0.1210	0.0326	0.1918

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 55. Complete regression results for probability of attaining a bachelor's degree or higher, conditional on TA use: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Percent of Years Consecutive User	-4.1%*** (0.1%)	-1.1%*** (0.2%)	8.1%*** (0.2%)	-1.1%*** (0.1%)	-0.1% (0.1%)
Percent of Years Super User	-2.4%*** (0.1%)	-8.9%*** (0.2%)	-12.5%*** (0.3%)	-0.3%** (0.1%)	-5.9%*** (0.1%)
Most Courses PFP	3.4%*** (0.1%)	2.2%*** (0.1%)	2.7%*** (0.1%)	-0.1%*** (0.1%)	2.4%*** (0.1%)
Most Courses PNFP	2.9%*** (0.1%)	3.9%*** (0.1%)	5.6%*** (0.1%)	0.3%*** (0.1%)	3.8%*** (0.1%)
Most Courses OTH	-1.0%*** (0.3%)	-2.9%** (1.3%)	0.3% (0.8%)	0.3% (0.9%)	-0.7%** (0.3%)
Most Courses PFP and PNFP	-3.0%*** (0.6%)	-4.7%*** (0.8%)	-6.0%*** (0.5%)	-0.6% (0.3%)	-4.6%*** (0.3%)
Most Courses PFP and PUB	-2.7%*** (0.2%)	-1.4%*** (0.5%)	-1.7%*** (0.4%)	0.4%** (0.2%)	-1.6%*** (0.2%)
Most Courses PFP and OTH	-1.2% (2.1%)	-7.0% (7.7%)	-8.1% (5.7%)	-0.3% (3.5%)	-1.9% (2.0%)
Most Courses PNFP and PUB	-1.6%*** (0.3%)	-2.6%*** (0.5%)	-3.9%*** (0.3%)	-0.1% (0.2%)	-2.9%*** (0.2%)
Most Courses PNFP and OTH	-2.9% (1.9%)	-2.3% (11.5%)	-3.4% (4.4%)	-1.8% (3.0%)	-2.9% (1.8%)
Most Courses PUB and OTH	1.9%* (1.0%)	-2.3% (5.9%)	2.2% (2.9%)	-0.3% (3.2%)	1.6% (1.0%)
Most Courses PFP, PNFP, and PUB	-2.2% (1.4%)	-5.5%** (2.4%)	-8.0%*** (1.2%)	-0.2% (0.9%)	-5.6%*** (0.8%)
Most Courses PFP, PNFP, and OTH	-15.8%** (7.9%)		-42.0%* (24.0%)		-19.9%** (8.3%)
Most Courses PFP, PUB, and OTH	-2.8% (3.9%)	-15.2% (16.2%)	-4.3% (9.8%)	-0.6% (8.3%)	-3.4% (3.7%)
Most Courses PNFP, PUB, and OTH	-3.7% (4.4%)	-10.0% (16.2%)	-3.9% (6.3%)		-3.3% (3.6%)
Most Courses PFP, PNFP, PUB, and OTH	-7.3% (12.5%)				-4.4% (14.4%)
Most Courses PUB	Comparison Group				
Total Credits in Prior Year	0.4%*** (0.0%)	0.6%*** (0.0%)	0.4%*** (0.0%)	0.1%*** (0.0%)	0.4%*** (0.0%)
Infantry, Gun Crews, and Seamanship Specialists	0.1% (0.1%)	-0.3% (0.2%)	0.5%** (0.2%)	0.2%*** (0.1%)	0.3%*** (0.1%)
Electronic Equipment Repairers	-0.5%*** (0.1%)	0.1% (0.2%)	-0.7%*** (0.2%)	0.2%* (0.1%)	-0.3%*** (0.1%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Communications and Intelligence Specialists	-0.1% (0.1%)	0.7%*** (0.2%)	-0.3% (0.2%)	0.1% (0.1%)	0.1% (0.1%)
Health Care Specialists	0.3%** (0.1%)	0.7%*** (0.2%)	-0.6%*** (0.2%)		0.2%** (0.1%)
Other Technical and Allied Specialists	-0.2% (0.1%)	1.0%*** (0.4%)	0.3% (0.2%)	-0.1% (0.1%)	0.1% (0.1%)
Electrical/Mechanical Equipment Repairers	-0.3%*** (0.1%)	-0.2% (0.2%)	-0.9%*** (0.1%)	0.1%* (0.1%)	-0.5%*** (0.1%)
Craftsworkers	-0.5%*** (0.2%)	-1.2%*** (0.3%)	-0.2% (0.2%)	0.1% (0.1%)	-0.4%*** (0.1%)
Service and Supply Handlers	-0.5%*** (0.1%)	-1.0%*** (0.2%)	-0.2% (0.2%)	0.0% (0.1%)	-0.3%*** (0.1%)
Nonoccupational	7.5%*** (1.7%)	-1.1%** (0.5%)	-2.5%*** (0.7%)	-0.1% (0.3%)	-1.0%*** (0.3%)
Unknown Occupation Code	-1.7% (2.2%)	-0.3% (22.8%)			-5.3%** (2.5%)
Tactical Operations Officers	9.2%*** (0.4%)	5.2%*** (1.6%)		1.6%*** (0.5%)	5.7%*** (0.4%)
Intelligence Officers	9.6%*** (0.6%)	10.5%*** (1.7%)		4.5%*** (0.7%)	7.3%*** (0.6%)
Engineering and Maintenance Officers	9.4%*** (0.4%)	4.8%*** (1.0%)		3.4%*** (0.4%)	5.8%*** (0.4%)
Scientists and Professionals	13.7%*** (1.8%)			1.3% (1.2%)	5.3%*** (1.7%)
Health Care Officers	11.1%*** (1.4%)				8.2%*** (1.6%)
Administrators	11.9%*** (0.6%)	7.2%*** (1.5%)		2.3%*** (0.4%)	4.2%*** (0.5%)
Supply, Procurement, and Allied Officers	10.9%*** (0.5%)	1.2% (2.5%)		3.5%*** (0.6%)	6.1%*** (0.5%)
Nonoccupational Officers	6.1%*** (1.6%)			1.3% (2.6%)	3.2%* (1.8%)
Functional Support and Administration	Comparison Group				
No High School Degree	0.6%*** (0.2%)	-1.6%*** (0.5%)	0.9% (2.5%)	-0.3% (0.9%)	-0.4%** (0.2%)
Homeschool	-0.2% (0.6%)	-2.2%* (1.1%)		0.0% (0.4%)	0.1% (0.5%)
Adult Education	0.7%*** (0.1%)	-0.3% (0.3%)	-4.5%*** (0.3%)	0.1% (0.1%)	1.0%*** (0.1%)
Associate Degree	3.2%*** (0.1%)	10.1%*** (0.3%)	8.6%*** (0.2%)	1.6%*** (0.2%)	8.5%*** (0.1%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Bachelor's Degree	4.8%*** (0.2%)	5.8%*** (0.3%)	7.0%*** (0.3%)	1.4%*** (0.3%)	6.2%*** (0.1%)
Professional Degree	-0.6%* (0.3%)	2.5%** (1.3%)	-5.3%*** (1.3%)	0.5% (1.1%)	-1.8%*** (0.3%)
Other Nontraditional High School Credential	-0.7%*** (0.1%)	-0.9%*** (0.3%)	-4.4%*** (1.7%)	-0.2% (0.2%)	-0.2%** (0.1%)
Other Education	-0.3% (0.5%)	3.1% (2.7%)	-4.5% (4.5%)	-0.2% (0.4%)	-0.3% (0.5%)
Education Unknown	0.2% (0.2%)	2.5%*** (0.5%)	0.3% (0.6%)	0.0% (0.3%)	0.9%*** (0.2%)
High School	Comparison Group				
Unknown Number of Dependents	1.7%*** (0.2%)	-3.1% (16.1%)	1.4%* (0.7%)	0.3% (0.2%)	1.3%*** (0.2%)
1 or 2 Dependents	-0.7%*** (0.1%)	-0.7%*** (0.2%)	-0.7%*** (0.1%)	-0.3%*** (0.1%)	-0.6%*** (0.1%)
3 or More Dependents	-1.3%*** (0.1%)	-0.2% (0.2%)	-0.6%*** (0.2%)	-0.2%*** (0.1%)	-1.0%*** (0.1%)
0 Dependents	Comparison Group				
E4-E6	-1.6%*** (0.1%)	-1.5%*** (0.2%)	-2.5%*** (0.2%)	-0.2%*** (0.1%)	-1.9%*** (0.1%)
E7-E9	1.8%*** (0.2%)	3.8%*** (0.3%)	6.5%*** (0.3%)	0.5%*** (0.1%)	3.4%*** (0.1%)
W1-W2	-5.1%*** (0.4%)	0.6% (1.3%)		-2.7%*** (0.4%)	-3.0%*** (0.4%)
W3-W5	-3.0%*** (0.4%)	1.3% (1.1%)		-1.8%*** (0.4%)	-2.0%*** (0.4%)
E1-E3	Comparison Group				
Years of Service	-0.1%*** (0.0%)	-0.1%*** (0.0%)	-0.1%*** (0.0%)	0.0% (0.0%)	-0.1%*** (0.0%)
Female	-1.2%*** (0.1%)	-1.0%*** (0.2%)	-1.3%*** (0.2%)	-0.4%*** (0.1%)	-1.5%*** (0.1%)
Female X Unknown Number of Dependents	0.6% (0.4%)	-0.8% (22.8%)	-0.2% (1.1%)	1.2%** (0.5%)	0.0% (0.4%)
Female X 0 Dependents					
Female X 1 or 2 Dependents	-0.2% (0.2%)	0.4% (0.3%)	0.2% (0.3%)	0.1% (0.2%)	0.2% (0.1%)
Female X 3 or More Dependents	-0.1% (0.2%)	0.2% (0.3%)	0.1% (0.3%)	0.1% (0.2%)	0.6%*** (0.1%)
Female X Married	0.4%** (0.1%)	-0.7%*** (0.3%)	-0.2% (0.2%)	0.1% (0.2%)	0.1% (0.1%)
Married	-0.3%*** (0.1%)	0.8%*** (0.1%)	0.6%*** (0.1%)	0.2%*** (0.1%)	0.2%*** (0.1%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Asian	-0.4%*** (0.1%)	0.0% (0.2%)	-0.4% (0.3%)	-0.2% (0.1%)	-0.5%*** (0.1%)
Black	-0.3%*** (0.1%)	-0.8%*** (0.1%)	-0.5%*** (0.1%)	0.0% (0.1%)	-0.7%*** (0.0%)
Other Race	0.0% (0.1%)	0.2% (0.2%)	-0.7%*** (0.2%)	-0.1% (0.1%)	-0.6%*** (0.1%)
Unknown Race	0.6% (0.7%)	-0.6% (0.5%)	-0.4% (0.5%)	0.0% (0.2%)	-0.2% (0.2%)
White	Comparison Group				
Hispanic	-0.4%*** (0.1%)	-0.6%*** (0.1%)	-0.5%*** (0.2%)	-0.2%*** (0.1%)	-0.5%*** (0.1%)
Non-Hispanic	Comparison Group				
Navy					2.8%*** (0.1%)
Air Force					1.9%*** (0.1%)
Marine Corps					-2.2%*** (0.1%)
Army	Comparison Group				
Sample size	438,891	222,904	331,454	137,771	1,131,020
Adjusted R^2	0.2309	0.2352	0.2836	0.0527	0.2356

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 56. Complete regression results for probability of attaining a bachelor's degree or higher, conditional on TA use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Percent of Years Consecutive User	4.0%*** (1.1%)	3.2%*** (1.3%)	-0.7% (0.5%)	-0.2% (1.0%)	2.3%*** (0.5%)
Percent of Years Super User	16.6%*** (1.6%)	-12.9%*** (1.8%)	1.8%** (0.7%)	0.6% (1.2%)	1.1% (0.7%)
Most Courses PFP	2.6%*** (0.7%)	1.3%* (0.7%)	2.1%*** (0.3%)	-0.3% (0.5%)	2.1%*** (0.3%)
Most Courses PNFP	12.7%*** (0.5%)	6.1%*** (0.6%)	3.1%*** (0.2%)	0.4% (0.4%)	7.2%*** (0.2%)
Most Courses OTH	-7.2%*** (1.7%)	-7.2% (6.2%)	0.8% (1.3%)	-0.9% (5.8%)	-6.2%*** (1.1%)
Most Courses PFP and PNFP	-21.5%*** (4.0%)	0.9% (5.2%)	-4.5%*** (1.6%)	-2.4% (3.3%)	-7.3%*** (1.7%)
Most Courses PFP and PUB	-3.6% (3.5%)	-2.0% (3.8%)	-0.1% (1.9%)	-2.2% (3.0%)	-1.6% (1.6%)
Most Courses PFP and OTH	-6.9% (15.7%)	0.1% (36.3%)	-4.1% (8.7%)		-1.4% (8.7%)
Most Courses PNFP and PUB	-9.6%*** (2.4%)	-4.8%* (2.5%)	-1.4% (1.5%)	-2.4% (2.2%)	-5.4%*** (1.2%)
Most Courses PNFP and OTH	-9.5% (8.5%)	0.9% (36.3%)	-3.5% (8.0%)		-6.2% (5.8%)
Most Courses PUB and OTH	13.4%* (7.0%)	6.3% (36.3%)	4.9% (5.8%)	0.5% (17.3%)	7.3% (4.6%)
Most Courses PFP, PNFP, and PUB	-21.1% (19.0%)	-5.6% (17.9%)	-4.3% (10.5%)		-9.8% (8.9%)
Most Courses PFP, PNFP, and OTH	0.2% (38.3%)				-16.1% (31.1%)
Most Courses PFP, PUB, and OTH	17.6% (38.1%)	2.8% (36.3%)			-7.3% (21.9%)
Most Courses PNFP, PUB, and OTH	-34.3% (38.1%)				-20.1% (30.9%)
Most Courses PFP, PNFP, PUB, and OTH					
Most Courses PUB	Comparison Group				
Total Credits in Prior Year	0.5%*** (0.0%)	0.5%*** (0.0%)	0.2%*** (0.0%)	0.1%*** (0.0%)	0.4%*** (0.0%)
Unknown Occupation Code	4.1%* (2.2%)	-30.0%* (17.9%)	-4.0%** (1.8%)	0.1% (1.2%)	0.1% (1.2%)
General Officers and Executives, N.E.C.	6.1% (11.0%)	3.7% (7.9%)	-0.1% (1.7%)	1.7% (4.1%)	7.9%*** (1.6%)
Intelligence Officers	-1.1%	1.6%	-0.3%	-0.5%	1.5%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(0.9%)	(1.1%)	(0.4%)	(0.8%)	(0.4%)
Engineering and Maintenance Officers	4.6%*** (0.7%)	-1.1% (0.8%)	-0.8%*** (0.3%)	0.2% (0.6%)	2.6%*** (0.3%)
Scientists and Professionals	0.9% (1.0%)	-3.6%** (1.5%)	0.0% (0.5%)	-0.6% (1.9%)	0.7% (0.5%)
Health Care Officers	-5.3%*** (0.7%)	-5.2%*** (0.8%)	-0.2% (0.4%)		-3.0%*** (0.3%)
Administrators	6.5%*** (0.8%)	-0.3% (1.0%)	-1.0%*** (0.4%)	-0.7% (0.7%)	4.0%*** (0.4%)
Supply, Procurement, and Allied Officers	-1.4%* (0.7%)	-0.1% (1.1%)	-0.1% (0.4%)	0.3% (0.5%)	0.6%* (0.3%)
Nonoccupational Officers	1.0% (2.8%)	4.1%** (1.8%)	5.0%*** (1.2%)	0.5% (1.2%)	4.0%*** (0.9%)
Tactical Operations Officers	Comparison Group				
No High School Degree	1.1% (2.9%)	0.0% (4.9%)	2.1%* (1.2%)	-1.0% (11.5%)	0.2% (1.3%)
High School	-0.8% (0.7%)	3.5%*** (0.8%)	8.0%*** (0.4%)	0.3% (0.6%)	3.1%*** (0.3%)
Homeschool	-5.6% (17.0%)	-4.5% (11.4%)		0.8% (9.4%)	-3.8% (7.3%)
Adult Education	-4.1%** (1.7%)	-1.6% (1.1%)	5.9%*** (0.8%)	6.2%*** (2.3%)	-0.9% (0.6%)
Associate Degree	3.0%* (1.6%)	7.6%*** (1.5%)	7.6%*** (0.6%)	0.9% (1.3%)	5.4%*** (0.6%)
Professional Degree	-7.9%*** (1.3%)	-3.2%*** (1.0%)	0.3% (0.6%)	-2.6%** (1.3%)	-4.1%*** (0.5%)
Other Nontraditional High School Credential	3.7% (3.1%)	3.0% (3.5%)	29.8%*** (10.5%)	1.2% (3.4%)	3.7%** (1.8%)
Other Education	66.7%** (26.9%)	-2.1% (9.9%)	31.6%*** (12.1%)	2.5% (4.1%)	5.0% (5.3%)
Education Unknown	-4.2%*** (1.6%)	-0.4% (0.9%)	-0.2% (0.4%)	-2.5% (4.3%)	-4.1%*** (0.4%)
Bachelor's Degree					
Unknown Number of Dependents	-2.9% (6.8%)		7.1% (10.5%)	3.4% (3.8%)	2.5% (4.2%)
1 or 2 Dependents	0.6% (0.8%)	-1.6%* (0.9%)	-0.7%** (0.3%)	-0.6% (0.6%)	-0.9%*** (0.3%)
3 or More Dependents	3.3%*** (0.8%)	-3.1%*** (0.9%)	-2.3%*** (0.3%)	0.2% (0.7%)	-0.7%** (0.3%)
0 Dependents	Comparison Group				
O4-O5	9.2%*** (0.7%)	-1.2%* (0.7%)	-2.9%*** (0.3%)	1.4%** (0.6%)	2.0%*** (0.3%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
O6-O10	1.6% (1.5%)	-3.3%** (1.5%)	-3.9%*** (0.9%)	-0.5% (4.0%)	-3.8%*** (0.7%)
O1-O3	Comparison Group				
Years of Service	-0.1% (0.1%)	0.1%** (0.1%)	0.3%*** (0.0%)	0.0% (0.1%)	0.1%*** (0.0%)
Female	-5.3%*** (1.5%)	-1.8% (1.7%)	0.0% (0.6%)	-0.1% (1.4%)	-1.3%** (0.6%)
Female X Unknown Number of Dependents	6.8% (17.0%)		1.1% (18.2%)	12.4%* (7.3%)	10.6% (9.0%)
Female X 1 or 2 Dependents	3.5%** (1.6%)	2.7% (1.8%)	0.4% (0.7%)	-1.5% (1.8%)	1.5%** (0.7%)
Female X 3 or More Dependents	5.5%*** (1.5%)	1.3% (1.8%)	1.4%** (0.7%)	-1.2% (1.8%)	2.0%*** (0.7%)
Female X Married	-1.4% (1.2%)	-2.2% (1.5%)	-1.5%*** (0.5%)	0.1% (1.5%)	-1.4%** (0.5%)
Married	0.6% (0.7%)	2.6%*** (0.9%)	1.1%*** (0.3%)	0.2% (0.6%)	1.0%*** (0.3%)
Asian	-1.2% (1.0%)	0.1% (1.3%)	-1.1%** (0.5%)	0.3% (1.2%)	-0.6% (0.5%)
Black	1.4%** (0.6%)	0.4% (0.8%)	-0.6%* (0.4%)	0.3% (0.6%)	0.7%** (0.3%)
Other Race	2.6%** (1.1%)	2.6%* (1.3%)	-0.1% (0.5%)	0.5% (0.9%)	0.9%* (0.5%)
Unknown Race	4.2%** (2.0%)	-0.9% (1.9%)	-0.5% (0.6%)	-0.2% (1.5%)	0.0% (0.7%)
White	Comparison Group				
Hispanic	1.1% (0.9%)	1.9%* (1.0%)	0.0% (0.4%)	-1.3%** (0.7%)	0.9%** (0.4%)
Non-Hispanic	Comparison Group				
Navy					-5.1%*** (0.3%)
Air Force					-21.2%*** (0.3%)
Marine Corps					-22.2%*** (0.4%)
Army	Comparison Group				
Sample size	32,318	20,157	46,975	7,541	106,991
Adjusted R^2	0.2173	0.1387	0.1148	0.0255	0.1707

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 57. Complete regression results for course completion rate, conditional on TA use: Marginal effects of military and demographic characteristics, enlisted only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Total Courses	0.5%*** (0.0%)	0.4%*** (0.0%)	0.2%*** (0.0%)	0.4%*** (0.0%)	0.3%*** (0.0%)
Percent of Years Consecutive User	10.3%*** (0.2%)	19.8%*** (0.3%)	7.1%*** (0.2%)	12.0%*** (0.5%)	11.7%*** (0.1%)
Percent of Years Super User	12.2%*** (0.2%)	1.9%*** (0.2%)	7.3%*** (0.2%)	11.1%*** (0.4%)	8.7%*** (0.1%)
Most Courses PFP	3.6%*** (0.1%)	0.6%*** (0.2%)	1.3%*** (0.1%)	1.2%*** (0.2%)	2.0%*** (0.1%)
Most Courses PNFP	4.4%*** (0.2%)	4.7%*** (0.2%)	4.1%*** (0.1%)	7.4%*** (0.2%)	4.9%*** (0.1%)
Most Courses OTH	-3.8%*** (0.6%)	3.1%* (1.7%)	10.3%*** (0.8%)	-9.4%*** (3.1%)	-0.8%* (0.5%)
Most Courses PFP and PNFP	-9.0%*** (1.1%)	-8.3%*** (1.1%)	-5.9%*** (0.5%)	-8.4%*** (1.4%)	-7.2%*** (0.5%)
Most Courses PFP and PUB	-8.8%*** (0.5%)	-5.0%*** (0.7%)	-2.6%*** (0.4%)	-4.4%*** (0.7%)	-5.4%*** (0.3%)
Most Courses PFP and OTH	-11.3%*** (3.9%)	-15.7% (10.3%)	-3.5% (6.0%)	18.3% (14.1%)	-9.3%*** (3.0%)
Most Courses PNFP and PUB	-5.4%*** (0.6%)	-3.2%*** (0.6%)	-1.7%*** (0.3%)	-7.8%*** (1.0%)	-3.1%*** (0.3%)
Most Courses PNFP and OTH	-9.0%** (3.7%)	-17.6% (15.3%)	-8.4%* (4.7%)	10.2% (12.3%)	-7.9%*** (2.8%)
Most Courses PUB and OTH	-1.8% (1.9%)	-10.2% (7.8%)	-9.3%*** (3.1%)	12.1% (13.1%)	-4.1%*** (1.5%)
Most Courses PFP, PNFP, and PUB	-12.1%*** (2.8%)	-8.7%*** (3.1%)	-6.6%*** (1.3%)	-15.6%*** (3.8%)	-8.6%*** (1.2%)
Most Courses PFP, PNFP, and OTH	-22.7% (15.2%)		-0.4% (25.9%)		-19.2% (12.7%)
Most Courses PFP, PUB, and OTH	-9.4% (7.4%)	16.2% (21.6%)	3.5% (10.6%)	40.5% (33.8%)	-3.6% (5.7%)
Most Courses PNFP, PUB, and OTH	-5.0% (8.5%)	-17.2% (21.6%)	-12.4%* (6.7%)		-5.6% (5.5%)
Most Courses PFP, PNFP, PUB, and OTH	-30.9% (24.0%)				-34.0% (22.1%)
Most Courses PUB	Comparison Group				
Total Credits in Prior Year					
Infantry, Gun Crews, and Seamanship Specialists	2.0%*** (0.2%)	0.5% (0.3%)	0.0% (0.2%)	8.0%*** (0.3%)	2.4%*** (0.1%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Electronic Equipment Repairers	2.4%*** (0.2%)	2.8%*** (0.2%)	2.9%*** (0.2%)	6.2%*** (0.3%)	3.3%*** (0.1%)
Communications and Intelligence Specialists	3.1%*** (0.2%)	2.1%*** (0.3%)	1.0%*** (0.2%)	2.8%*** (0.3%)	2.2%*** (0.1%)
Health Care Specialists	2.2%*** (0.2%)	1.3%*** (0.2%)	0.9%*** (0.2%)		1.9%*** (0.1%)
Other Technical and Allied Specialists	2.1%*** (0.3%)	3.7%*** (0.5%)	2.7%*** (0.2%)	4.5%*** (0.5%)	2.8%*** (0.2%)
Electrical/Mechanical Equipment Repairers	3.4%*** (0.2%)	2.6%*** (0.2%)	1.5%*** (0.1%)	3.8%*** (0.3%)	2.7%*** (0.1%)
Craftsworkers	2.7%*** (0.4%)	2.5%*** (0.3%)	2.3%*** (0.2%)	3.7%*** (0.5%)	2.8%*** (0.2%)
Service and Supply Handlers	1.6%*** (0.2%)	0.0% (0.3%)	-1.2%*** (0.2%)	1.5%*** (0.3%)	0.5%*** (0.1%)
Nonoccupational	6.3%** (2.5%)	-1.5%*** (0.6%)	2.5%*** (0.6%)	2.8%** (1.1%)	1.2%*** (0.4%)
Unknown Occupation Code	21.6%*** (4.2%)	29.7% (30.4%)			21.3%*** (3.8%)
Tactical Operations Officers	21.1%*** (0.7%)	16.7%*** (2.1%)		20.2%*** (2.1%)	19.2%*** (0.6%)
Intelligence Officers	20.4%*** (1.1%)	17.3%*** (2.2%)		20.8%*** (2.7%)	19.5%*** (0.8%)
Engineering and Maintenance Officers	19.6%*** (0.8%)	15.8%*** (1.3%)		19.7%*** (1.8%)	18.7%*** (0.6%)
Scientists and Professionals	16.8%*** (3.4%)			20.2%*** (4.7%)	17.2%*** (2.5%)
Health Care Officers	17.7%*** (2.6%)				18.1%*** (2.4%)
Administrators	17.1%*** (1.1%)	12.2%*** (2.0%)		16.8%*** (1.8%)	16.1%*** (0.7%)
Supply, Procurement, and Allied Officers	16.6%*** (1.0%)	14.3%*** (3.3%)		17.9%*** (2.3%)	17.0%*** (0.8%)
Non-Occupational Officers	25.4%*** (3.0%)			22.2%** (10.8%)	23.6%*** (2.6%)
Functional Support and Administration	Comparison Group				
No High School Degree	-1.1%*** (0.4%)	-3.5%*** (0.6%)	1.6% (2.7%)	0.1% (3.2%)	-0.5% (0.3%)
Home School	-0.3% (1.0%)	-0.4% (1.5%)		0.5% (1.5%)	-0.5% (0.7%)
Adult Education	-0.3% (0.3%)	-3.1%*** (0.4%)	-0.7%** (0.3%)	-2.1%*** (0.6%)	-1.6%*** (0.1%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Associate's Degree	4.0%*** (0.3%)	2.4%*** (0.4%)	1.4%*** (0.2%)	1.6%** (0.7%)	2.0%*** (0.1%)
Bachelor's Degree	6.1%*** (0.3%)	3.2%*** (0.4%)	4.7%*** (0.3%)	1.6% (1.0%)	5.0%*** (0.2%)
Professional Degree	2.1%*** (0.6%)	4.3%*** (1.6%)	4.5%*** (1.2%)	-8.1%* (4.3%)	4.3%*** (0.5%)
Other Nontraditional High School Credential	-6.8%*** (0.2%)	-3.3%*** (0.4%)	-10.0%*** (1.8%)	-5.5%*** (0.7%)	-7.0%*** (0.2%)
Other Education	-4.7%*** (0.8%)	-1.6% (3.4%)	8.4%* (4.8%)	-1.9% (1.7%)	-5.1%*** (0.7%)
Education Unknown	0.1% (0.4%)	-2.3%*** (0.7%)	0.9% (0.7%)	1.4% (1.3%)	-0.5%* (0.3%)
High School	Comparison Group				
Unknown Number of Dependents	4.0%*** (0.4%)	23.8% (17.6%)	5.5%*** (0.7%)	2.4%*** (0.8%)	5.1%*** (0.3%)
1 or 2 Dependents	-0.8%*** (0.2%)	0.1% (0.2%)	0.1% (0.1%)	-0.9%*** (0.3%)	-0.5%*** (0.1%)
3 or More Dependents	-2.2%*** (0.2%)	-0.4% (0.2%)	0.0% (0.2%)	-0.7%** (0.3%)	-1.1%*** (0.1%)
0 Dependents	Comparison Group				
E4-E6	9.5%*** (0.2%)	8.2%*** (0.3%)	6.7%*** (0.2%)	8.8%*** (0.3%)	8.2%*** (0.1%)
E7-E9	14.0%*** (0.3%)	11.5%*** (0.4%)	10.3%*** (0.3%)	13.0%*** (0.5%)	12.3%*** (0.2%)
W1-W2	-0.8% (0.7%)	-0.7% (1.7%)		-2.2% (1.7%)	-1.3%** (0.6%)
W3-W5	-0.2% (0.7%)	0.1% (1.5%)		0.6% (1.7%)	-0.1% (0.6%)
E1-E3	Comparison Group				
Years of Service	0.2%*** (0.0%)	0.3%*** (0.0%)	0.4%*** (0.0%)	0.3%*** (0.0%)	0.3%*** (0.0%)
Female	0.0% (0.2%)	0.4% (0.3%)	0.2% (0.2%)	-2.2%*** (0.5%)	-0.2%* (0.1%)
Female X Unknown Number of Dependents	2.9%*** (0.7%)	-49.4%* (27.8%)	2.6%** (1.0%)	3.6%* (2.0%)	3.0%*** (0.6%)
Female X 1 or 2 Dependents	-1.5%*** (0.3%)	-2.3%*** (0.4%)	-0.8%*** (0.3%)	-0.2% (0.7%)	-1.0%*** (0.2%)
Female X 3 or More Dependents	-3.3%*** (0.3%)	-2.8%*** (0.4%)	-2.6%*** (0.3%)	-1.1% (0.9%)	-2.5%*** (0.2%)
Female X Married	-0.3% (0.3%)	-0.6%* (0.3%)	0.3% (0.2%)	0.2% (0.6%)	0.0% (0.2%)
Married	1.4%*** (0.1%)	1.6%*** (0.2%)	2.1%*** (0.1%)	1.0%*** (0.3%)	1.5%*** (0.1%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Asian	-0.3% (0.2%)	0.7%*** (0.3%)	0.1% (0.3%)	0.3% (0.5%)	0.1% (0.1%)
Black	-7.5%*** (0.1%)	-6.9%*** (0.2%)	-6.7%*** (0.1%)	-7.3%*** (0.3%)	-7.0%*** (0.1%)
Other Race	-1.9%*** (0.2%)	-1.6%*** (0.2%)	-2.4%*** (0.2%)	-1.0%*** (0.4%)	-1.7%*** (0.1%)
Unknown Race	-0.1% (1.4%)	-1.7%*** (0.6%)	-2.2%*** (0.5%)	-0.1% (0.6%)	-0.7%** (0.3%)
White	Comparison Group				
Hispanic	-2.0%*** (0.2%)	-1.6%*** (0.2%)	-1.7%*** (0.2%)	-3.0%*** (0.2%)	-2.1%*** (0.1%)
Non-Hispanic	Comparison Group				
Navy					8.1%*** (0.1%)
Air Force					10.1%*** (0.1%)
Marine Corps					6.7%*** (0.1%)
Army	Comparison Group				
Sample size	477,832	243,446	359,198	154,151	1,234,627
Adjusted R^2	0.1210	0.1212	0.0954	0.0990	0.1330

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

Table 58. Complete regression results for course completion rate, conditional on TA use: Marginal effects of military and demographic characteristics, officers only, FY99-FY15[a,b]

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Total Courses	0.3%*** (0.0%)	0.2%*** (0.0%)	0.2%*** (0.0%)	0.2%*** (0.0%)	0.2%*** (0.0%)
Percent of Years Consecutive User	17.0%*** (0.7%)	14.5%*** (0.8%)	16.7%*** (0.5%)	17.6%*** (1.3%)	16.1%*** (0.3%)
Percent of Years Super User	0.1% (0.9%)	-2.0%** (1.0%)	-7.8%*** (0.6%)	-5.2%*** (1.6%)	-5.1%*** (0.4%)
Most Courses PFP	-3.3%*** (0.4%)	-0.2% (0.4%)	-0.9%*** (0.2%)	-3.1%*** (0.7%)	-1.7%*** (0.2%)
Most Courses PNFP	3.2%***	3.1%***	2.6%***	4.3%***	3.0%***

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
	(0.3%)	(0.4%)	(0.2%)	(0.6%)	(0.2%)
Most Courses OTH	-28.9%*** (1.1%)	-2.2% (3.8%)	1.6% (1.2%)	-1.6% (8.3%)	-18.5%*** (0.8%)
Most Courses PFP and PNFP	-11.8%*** (2.6%)	-9.4%*** (3.2%)	-10.7%*** (1.4%)	-8.5%* (4.8%)	-10.8%*** (1.2%)
Most Courses PFP and PUB	-6.4%*** (2.4%)	-3.0% (2.3%)	-10.6%*** (1.7%)	-4.4% (4.3%)	-7.0%*** (1.2%)
Most Courses PFP and OTH	-11.0% (10.5%)	17.2% (22.2%)	-10.1% (7.7%)		-2.6% (6.2%)
Most Courses PNFP and PUB	-6.1%*** (1.6%)	-5.7%*** (1.6%)	-5.0%*** (1.3%)	-3.8% (3.1%)	-5.5%*** (0.8%)
Most Courses PNFP and OTH	-10.5%* (5.7%)	6.7% (22.2%)	2.1% (7.2%)		-9.9%** (4.2%)
Most Courses PUB and OTH	12.6%*** (4.7%)	22.7% (22.2%)	0.5% (5.1%)	-36.0% (24.8%)	7.5%** (3.3%)
Most Courses PFP, PNFP, and PUB	-15.6% (12.7%)	12.1% (9.8%)	-32.3%*** (9.4%)		-11.4%* (6.1%)
Most Courses PFP, PNFP, and OTH	-10.3% (25.6%)				-21.0% (22.1%)
Most Courses PFP, PUB, and OTH	21.8% (25.4%)	-16.0% (22.2%)			6.6% (15.6%)
Most Courses PNFP, PUB, and OTH	-27.9% (25.4%)				-35.8% (22.0%)
Most Courses PFP, PNFP, PUB, and OTH					
Most Courses PUB	Comparison Group				
Total Credits in Prior Year					
Unknown Occupation Code	-1.3% (1.5%)	-9.9% (11.0%)	-1.1% (1.6%)	0.0% (1.7%)	-0.9% (0.9%)
General Officers and Executives, NEC	1.6% (7.4%)	-2.6% (4.8%)	0.8% (1.5%)	-6.0% (5.8%)	0.3% (1.1%)
Intelligence Officers	0.1% (0.6%)	-2.0%*** (0.7%)	-0.3% (0.4%)	-1.5% (1.1%)	-0.4% (0.3%)
Engineering and Maintenance Officers	0.1% (0.4%)	-0.2% (0.5%)	-0.5%** (0.3%)	0.4% (0.8%)	0.1% (0.2%)
Scientists and Professionals	0.0% (0.7%)	-2.9%*** (0.9%)	0.1% (0.4%)	-0.4% (2.7%)	-0.4% (0.4%)
Health Care Officers	0.2% (0.5%)	-2.0%*** (0.5%)	0.1% (0.4%)		-0.2% (0.2%)
Administrators	0.6% (0.5%)	-1.7%*** (0.6%)	-0.3% (0.3%)	0.6% (1.0%)	0.2% (0.3%)

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Supply, Procurement, and Allied Officers	-1.4%*** (0.5%)	-0.4% (0.7%)	-0.4% (0.3%)	-0.2% (0.8%)	-0.7%*** (0.2%)
Non-Occupational Officers	-1.3% (1.9%)	-2.5%** (1.1%)	-0.7% (0.9%)	0.8% (1.7%)	-0.4% (0.6%)
Tactical Operations Officers	Comparison Group				
No High School Degree	-4.7%** (1.9%)	-5.0%* (3.0%)	-1.9%* (1.1%)	-9.8% (16.5%)	-2.3%** (0.9%)
High School	-2.2%*** (0.5%)	-0.8% (0.5%)	-1.7%*** (0.4%)	2.1%** (0.9%)	-1.1%*** (0.2%)
Homeschool	3.5% (11.4%)	-8.9% (6.9%)		12.3% (13.5%)	-1.6% (5.2%)
Adult Education	-3.5%*** (1.1%)	-3.3%*** (0.7%)	-2.3%*** (0.7%)	-1.6% (3.3%)	-2.5%*** (0.4%)
Associate Degree	0.7% (1.0%)	0.0% (0.9%)	1.3%** (0.6%)	2.0% (1.9%)	0.9%** (0.4%)
Professional Degree	-3.3%*** (0.9%)	-2.0%*** (0.6%)	2.3%*** (0.5%)	-0.9% (1.8%)	-0.9%** (0.4%)
Other Nontraditional High School Credential	-5.7%*** (2.0%)	-2.7% (2.2%)	-6.1% (9.4%)	1.7% (4.8%)	-4.0%*** (1.3%)
Other Education	-14.5% (18.0%)	-7.0% (5.9%)	-5.0% (10.8%)	1.8% (5.9%)	-3.7% (3.7%)
Education Unknown	-0.9% (1.0%)	-1.6%*** (0.5%)	-1.4%*** (0.4%)	1.5% (5.5%)	-1.6%*** (0.3%)
Bachelor's Degree	Comparison Group				
Unknown Number of Dependents	8.8%** (4.3%)		2.2% (9.4%)	1.9% (5.3%)	6.2%** (2.9%)
1 or 2 Dependents	0.3% (0.5%)	0.4% (0.5%)	-0.6%** (0.3%)	0.2% (0.9%)	-0.2% (0.2%)
3 or More Dependents	-0.4% (0.5%)	-0.6% (0.5%)	-0.8%*** (0.3%)	0.2% (0.9%)	-0.6%*** (0.2%)
0 Dependents	Comparison Group				
O4-O5	2.5%*** (0.4%)	1.5%*** (0.4%)	0.3% (0.3%)	1.9%** (0.9%)	1.7%*** (0.2%)
O6-O10	6.4%*** (1.0%)	3.0%*** (0.9%)	3.0%*** (0.8%)	11.1%* (5.7%)	4.1%*** (0.5%)
O1-O3	Comparison Group				
Years of Service	0.0% (0.0%)	0.0% (0.0%)	0.0% (0.0%)	0.1% (0.1%)	0.0%*** (0.0%)
Female	-1.1% (1.0%)	-0.4% (1.0%)	0.5% (0.5%)	3.9%** (2.0%)	0.3% (0.4%)
Female X Unknown	-0.8%		13.7%	2.5%	1.5%

Characteristic	Army	Navy	Air Force	Marine Corps	DOD
Number of Dependents	(10.5%)		(16.2%)	(10.4%)	(6.2%)
Female X 1 or 2 Dependents	-0.4% (1.1%)	-0.5% (1.1%)	-0.2% (0.6%)	-3.4% (2.6%)	-0.4% (0.5%)
Female X 3 or More Dependents	0.3% (1.0%)	1.3% (1.1%)	0.0% (0.6%)	-0.7% (2.6%)	0.1% (0.5%)
Female X Married	-0.3% (0.8%)	0.8% (0.9%)	-0.4% (0.5%)	-2.5% (2.1%)	-0.4% (0.4%)
Married	1.6%*** (0.4%)	2.2%*** (0.5%)	3.1%*** (0.3%)	3.4%*** (0.8%)	2.6%*** (0.2%)
Asian	-0.8% (0.7%)	-0.3% (0.8%)	-1.7%*** (0.5%)	-3.6%** (1.7%)	-1.1%*** (0.3%)
Black	-5.7%*** (0.4%)	-3.2%*** (0.5%)	-4.5%*** (0.3%)	-7.5%*** (0.9%)	-5.1%*** (0.2%)
Other Race	-1.4%** (0.7%)	-3.7%*** (0.8%)	-2.2%*** (0.4%)	-1.2% (1.3%)	-2.3%*** (0.3%)
Unknown Race	0.2% (1.2%)	-0.4% (1.2%)	-0.9% (0.5%)	-0.1% (2.1%)	-0.6% (0.5%)
White	Comparison Group				
Hispanic	-2.1%*** (0.6%)	-0.9% (0.6%)	-1.7%*** (0.4%)	-0.9% (0.9%)	-1.5%*** (0.3%)
Non-Hispanic	Comparison Group				
Navy					4.9%*** (0.2%)
Air Force					4.8%*** (0.2%)
Marine Corps					3.8%*** (0.3%)
Army	Comparison Group				
Sample size	33,611	20,558	48,170	7,803	110,142
Adjusted R^2	0.1129	0.0674	0.0814	0.0919	0.0950

Source: CNA analysis of DMDC and TA data.

a. Statistical significance at the 1-, 5-, and 10-percent levels are denoted by ***, **, and *, respectively. Standard errors are in parentheses.

b. Additional controls not shown include state of residence and cohort year.

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