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Tracking Outcomes of Voluntary Military Education Programs: A Data Analysis

Daniel Leeds, Lauren Malone, and Elizabeth Clelan

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Abstract

In this report, we used individual-level data provided by each of the Services and Force Education and Training to calculate the Tuition Assistance (TA) and My Career Advancement Account (MyCAA) educational outcome statistics of Servicemembers and their spouses, as requested in the 2014 DOD Appropriations Bill. These tabulations compare not only outcomes by Service but also by institutional sector (private for-profit, private not-for-profit, and public). By making these Service- and sector-level comparisons, we highlight differences in TA and MyCAA enrollment, cost, number of courses taken, credits received, courses completed, and degrees received. These summarized outcome measures will provide policy-makers with a better understanding of the differences that exist across Services and education sectors, allowing them to evaluate how the Services are using these Voluntary Education benefits.

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Cover image credit: Marines assigned to the 15th Marine Expeditionary Unit (MEU) attend a U.S. History class aboard USS Rushmore, Dec. 28, 2012. Marines and Sailors aboard Rushmore use the Tuition Assistance Program to enroll in courses offered by Central Texas College and Park University. The 15th MEU was deployed as part of the Peleliu Amphibious Ready Group as a U.S. Central Command theater reserve force, providing support for maritime security operations and theater security cooperation efforts in the U.S. 5th Fleet area of responsibility. (U.S. Marine Corps photo by Cpl Timothy R. Childers)

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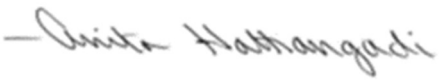

Anita Hattiangadi, Director
Marine Corps and Defense Workforce Program
Resources and Force Readiness Division

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Executive Summary

The Department of Defense (DOD) provides educational benefits to Servicemembers and their spouses that are aimed at easing the financial burden of continuing education. The two primary programs are Tuition Assistance (TA) and My Career Advancement Account (MyCAA). All Services 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). The complementary program to TA for military spouses is MyCAA, which is available for spouses of Servicemembers in paygrades E1–E5, O1–O2, or W1–W2, provided the Servicemember is serving on active-duty Title 10 orders. MyCAA is primarily viewed as a workforce development program that helps military spouses obtain the licenses and education necessary for employment in portable career fields and occupations.

The 2014 DOD Appropriations Bill mandated a study tracking the outcomes of those who receive either Tuition Assistance (TA) or My Career Advancement Account (MyCAA). The metrics requested by Congress included the graduation rate, the number of program participants, the number of courses taken per participant, the course completion rate, and the average cost per course (both to the TA program and to the Servicemembers/spouses). In this report, we present tables containing the statistics necessary to satisfy the congressional requirement and discuss some revealing differences across Services and over time.

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 if 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. As a result, these two Services include degrees at a wider range of levels. Third, the Army has noted that there are discrepancies between the Army data 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.[1] If, however, a grade was later changed—thus resulting in multiple grades for the same course—and the more recent entry was the correct entry, then our data would not accurately reflect that change. Finally, our TA data do not include students who take courses solely through the Community College of the Air Force (CCAF), or other Service-provided institutions, for that matter. Airmen are able to take CCAF courses free of charge and, as such, do not use TA to fund their enrollment in these courses. As a result, CCAF course completions, degree completions, and other metrics are not part of the TA and MyCAA data provided throughout this report.[2]

With these caveats in mind, the following general findings emerge from our analysis of Servicemembers' and their spouses' use of TA and MyCAA benefits:

- The Army had the highest number of TA participants, followed by the Air Force, Navy, and Marine Corps. This coincides with the size of each of the Services, including active, reserve, and guard components.
- 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.
- In recent years, participants have taken fewer courses at public institutions than at both types of private institutions, and first-year TA and MyCAA users took fewer courses than the average users.
- 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. That is, all are higher at both types of private institutions than at public institutions and lower among first-year users than their later-year counterparts.
- 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.

Note, however, that these are only summary statistics and have not controlled for differences in participants' characteristics or in the quality of institutions attended.

[1] 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.

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

In our future work, in which we will characterize both Servicemembers who use TA and those who ultimately graduate, we will attempt to parse out such differences.

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Glossary

CCAF	Community College of the Air Force
DOD	Department of Defense
IPEDS	Integrated Postsecondary Education Data System
MGIB-AD	Montgomery GI Bill-Active Duty
MyCAA	My Career Advancement Account
OPE	Office of Postsecondary Education
TA	Tuition Assistance
VolEd	Voluntary Education

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Introduction

The Department of Defense (DOD) provides educational benefits to Servicemembers and their spouses, aimed at easing the financial burden of continuing education. The two primary programs are Tuition Assistance (TA) and My Career Advancement Account (MyCAA). All Services 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). Although TA users primarily pursue associate or bachelor's degrees, TA funds can also be used for coursework to obtain a high school diploma, certificate, or master's degree [1-4]. TA is available to active component Servicemembers and activated reservists who meet the Services' eligibility requirements. In addition, Servicemembers are able to use "Top-Up" funds to cover any tuition costs and fees that exceed the $250 per-semester-hour maximum. 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 exceeds the TA maximums [1, 5]. This may enable them to take courses that they would have been otherwise unable to take while on active duty, but it will decrease the GI Bill benefit available to them after leaving the Service.

The complementary program to TA for military spouses is MyCAA, which is available for spouses of Servicemembers in paygrades E1–E5, O1–O2, or W1–W2, provided the Servicemember is serving on active-duty Title 10 orders. MyCAA is primarily viewed as a workforce development program, aimed at helping military spouses obtain the licenses and education necessary for employment in portable career fields and occupations. As such, MyCAA scholarships cover costs for courses and examinations leading to an associate degree, license, or certification, up to a 3-year maximum of $4,000 [6].

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

> The Committee is concerned about the lack of information available on the outcomes of students receiving Tuition Assistance and My Career Advancement Account [MyCAA] benefits. Therefore, the Committee directs the Department to submit a report tracking such outcomes of each of these programs. ([7], p. 34)

A number of metrics were requested, both aggregated and at the educational sector level, where educational sectors are public, private for-profit, or 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, and the average cost per course (both to the TA program and to the Servicemembers/spouses). In addition, the Appropriations Bill requested a report on the percentage of Servicemembers using Top-Up and the average dollar amounts of Top-Up use by FY. In this report, we present tables containing the statistics necessary to satisfy the congressional requirement and discuss some revealing differences across Services and over time.

The remainder of this report is organized as follows. In the next section, we review our data sources and analytical methodology. Then, we present the tables and discuss findings, one metric at a time. Within the section for each metric, we include findings for TA users in the Army, Navy, Air Force, and Marine Corps, both individually and combined across the four Services, as well as for spouses using MyCAA. We conclude by discussing the overarching patterns that we observe.

Data and Methodology

Two types of data are used to generate the statistics provided in this report. The first is TA data, which each of the four Services provided to us. The second is MyCAA data, provided by the Force Education and Training section. The Services' TA data contained information on all courses taken by Servicemembers (both officers and enlisted) receiving TA from FY 1999 through FY 2015, whereas the Force Education and Training's Voluntary Education (VolEd) data contained information on all courses taken by military spouses receiving MyCAA benefits during the same time period. Each of the TA and MyCAA datasets provided information on degrees earned during the time period, although the MyCAA data covered only certifications, licenses, and associate degrees since MyCAA does not fund higher level degrees. The data required substantial cleaning to be in a uniform, usable format; Appendix A provides details on data cleaning.

In the remainder of this section, we explain our processes for assigning Servicemembers (and their corresponding data) to institutional sectors and creating cohorts.[3]

We began by assigning each Servicemember's course and degree data to one of three educational sectors: public, private not-for-profit, and private for-profit.[4] 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). In cases in which 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 [8].[5] Over 4,400 institution names did not have a sector listed in any of the four Services' files; these

[3] Understanding these two processes is essential to understanding how we generated the statistics required by the 2014 DOD Appropriations Bill.

[4] Other/unknown institutions are not reported separately, but are included in the all reported sectors numbers.

[5] 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.

were left as "other or unknown sector."[6] If an institution had both missing and non-missing sector values, the missing values were changed to match the non-missing ones. In addition, none of the Services' degree files contained sector data. As a result, directly matching degree data to a particular sector was impossible.[7] Instead, degrees were assigned to the sector of the institution at which a Servicemember started his or her final course prior to receiving that degree.[8] If a Servicemember had multiple courses in multiple sectors start on that date, the degree was assigned to the sector in which that Servicemember had taken the most courses prior to degree receipt.

We assigned Servicemembers to cohorts based on the year in which they first used TA, from 1999 through 2015. Since different institutions begin their academic calendars at different points, years were defined to begin on September 1st and end on August 31st. We assigned cohorts for four reasons: (1) to determine for how long Servicemembers used their TA benefits, (2) to track whether Servicemembers take more courses or use more TA benefits the longer that they remain in the TA program, (3) to measure how Servicemembers have progressed toward degrees over time, and (4) to assess whether changes in TA policy over time affect how different cohorts of Servicemembers use TA. Cohorts are determined based on when a Servicemember first appears in any sector; thus, a Servicemember who switched sectors might not appear in the second sector's data until long after his or her cohort year.

Once sector and cohort assignments were established, we calculated sector-, cohort-, and Service-specific means and standard deviations for each outcome of interest (as defined by the Appropriations Bill) in the 2014 and 2015 academic years. Namely, these were:

- The total number of TA program participants
- The total TA cost per participant
- The combined TA and out-of-pocket cost per participant

[6] 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.

[7] Matching on university names would have been highly inaccurate, particularly for the Army data, and looking up sectors for each institution in the degree data would have been prohibitively time-consuming.

[8] In some cases, degrees may be incorrectly assigned as a result. For example, any Servicemember who started a degree program at one institution and transferred to another within the Servicemember Opportunity Colleges—a consortium of schools that agree to accept credits towards degrees from each other—will appear in the data as a degree completion only at the later institution. The institution where TA was first used will not get credit for that degree completion.

- The total number of Servicemembers using Top-Up
- The average Top-Up payment per participant
- The total number of courses taken per participant
- The total number of credits taken per participant
- The total number of courses completed per participant
- The course completion rate[9]
- The number of degrees attained per participant[10]
- The graduation rate

All rules and calculations above were applied analogously to MyCAA data, with a few exceptions. First, since the MyCAA program did not begin until much later than the TA program, spouses were assigned cohorts from 2009 through 2015. Second, degree data were provided only for certificates, licenses, and associate degrees because higher level degrees are not funded through the program. Finally, MyCAA data did not contain information on the number of credits that spouses enrolled in, and MyCAA participants are not eligible for the Top-Up benefit.

Caveats

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 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 if the limits on first-year or later courses vary by Service.

Second, Army and Air Force data contained specific fields for certificates and for associate, bachelor's, and master's degrees. The Navy and Marine Corps data, however,

[9] Some courses could not be counted as either complete or incomplete based on grade data (particularly in the Army data); these courses are omitted from the completion rate calculation, so the completion rate will be slightly higher than the number of courses completed divided by the number of courses taken. For course completion rate calculations, individual Servicemember rates were weighted by the number of courses taken.

[10] Degrees per participant and graduation rate include degrees earned at any level, from certificates to doctoral degrees. In the Navy and Marine Corps (and perhaps in other Services as well), degree completion is self-reported by the Servicemembers. It is therefore possible that some completed degrees were not reported.

had free entry fields for the type and/or level of degree earned. As a result, these two Services include degrees at a wider range of levels (i.e., the high school, continuing education, Ph.D. or professional, and undetermined levels). Numbers for each of the Services may therefore not be entirely comparable. Depending on the types of degrees one considers relevant, either the Army and Air Force slightly undercount the true number of relevant degrees or the Navy and Marine Corps slightly overcount them. As we consider a degree at any level to be an outcome of interest, we prefer the former interpretation.

Third, the Army has noted that there are discrepancies between the Army data 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.[11] If, however, a grade was later changed—thus resulting in multiple grades for the same course—and the more recent entry was the correct entry, then our data would not accurately reflect that change. In such a case, completion data could be affected as well, if the grade change was such that it changed a course grade from a "D," to a "C," for example. It is important to note that such issues only arise in cases where grades are changed *after* the fact. In addition, the ACES data report statistics by fiscal year, whereas the statistics in this report are based on academic years. Depending on the month of a particular course observation, there will likely be cases where the Army would count it, for example, as part of fiscal year 2014, but we would count it as academic year 2015 (e.g., August 2014).

Fourth, our TA data do not attempt to connect students who "dual-enroll" with a TA institution and ultimately graduate from the Community College of the Air Force (CCAF). As a result, CCAF enrollments, course completions, degree completions, and other metrics are not part of the TA and MyCAA data provided throughout this report. It should be noted that CCAF is a regionally accredited community college and is a significant source of degrees for enlisted airmen, as can be seen in the statistics shown in Table 1. In 2015, over 160,000 students were enrolled in the CCAF, regardless of whether they were seeking their first or a subsequent degree. In addition, there were over 83,000 active-duty Airmen with a CCAF degree—over 34 percent of the entire active force. Most important, the CCAF students will not be included in our calculation of TA graduation rates unless they graduated from an institution other than CCAF, while using TA. When evaluating the TA statistics presented in this report, it is important to recall that this information is specific to TA-users and is thus not meant to be a complete representation of the educational opportunities used by Servicemembers.

[11] 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.

Table 1. CCAF participation (2015) and degrees granted (2011-2015)

Students Enrolled, Seeking First Degree	Graduates Enrolled, Seeking Subsequent Degree	Total Students Enrolled	CCAF Graduates Still Serving	Percent of Total Force with CCAF Degree
158,725	1,704	160,429	83,047	34.4%

Total Degrees Granted	
2011	18,494
2012	20,148
2013	20,661
2014	23,157
2015	23,206

Source: CCAF 2015 Annual Report, provided by the Air Force.

Finally, a number of observations had to be dropped from our data, for a variety of reasons. Our data cleaning process is explained in greater length in Appendix A. 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, these rules affect each Service 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.

Results

In this section, we present summary statistics for the outcome measures by Service, sector, and cohort, as well as by academic year (2014 and 2015).

Results are grouped into five subcategories:

- Participation—how many Servicemembers used TA and how many spouses used MyCAA in a given year?
- Cost—how much did DOD pay in TA and MyCAA benefits, and what were the total costs (counting these benefits) to Servicemembers and their spouses?
- Enrollment—in how many courses and for how many credits did TA and MyCAA users enroll while using TA or MyCAA?
- Course completion—how many courses did TA and MyCAA users complete, and what were their course completion rates while using TA or MyCAA?
- Degree completion—how many degrees did TA and MyCAA users complete, and what were their course completion rates while using TA or MyCAA?
- Graduation rates—what were TA and MyCAA users' graduation rates while using TA or MyCAA?

Our discussion will focus chiefly on three sets of results:

- The overall level of each outcome in 2015 across all cohorts
- The overall level of each outcome in Servicemembers' first year of TA use (or spouses' first year of MyCAA use); this uses only 2014 data for the 2014 cohort and only 2015 data for the 2015 cohort.
- How Servicemembers who use a second year of TA (and spouses who use a second year of MyCAA) differ from Servicemembers in their first year of TA (and spouses in their first year of MyCAA); this compares the 2014 cohort in 2015 against the 2014 cohort in 2014.

The first of these outcomes reflects how TA and MyCAA are currently being used. The second addresses how new TA and MyCAA users, who represent a large part of the demand for the two programs and may act systematically differently from longstanding TA and MyCAA users, interact with these programs and pursue their educations. The third shows how a particular cohort changed over time—partly because some members of that cohort altered their individual course-taking patterns and partly because other members of that cohort stopped taking courses entirely. We will both discuss these results within each Service (and for MyCAA) and compare results across Services (and MyCAA users). We also present results for all four Services

as a whole (though we omit MyCAA from this calculation). Additional results will be discussed on a case-by-case basis when particularly relevant (e.g., extreme outlying values). Throughout our discussions and presentations of results, the officer and enlisted populations are combined (within a cohort, sector, and Service) since no officer/enlisted breakouts were requested by the Appropriations Bill. In future work, we will analyze how TA use differs for these two populations.

TA and MyCAA participation

In many respects, the most important outcome is the number of Servicemembers and spouses enrolled in the TA and MyCAA programs. Extremely low enrollment would suggest that the programs are not providing their intended benefits, while extremely high enrollment might suggest that the programs are being overtaxed. Program participation also provides necessary context for the other outcomes; if enrollment is extremely high, for example, even low per-student costs could translate into high program-wide costs.

Tables 2 through 5 contain statistics on the number of Servicemembers using TA, in each of the four Services. Table 2 contains the number of Servicemembers using TA in the Army, and the corresponding numbers for the Navy, Air Force, and Marine Corps are presented in Tables 3, 4, and 5, respectively. The number of TA users combined across all four Services is shown in Table 6. The number of MyCAA users is presented in Table 7. Each row in these tables shows the number of participants from a cohort of Servicemembers or military spouses (where a cohort is defined as all students enrolling between September 1st of one year and August 31st of the following year); the bottom row provides the total for all participants. The columns show the number of participants in a given year and are grouped by sector: private for-profit, private not-for-profit, public, and all reported sectors.[12]

Overall TA use is highest in the Army, second highest in the Air Force, third highest in the Navy, and lowest in the Marine Corps. Across all reported sectors, over 115,000 Soldiers used TA in 2015, compared with approximately 84,000 Airmen, 44,000 Sailors, and 17,000 Marines. Altogether, over 260,000 Servicemembers across the four Services used TA benefits in 2015.

The likelihood of appearing in a particular sector varies by Service (or MyCAA). Table 2 reveals that combined Army TA participation across all cohorts was highest in the private for-profit sector in 2015, with 49,673 Servicemembers enrolling in for-profit

[12] Data for the "other/unknown sector" category are available on request; Servicemembers in that sector are included in the "all reported sectors" category. Since some Servicemembers appear in multiple sectors during a single year, the number of participants in all reported sectors will generally be lower than the sum of the number of participants in each sector.

institutions. Army enrollment was next highest in public institutions (45,669), and lowest in private not-for-profit institutions (22,004). Table 3 shows that Navy TA participation in 2015 was highest in public institutions (17,804), followed by private not-for-profit (14,983) and private for-profit institutions (12,323). According to Table 4, Air Force TA participation was highest by a wide margin in the for-profit sector (41,402), followed by the public (25,020) and private not-for-profit sectors (20,532). As Table 5 shows, Marine Corps TA participation was highest in 2015 in the private for-profit sector (7,344), followed by the public (6,102) and private not-for-profit sectors (4,114). Enrollment across the four Services was most proportional in the Navy and most skewed toward a single sector—the for-profit sector—in the Air Force. Table 6 shows that overall participation in 2015 across the four Services was highest in the private for-profit sector (117,279), followed by the public sector (94,595) and then the private not-for-profit sector (61,633). The MyCAA data in Table 7 show that overall 2015 participation was much larger in the private for-profit sector (12,311) than in the public sector (7,925), which was, in turn, much larger than that in the private not-for-profit sector (1,662). MyCAA participation was thus highly skewed toward the for-profit sector.

Having a large presence in a particular sector does not necessarily mean that new TA or MyCAA enrollments are concentrated in that sector. This, of course, is because total participation is the sum of new enrollments and continuing students. New Army, Navy, and Air Force enrollments in both 2014 and 2015 were highest in the public sector, whereas 2015 total participation (above) was only highest in the public sector in the Navy. In the Marine Corps, new enrollment was highest in the private for-profit sector in 2014 and in the public sector in 2015. Overall, new enrollment in both 2014 and 2015 was highest in the public sector, followed by the private for-profit sector, and then by the private not-for-profit sector. New MyCAA enrollments were highest in the private for-profit sector in both years. New enrollments were lowest in the private not-for-profit sector in both years for the Army, Air Force, Marine Corps, and for MyCAA users; new Navy enrollments were lowest in the private for-profit sector.

The disparity between new and overall enrollments in a sector is at least partially explained by different TA and MyCAA continuation rates in each Service and sector. For all Services and sectors, the 2014 cohort's enrollment dropped substantially in 2015; 2015 enrollment among the Army's 2014 cohort, for example, fell by nearly 50 percent in private not-for-profit institutions and by nearly two-thirds in public institutions.[13] Declining continuation rates within a sector does not necessarily mean that students are no longer using TA. Some sectors' declines may be the result of students switching to other sectors or students previously enrolled in multiple sectors consolidating their enrollment into a single sector. However, overall continuation for

[13] For example, based on the numbers in Table 2, private not-for-profit enrollments fell by (4,325-2,290)/4,325, or 47 percent.

this Army cohort was still very low, at close to 40 percent—the lowest of the four Services.

Navy continuation was less pronounced than in the Army, ranging from approximately 53 percent in private not-for-profit institutions to approximately 44 percent in public institutions, with an overall continuation rate of approximately 48 percent. Continuation in the Air Force was higher still: enrollment fell by less than 40 percent in for-profit institutions and by approximately 55 percent in public institutions, for an overall total of approximately 48 percent. Continuation rates in the Marine Corps were lowest in public institutions, at close to 40 percent, and highest at private not-for-profit institutions, at nearly 55 percent. Across all Services, continuation rates were roughly 40 percent in the public sector, approximately 51 percent in the private for-profit sector, and approximately 53 percent in the private not-for-profit sector.

MyCAA continuation rates were extremely low across all reported sectors. The 2014 cohort's enrollment in public institutions fell by nearly 70 percent in 2015, and enrollment at both types of private institutions fell by over 90 percent. This may be a function of the intended purpose of MyCAA; it is meant to be used for certificates, licenses, and two-year degrees only.

Table 2. TA participants: Army[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	1,120	880	757	618	697	567	2,529	2,037
2000	1,153	986	675	647	775	640	2,540	2,222
2001	1,330	1,136	757	730	979	775	2,984	2,584
2002	1,577	1,386	912	793	1,032	890	3,450	3,015
2003	2,338	2,073	1,204	1,070	1,455	1,232	4,909	4,288
2004	2,299	1,962	1,143	1,076	1,515	1,167	4,847	4,123
2005	2,342	2,050	1,066	982	1,554	1,227	4,878	4,180
2006	2,159	1,828	1,020	880	1,350	1,100	4,428	3,727
2007	2,340	2,002	941	857	1,605	1,251	4,787	4,020
2008	2,883	2,393	1,165	976	2,044	1,575	5,969	4,859
2009	3,532	2,877	1,301	1,059	2,851	1,889	7,508	5,710
2010	4,102	3,259	1,412	1,125	3,607	2,386	8,974	6,645
2011	4,461	3,545	1,666	1,235	4,654	2,948	10,563	7,582
2012	5,197	4,017	2,254	1,551	6,673	4,058	13,900	9,450
2013	6,159	4,360	3,090	1,914	9,110	5,070	18,059	11,139
2014	11,028	5,084	4,325	2,290	14,610	5,285	29,692	12,470
2015	--	9,835	--	4,201	--	13,609	--	27,421
All	54,020	49,673	23,688	22,004	54,511	45,669	130,017	115,472

Source: CNA calculations using data provided by the Army.

[a] Because Soldiers can take classes in multiple sectors, and because we do not display a column for institutions that had a missing or unknown sector, the sum of the sector columns does not total the all sector values.

Table 3. TA participants: Navy[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	316	216	338	267	272	192	908	659
2000	315	221	351	285	278	231	928	724
2001	315	257	389	313	277	212	961	769
2002	319	239	337	308	310	271	953	806
2003	466	355	491	423	395	301	1,324	1,061
2004	600	426	588	504	480	403	1,641	1,311
2005	643	497	645	578	599	506	1,851	1,548
2006	687	533	703	596	631	523	1,974	1,622
2007	710	588	738	706	745	627	2,147	1,882
2008	606	498	579	552	706	572	1,840	1,588
2009	835	682	733	712	830	689	2,333	2,013
2010	787	622	636	540	752	586	2,124	1,721
2011	900	667	673	581	948	670	2,454	1,853
2012	1,152	782	1,026	743	1,520	958	3,604	2,423
2013	1,575	1,025	1,833	1,249	2,859	1,595	6,125	3,795
2014	2,566	1,269	3,414	1,820	5,514	2,429	11,325	5,394
2015	--	3,446	--	4,806	--	7,039	--	15,040
All	12,792	12,323	13,474	14,983	17,116	17,804	42,492	44,209

Source: CNA calculations using data provided by the Navy.

[a.] Because Sailors can take classes in multiple sectors, and because we do not display a column for institutions that had a missing or unknown sector, the sum of the sector columns does not total the all sector values.

Table 4. TA participants: Air Force[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	205	149	133	103	102	77	430	323
2000	884	724	584	438	384	256	1,819	1,394
2001	1,650	1,349	1,173	890	783	540	3,525	2,724
2002	1,233	1,089	817	604	538	413	2,537	2,064
2003	1,934	1,731	1,184	919	806	655	3,842	3,229
2004	2,083	1,828	1,182	1,010	928	698	4,090	3,447
2005	2,025	1,846	1,228	934	944	681	4,084	3,385
2006	1,938	1,679	1,036	819	879	648	3,737	3,068
2007	2,354	2,015	1,158	874	1,026	764	4,397	3,541
2008	2,762	2,389	1,363	1,057	1,301	888	5,243	4,210
2009	2,840	2,397	1,324	984	1,379	979	5,352	4,218
2010	3,143	2,777	1,443	1,064	1,624	1,081	5,986	4,745
2011	3,794	3,093	1,672	1,248	2,134	1,431	7,313	5,538
2012	4,388	3,607	2,229	1,599	3,124	2,084	9,388	7,015
2013	4,750	3,948	2,843	1,996	4,215	2,958	11,316	8,585
2014	6,837	4,225	4,332	2,308	8,129	3,653	18,766	9,776
2015	--	6,556	--	3,685	--	7,214	--	16,993
All	42,820	41,402	23,701	20,532	28,296	25,020	91,825	84,255

Source: CNA calculations using data provided by the Air Force.

[a.] Because Airmen can take classes in multiple sectors, and because we do not display a column for institutions that had a missing or unknown sector, the sum of the sector columns does not total the all sector values.

Table 5. TA participants: Marine Corps[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	246	197	166	147	147	135	554	469
2000	186	145	165	140	131	114	477	391
2001	170	167	121	110	117	100	398	368
2002	170	152	123	129	84	87	373	361
2003	237	227	156	187	157	161	541	561
2004	247	201	160	149	125	134	527	477
2005	304	247	169	153	135	144	598	533
2006	295	266	152	157	139	150	572	564
2007	381	340	160	155	150	136	682	616
2008	412	337	163	178	193	178	761	679
2009	521	444	170	163	184	167	859	763
2010	493	403	175	172	206	202	863	764
2011	650	483	214	226	306	252	1,151	946
2012	791	630	317	265	536	393	1,616	1,262
2013	953	751	496	391	1,087	747	2,497	1,844
2014	1,591	711	661	371	1,444	603	3,663	1,657
2015	--	1,643	--	1,021	--	2,399	--	5,011
All	7,647	7,344	3,568	4,114	5,141	6,102	16,132	17,266

Source: CNA calculations using data provided by the Marine Corps.

[a.] Because Marines can take classes in multiple sectors, and because we do not display a column for institutions that had a missing or unknown sector, the sum of the sector columns does not total the all sector values.

Table 6. TA participants: All Services[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	1,887	1,442	1,394	1,135	1,218	971	4,421	3,488
2000	2,538	2,076	1,775	1,510	1,568	1,241	5,764	4,731
2001	3,465	2,909	2,440	2,043	2,156	1,627	7,868	6,445
2002	3,299	2,866	2,189	1,834	1,964	1,661	7,313	6,246
2003	4,975	4,386	3,035	2,599	2,813	2,349	10,616	9,139
2004	5,229	4,417	3,073	2,739	3,048	2,402	11,105	9,358
2005	5,314	4,640	3,108	2,647	3,232	2,558	11,411	9,646
2006	5,079	4,306	2,911	2,452	2,999	2,421	10,711	8,981
2007	5,785	4,945	2,997	2,592	3,526	2,778	12,013	10,059
2008	6,663	5,617	3,270	2,763	4,244	3,213	13,813	11,336
2009	7,728	6,400	3,528	2,918	5,244	3,724	16,052	12,704
2010	8,525	7,061	3,666	2,901	6,189	4,255	17,947	13,875
2011	9,805	7,788	4,225	3,290	8,042	5,301	21,481	15,919
2012	11,528	9,036	5,826	4,158	11,853	7,493	28,508	20,150
2013	13,437	10,084	8,262	5,550	17,271	10,370	37,997	25,363
2014	22,022	11,289	12,732	6,789	29,697	11,970	63,446	29,297
2015	--	21,480	--	13,713	--	30,261	--	64,465
All	117,279	110,742	64,431	61,633	105,064	94,595	280,466	261,202

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

[a.] Because Servicemembers can take classes in multiple sectors, and because we do not display a column for institutions that had a missing or unknown sector, the sum of the sector columns does not total the all sector values.

Table 7. MyCAA participants[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
2009	14	9	6	1	16	4	36	14
2010	54	38	10	10	45	30	109	78
2011	222	62	34	10	215	52	470	124
2012	754	258	140	42	940	248	1,824	548
2013	1,284	461	245	114	1,749	591	3,262	1,162
2014	11,113	946	2,256	240	5,287	1,651	18,611	2,818
2015	--	10,537	--	1,245	--	5,349	--	17,089
All	13,441	12,311	2,691	1,662	8,252	7,925	24,312	21,833

Source: CNA calculations using data provided by VolEd.

[a.] Because spouses can take classes in multiple sectors, and because we do not display a column for institutions that had a missing or unknown sector, the sum of the sector columns does not total the all sector values.

TA and MyCAA costs

This subsection presents the costs associated with the TA and MyCAA programs—both to DOD and to Servicemembers and their spouses. Costs per TA or MyCAA participant will vary for two main reasons: the courses they take could have different costs, or they could take different numbers of courses. Differences in costs between sectors may be particularly relevant for policy-makers and for students because they could reveal ways for both students and DOD to identify potential cost savings. In Tables 7 through 12, we show the average TA (or MyCAA) cost per participant, measuring the amount paid by DOD. These, and subsequent, tables are presented in the same order as Tables 2 through 6. Here, we provide both mean and standard deviation values for each cohort.

Overall TA costs (averaging all cohorts) varied by sector but were fairly similar for all four Services. Overall, Servicemembers using TA in 2015 paid an average of $1,490 in the public sector, $2,062 in the private not-for-profit sector, and $2,127 in the private for-profit sector (see Table 6). The cost per student at public institutions was generally between one-half and two-thirds that at private institutions (either not-for-profit or for-profit). Costs per student in the Services ranged from $2,077 (Air Force) to $2,293 (Marine Corps) in the private for-profit sector, from $1,970 (Air Force) to $2,193 (Marine Corps) in the private not-for-profit sector, and from $1,351 (Marine Corps) to $1,538 (Army) in the public sector. Total TA costs across all reported sectors are nearly identical across the Services—from $1,915 in the Navy to $1,975 in the Marine Corps. Although the Air Force has lower costs per student *within* each sector, a smaller share of its students are in the (cheaper) public sector than any of the other three Services. Thus, even though the Air Force had average TA costs per student that were at least $60 lower than the Navy in each sector, the average Airman was more likely to attend a private institution and, therefore, had TA costs $4 *higher* than the average Sailor. We found little difference in MyCAA costs across sectors (see Table 13).

New TA users required less DOD funding than those in older cohorts, likely because new cohorts tended to take fewer courses or credits than established cohorts (which could be due to the Services' force management controls, as we discuss later). Servicemembers in their first year of TA use incurred between $200 and $400 less than the average TA cost across all cohorts (resulting in an overall difference in 2015 of $257 less in the public sector, $282 less in the private not-for-profit sector, and $358 less in the private for-profit sector). Spouses in their first year of MyCAA use incurred between $200 and $400 *more* than MyCAA users overall. This could occur if MyCAA participants are more likely than Servicemembers to enroll in programs that are both expensive and short in duration; for example, certain certificate programs might have high costs but require little coursework.

Members of the 2014 cohort using a second year of TA have higher average costs than those in their first year, across all reported sectors and Services. These costs are likely

increasing because of a combination of composition changes in the cohort; those who remain after one year are more expensive (likely because they require TA for more courses, as will be seen in the next section). MyCAA costs per participant actually *decreased* among members of the 2014 cohort using a second year of MyCAA (in 2015). Although the most likely explanation is that MyCAA participants are disproportionately inclined to enroll in programs that are both expensive and short in duration, it is unclear precisely why programs would be structured this way.

Table 8. TA cost per Servicemember: Army[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,174 (1,249)	$2,320 (1,248)	$2,102 (1,164)	$2,112 (1,163)	$1,651 (1,150)	$1,714 (1,170)	$2,047 (1,223)	$2,120 (1,225)
2000	$2,200 (1,243)	$2,267 (1,215)	$2,052 (1,162)	$2,138 (1,198)	$1,556 (1,095)	$1,592 (1,145)	$2,019 (1,214)	$2,087 (1,224)
2001	$2,279 (1,287)	$2,249 (1,238)	$2,073 (1,184)	$2,087 (1,195)	$1,453 (1,095)	$1,579 (1,193)	$2,019 (1,258)	$2,052 (1,245)
2002	$2,232 (1,253)	$2,250 (1,250)	$2,139 (1,190)	$2,124 (1,184)	$1,494 (1,072)	$1,557 (1,156)	$2,033 (1,234)	$2,053 (1,247)
2003	$2,224 (1,265)	$2,238 (1,244)	$2,106 (1,153)	$2,139 (1,206)	$1,534 (1,107)	$1,589 (1,159)	$2,032 (1,238)	$2,072 (1,244)
2004	$2,216 (1,247)	$2,254 (1,252)	$2,120 (1,169)	$2,132 (1,193)	$1,559 (1,092)	$1,643 (1,187)	$2,040 (1,224)	$2,096 (1,251)
2005	$2,200 (1,238)	$2,207 (1,250)	$2,111 (1,189)	$2,108 (1,170)	$1,508 (1,105)	$1,608 (1,163)	$1,999 (1,232)	$2,050 (1,241)
2006	$2,204 (1,242)	$2,195 (1,251)	$2,180 (1,229)	$2,142 (1,194)	$1,619 (1,131)	$1,605 (1,161)	$2,071 (1,241)	$2,057 (1,240)
2007	$2,226 (1,247)	$2,227 (1,267)	$2,134 (1,170)	$2,168 (1,193)	$1,566 (1,111)	$1,592 (1,176)	$2,033 (1,228)	$2,067 (1,261)
2008	$2,167 (1,244)	$2,252 (1,258)	$2,151 (1,158)	$2,161 (1,231)	$1,586 (1,138)	$1,516 (1,113)	$2,009 (1,228)	$2,034 (1,262)
2009	$2,185 (1,247)	$2,166 (1,260)	$2,085 (1,155)	$2,092 (1,182)	$1,613 (1,145)	$1,537 (1,160)	$2,002 (1,229)	$1,988 (1,250)
2010	$2,167 (1,239)	$2,189 (1,246)	$2,231 (1,192)	$2,135 (1,196)	$1,711 (1,162)	$1,581 (1,153)	$2,030 (1,229)	$2,004 (1,247)
2011	$2,212 (1,257)	$2,235 (1,255)	$2,178 (1,168)	$2,173 (1,179)	$1,787 (1,180)	$1,659 (1,179)	$2,065 (1,234)	$2,044 (1,252)
2012	$2,207 (1,237)	$2,190 (1,246)	$2,278 (1,160)	$2,176 (1,186)	$1,823 (1,198)	$1,675 (1,184)	$2,070 (1,227)	$2,007 (1,242)
2013	$2,253 (1,280)	$2,215 (1,249)	$2,423 (1,220)	$2,274 (1,195)	$1,792 (1,174)	$1,696 (1,179)	$2,088 (1,249)	$2,030 (1,241)
2014	$1,789 (1,097)	$2,309 (1,291)	$1,943 (1,161)	$2,353 (1,207)	$1,400 (1,065)	$1,678 (1,191)	$1,637 (1,120)	$2,085 (1,277)
2015	-- --	$1,775 (1,109)	-- --	$1,872 (1,153)	-- --	$1,309 (1,021)	-- --	$1,573 (1,108)
All	$2,124 (1,234)	$2,141 (1,242)	$2,151 (1,186)	$2,121 (1,194)	$1,618 (1,144)	$1,538 (1,140)	$1,953 (1,221)	$1,934 (1,235)

Source: CNA calculations using data provided by the Army.

[a] Standard deviations are in parentheses.

Table 9. TA cost per Servicemember: Navy[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,266 (1,406)	$2,146 (1,217)	$2,093 (1,156)	$2,136 (1,172)	$1,842 (1,213)	$1,796 (1,072)	$2,119 (1,283)	$2,092 (1,174)
2000	$2,236 (1,222)	$2,271 (1,266)	$2,104 (1,200)	$2,174 (1,247)	$1,796 (1,203)	$1,665 (1,072)	$2,093 (1,219)	$2,080 (1,229)
2001	$2,338 (1,309)	$2,255 (1,245)	$2,103 (1,233)	$2,072 (1,192)	$1,612 (1,086)	$1,706 (1,090)	$2,082 (1,255)	$2,067 (1,205)
2002	$2,272 (1,226)	$2,102 (1,197)	$2,075 (1,294)	$2,080 (1,216)	$1,741 (1,180)	$1,726 (1,137)	$2,060 (1,255)	$1,999 (1,199)
2003	$2,255 (1,289)	$2,127 (1,206)	$2,107 (1,223)	$2,041 (1,261)	$1,668 (1,043)	$1,706 (1,131)	$2,073 (1,227)	$2,009 (1,232)
2004	$2,234 (1,315)	$2,138 (1,253)	$2,136 (1,211)	$2,032 (1,160)	$1,628 (1,072)	$1,574 (1,044)	$2,058 (1,246)	$1,960 (1,187)
2005	$2,328 (1,302)	$2,143 (1,256)	$2,036 (1,179)	$1,984 (1,202)	$1,585 (1,093)	$1,625 (1,063)	$2,031 (1,239)	$1,960 (1,202)
2006	$2,235 (1,261)	$2,218 (1,236)	$2,185 (1,273)	$2,140 (1,216)	$1,598 (1,074)	$1,687 (1,116)	$2,067 (1,247)	$2,060 (1,221)
2007	$2,267 (1,288)	$2,152 (1,252)	$2,192 (1,271)	$2,116 (1,234)	$1,636 (1,143)	$1,612 (1,148)	$2,071 (1,269)	$2,003 (1,242)
2008	$2,244 (1,283)	$2,086 (1,223)	$2,129 (1,223)	$2,056 (1,217)	$1,512 (1,054)	$1,564 (1,084)	$1,989 (1,249)	$1,932 (1,208)
2009	$2,243 (1,255)	$2,101 (1,300)	$2,207 (1,303)	$2,162 (1,200)	$1,636 (1,105)	$1,620 (1,134)	$2,078 (1,261)	$2,031 (1,253)
2010	$2,278 (1,340)	$2,218 (1,257)	$2,156 (1,197)	$2,143 (1,209)	$1,581 (1,091)	$1,571 (1,151)	$2,049 (1,265)	$2,009 (1,244)
2011	$2,222 (1,283)	$2,204 (1,230)	$2,145 (1,242)	$2,210 (1,261)	$1,611 (1,080)	$1,678 (1,156)	$2,025 (1,239)	$2,093 (1,253)
2012	$2,347 (1,312)	$2,189 (1,268)	$2,195 (1,214)	$2,133 (1,195)	$1,649 (1,063)	$1,599 (1,097)	$2,071 (1,234)	$1,993 (1,222)
2013	$2,355 (1,325)	$2,269 (1,247)	$2,330 (1,299)	$2,235 (1,210)	$1,741 (1,130)	$1,644 (1,059)	$2,116 (1,276)	$2,039 (1,208)
2014	$1,934 (1,161)	$2,317 (1,307)	$1,819 (1,130)	$2,327 (1,240)	$1,302 (893)	$1,748 (1,115)	$1,620 (1,076)	$2,117 (1,246)
2015	-- --	$1,988 (1,149)	-- --	$1,862 (1,105)	-- --	$1,340 (928)	-- --	$1,678 (1,085)
All	$2,213 (1,280)	$2,140 (1,232)	$2,087 (1,229)	$2,066 (1,194)	$1,543 (1,055)	$1,534 (1,051)	$1,950 (1,225)	$1,915 (1,193)

Source: CNA calculations using data provided by the Navy.

[a] Standard deviations are in parentheses.

Table 10. TA cost per Servicemember: Air Force[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,208 (1,372)	$2,260 (1,323)	$2,053 (1,364)	$1,905 (1,158)	$1,833 (1,197)	$1,821 (1,291)	$2,122 (1,335)	$2,084 (1,286)
2000	$2,232 (1,390)	$2,310 (1,390)	$2,028 (1,303)	$2,011 (1,257)	$1,792 (1,321)	$1,945 (1,382)	$2,114 (1,360)	$2,189 (1,374)
2001	$2,155 (1,312)	$2,247 (1,345)	$2,101 (1,292)	$2,021 (1,243)	$1,742 (1,278)	$1,825 (1,265)	$2,095 (1,314)	$2,135 (1,316)
2002	$2,183 (1,363)	$2,217 (1,354)	$2,089 (1,324)	$2,000 (1,300)	$1,677 (1,257)	$1,837 (1,288)	$2,089 (1,346)	$2,122 (1,343)
2003	$2,200 (1,348)	$2,213 (1,365)	$2,064 (1,334)	$2,051 (1,320)	$1,618 (1,280)	$1,718 (1,258)	$2,083 (1,350)	$2,119 (1,351)
2004	$2,194 (1,368)	$2,188 (1,337)	$2,058 (1,295)	$2,088 (1,302)	$1,584 (1,238)	$1,630 (1,194)	$2,071 (1,344)	$2,102 (1,330)
2005	$2,132 (1,338)	$2,185 (1,334)	$2,028 (1,325)	$1,900 (1,255)	$1,543 (1,220)	$1,623 (1,203)	$2,024 (1,337)	$2,043 (1,314)
2006	$2,155 (1,365)	$2,160 (1,365)	$1,974 (1,291)	$1,945 (1,268)	$1,493 (1,178)	$1,565 (1,252)	$2,016 (1,342)	$2,032 (1,348)
2007	$2,149 (1,375)	$2,235 (1,418)	$2,167 (1,386)	$2,040 (1,331)	$1,484 (1,212)	$1,560 (1,236)	$2,067 (1,381)	$2,112 (1,404)
2008	$2,152 (1,380)	$2,165 (1,383)	$2,080 (1,375)	$2,068 (1,364)	$1,456 (1,188)	$1,585 (1,261)	$2,035 (1,376)	$2,082 (1,385)
2009	$2,141 (1,366)	$2,168 (1,413)	$2,017 (1,379)	$2,027 (1,367)	$1,413 (1,170)	$1,499 (1,200)	$1,999 (1,368)	$2,053 (1,394)
2010	$2,134 (1,392)	$2,195 (1,407)	$2,043 (1,382)	$2,059 (1,358)	$1,368 (1,153)	$1,506 (1,210)	$1,984 (1,386)	$2,089 (1,401)
2011	$2,045 (1,347)	$2,160 (1,385)	$2,021 (1,379)	$2,042 (1,371)	$1,322 (1,090)	$1,449 (1,205)	$1,909 (1,347)	$2,041 (1,392)
2012	$2,060 (1,316)	$2,104 (1,400)	$2,004 (1,319)	$2,017 (1,368)	$1,446 (1,175)	$1,425 (1,151)	$1,920 (1,319)	$1,965 (1,377)
2013	$2,069 (1,344)	$2,084 (1,350)	$2,169 (1,379)	$2,128 (1,388)	$1,486 (1,225)	$1,508 (1,165)	$1,967 (1,365)	$1,973 (1,346)
2014	$1,600 (1,050)	$2,127 (1,382)	$1,539 (1,095)	$2,136 (1,397)	$1,039 (859)	$1,557 (1,227)	$1,388 (1,040)	$2,005 (1,383)
2015	-- --	$1,618 (1,081)	-- --	$1,600 (1,142)	-- --	$1,046 (852)	-- --	$1,415 (1,065)
All	$2,040 (1,326)	$2,077 (1,351)	$1,970 (1,321)	$1,970 (1,320)	$1,354 (1,132)	$1,407 (1,146)	$1,877 (1,320)	$1,919 (1,337)

Source: CNA calculations using data provided by the Air Force.

[a.] Standard deviations are in parentheses.

Table 11. TA cost per Servicemember: Marine Corps[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,403 (1,403)	$2,574 (1,527)	$2,293 (1,438)	$2,364 (1,501)	$1,837 (1,265)	$2,062 (1,416)	$2,242 (1,396)	$2,416 (1,496)
2000	$2,114 (1,345)	$2,423 (1,519)	$2,127 (1,270)	$2,462 (1,455)	$1,688 (1,220)	$1,823 (1,371)	$2,024 (1,298)	$2,312 (1,483)
2001	$2,017 (1,357)	$2,342 (1,403)	$1,901 (1,092)	$2,457 (1,300)	$1,519 (1,164)	$1,908 (1,424)	$1,886 (1,249)	$2,316 (1,415)
2002	$2,189 (1,304)	$2,367 (1,375)	$2,327 (1,307)	$2,219 (1,371)	$1,664 (1,142)	$1,910 (1,207)	$2,140 (1,299)	$2,250 (1,362)
2003	$1,995 (1,258)	$2,299 (1,389)	$2,114 (1,221)	$2,339 (1,358)	$1,745 (1,279)	$1,813 (1,341)	$1,990 (1,276)	$2,230 (1,393)
2004	$2,143 (1,342)	$2,492 (1,497)	$1,901 (1,147)	$2,367 (1,410)	$1,472 (1,053)	$1,770 (1,189)	$1,931 (1,253)	$2,287 (1,427)
2005	$2,048 (1,345)	$2,341 (1,434)	$2,214 (1,283)	$2,433 (1,386)	$1,503 (1,266)	$1,659 (1,318)	$2,006 (1,334)	$2,232 (1,430)
2006	$2,124 (1,320)	$2,507 (1,472)	$2,012 (1,379)	$2,279 (1,380)	$1,492 (1,129)	$1,772 (1,180)	$1,993 (1,335)	$2,288 (1,420)
2007	$2,174 (1,332)	$2,368 (1,459)	$2,150 (1,385)	$2,249 (1,351)	$1,483 (1,120)	$1,670 (1,271)	$2,045 (1,333)	$2,242 (1,421)
2008	$2,017 (1,312)	$2,404 (1,466)	$2,307 (1,432)	$2,290 (1,311)	$1,590 (1,229)	$1,690 (1,334)	$1,989 (1,343)	$2,236 (1,433)
2009	$2,046 (1,329)	$2,320 (1,438)	$2,156 (1,329)	$2,344 (1,445)	$1,446 (1,153)	$1,794 (1,298)	$1,977 (1,330)	$2,244 (1,432)
2010	$2,126 (1,319)	$2,415 (1,425)	$1,876 (1,236)	$2,152 (1,363)	$1,339 (1,069)	$1,489 (1,146)	$1,915 (1,296)	$2,152 (1,406)
2011	$1,945 (1,294)	$2,455 (1,475)	$2,242 (1,397)	$2,500 (1,392)	$1,320 (1,046)	$1,580 (1,209)	$1,866 (1,316)	$2,272 (1,446)
2012	$2,067 (1,263)	$2,464 (1,414)	$2,044 (1,323)	$2,260 (1,374)	$1,236 (1,019)	$1,518 (1,147)	$1,823 (1,269)	$2,177 (1,395)
2013	$2,010 (1,315)	$2,306 (1,446)	$2,183 (1,355)	$2,352 (1,415)	$1,215 (967)	$1,432 (1,155)	$1,730 (1,271)	$2,018 (1,416)
2014	$1,777 (1,338)	$2,501 (1,491)	$1,449 (1,127)	$2,562 (1,487)	$831 (745)	$1,584 (1,216)	$1,361 (1,193)	$2,223 (1,471)
2015	-- --	$1,883 (1,318)	-- --	$1,674 (1,213)	-- --	$926 (861)	-- --	$1,402 (1,195)
All	$2,009 (1,326)	$2,293 (1,441)	$2,003 (1,316)	$2,193 (1,391)	$1,232 (1,043)	$1,351 (1,158)	$1,788 (1,303)	$1,975 (1,416)

Source: CNA calculations using data provided by the Marine Corps.

[a] Standard deviations are in parentheses.

Table 12. TA cost per Servicemember: All Services[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,223 (1,312)	$2,322 (1,297)	$2,118 (1,218)	$2,132 (1,217)	$1,731 (1,185)	$1,787 (1,203)	$2,093 (1,271)	$2,151 (1,265)
2000	$2,209 (1,300)	$2,294 (1,306)	$2,061 (1,227)	$2,138 (1,255)	$1,668 (1,188)	$1,699 (1,214)	$2,061 (1,270)	$2,135 (1,295)
2001	$2,212 (1,307)	$2,254 (1,299)	$2,082 (1,241)	$2,076 (1,224)	$1,582 (1,174)	$1,697 (1,225)	$2,054 (1,283)	$2,104 (1,282)
2002	$2,215 (1,295)	$2,231 (1,294)	$2,121 (1,265)	$2,083 (1,243)	$1,590 (1,149)	$1,673 (1,196)	$2,061 (1,280)	$2,080 (1,281)
2003	$2,207 (1,300)	$2,222 (1,298)	$2,090 (1,241)	$2,106 (1,269)	$1,589 (1,162)	$1,655 (1,198)	$2,053 (1,280)	$2,091 (1,292)
2004	$2,206 (1,309)	$2,227 (1,301)	$2,088 (1,226)	$2,110 (1,242)	$1,574 (1,134)	$1,635 (1,166)	$2,049 (1,274)	$2,089 (1,283)
2005	$2,181 (1,292)	$2,199 (1,295)	$2,068 (1,248)	$2,026 (1,227)	$1,532 (1,145)	$1,618 (1,164)	$2,013 (1,277)	$2,043 (1,273)
2006	$2,185 (1,297)	$2,203 (1,311)	$2,099 (1,273)	$2,085 (1,240)	$1,572 (1,134)	$1,623 (1,178)	$2,047 (1,283)	$2,063 (1,288)
2007	$2,196 (1,312)	$2,231 (1,343)	$2,162 (1,293)	$2,115 (1,262)	$1,553 (1,149)	$1,591 (1,191)	$2,053 (1,299)	$2,082 (1,320)
2008	$2,158 (1,310)	$2,209 (1,324)	$2,125 (1,278)	$2,113 (1,287)	$1,534 (1,146)	$1,553 (1,164)	$2,015 (1,295)	$2,050 (1,314)
2009	$2,166 (1,299)	$2,171 (1,337)	$2,088 (1,284)	$2,101 (1,269)	$1,558 (1,149)	$1,554 (1,174)	$2,011 (1,287)	$2,032 (1,312)
2010	$2,163 (1,312)	$2,207 (1,323)	$2,127 (1,277)	$2,110 (1,270)	$1,593 (1,158)	$1,556 (1,167)	$2,011 (1,291)	$2,042 (1,311)
2011	$2,131 (1,301)	$2,216 (1,322)	$2,114 (1,281)	$2,152 (1,289)	$1,625 (1,159)	$1,601 (1,188)	$1,997 (1,281)	$2,062 (1,315)
2012	$2,155 (1,280)	$2,174 (1,326)	$2,146 (1,247)	$2,112 (1,275)	$1,675 (1,183)	$1,587 (1,167)	$2,007 (1,264)	$2,001 (1,299)
2013	$2,183 (1,315)	$2,176 (1,307)	$2,301 (1,307)	$2,218 (1,288)	$1,672 (1,180)	$1,616 (1,159)	$2,033 (1,294)	$2,011 (1,286)
2014	$1,746 (1,115)	$2,254 (1,345)	$1,747 (1,144)	$2,284 (1,304)	$1,255 (984)	$1,650 (1,190)	$1,544 (1,100)	$2,072 (1,320)
2015	-- --	$1,769 (1,132)	-- --	$1,780 (1,144)	-- --	$1,223 (960)	-- --	$1,543 (1,103)
All	$2,095 (1,281)	$2,127 (1,297)	$2,063 (1,256)	$2,062 (1,253)	$1,516 (1,129)	$1,490 (1,129)	$1,918 (1,261)	$1,928 (1,275)

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

[a] Standard deviations are in parentheses.

Table 13. MyCAA cost per participant[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
2009	$1,879 (775)	$1,195 (838)	$956 (642)	$1,389 --	$1,170 (815)	$1,227 (549)	$1,410 (847)	$1,218 (710)
2010	$1,785 (929)	$1,496 (775)	$1,468 (1,014)	$1,296 (1,352)	$1,263 (860)	$1,245 (571)	$1,540 (934)	$1,374 (800)
2011	$1,401 (805)	$1,562 (972)	$1,185 (742)	$1,301 (710)	$946 (669)	$1,324 (737)	$1,180 (771)	$1,441 (863)
2012	$1,427 (767)	$1,473 (809)	$1,274 (725)	$1,176 (713)	$1,004 (611)	$1,063 (742)	$1,205 (718)	$1,269 (797)
2013	$1,573 (719)	$1,488 (847)	$1,486 (641)	$1,335 (691)	$1,272 (615)	$1,042 (600)	$1,414 (676)	$1,251 (746)
2014	$2,646 (1,146)	$1,584 (742)	$3,094 (1,291)	$1,419 (678)	$2,057 (1,216)	$1,356 (669)	$2,541 (1,228)	$1,448 (705)
2015	-- --	$2,851 (1,157)	-- --	$2,634 (1,399)	-- --	$2,257 (1,278)	-- --	$2,661 (1,240)
All	$2,450 (1,169)	$2,662 (1,203)	$2,818 (1,368)	$2,315 (1,376)	$1,736 (1,130)	$1,931 (1,213)	$2,257 (1,240)	$2,382 (1,266)

Source: CNA calculations using data provided by VolEd.

a. Standard deviations are in parentheses.

Table 14 through 18 show the total costs per participant, combining TA funding and out-of-pocket costs. Owing to possible data entry error in the raw data, we are more confident in our computation of TA costs than total costs. For example, less than 11 percent of courses in the Army data have different values listed for TA and total costs. Of these, 77 list values that differ by over $10,000, with four values over $100,000, suggesting extremely (and likely inaccurately) high out-of-pocket costs.[14] The cohort-by-year structure of our results may exacerbate the effects of any outliers within a particular cohort-year combination because these effects are distributed over a relatively small number of students. We therefore do not recommend that these data be used to infer out-of-pocket costs and do not provide separate tables for these costs. If measurement error is only in the total cost data (and not in the TA cost data) and is only of the type outlined above, the out-of-pocket costs computed by subtracting TA costs from total costs will be somewhat higher than in reality.

Like TA cost per Servicemember, total cost per Servicemember in 2015 is higher at both types of private institutions than at public institutions, lower for first-year TA users than TA users overall, and higher for members of the 2014 cohort in their second year than for those in their first. Across all Services, on average, TA users paid a total of $1,723 in the public sector, $2,491 in the private not-for-profit sector, and $2,265 in the private for-profit sector (see Table 18). These costs also varied by Service but,

[14] It is impossible to determine whether these costs represent keystroke error, implied or omitted decimal points, or the inclusion of costs other than tuition.

within each Service, they were substantially higher in both private sectors than in the public sector. Total costs per student in 2015 ranged between $2,192 in the Air Force and $2,401 in the Marine Corps in the private for-profit sector, between $2,333 in the Air Force and $2,732 in the Army in the private not-for-profit sector, and between $1,524 in the Marine Corps and $1,801 in the Army in the public sector.[15] Across all reported sectors, total cost per Servicemember ranges from $2,118 in the Navy to $2,222 in the Army, with the average Servicemember paying $2,172.

Average MyCAA costs in 2015 were $2,382 per participant across all reported sectors, with the highest costs in the private-for-profit sector ($2,662) and the lowest cost in the public sector ($1,931) (see Table 19). The per-participant cost differentials across sectors were even starker for MyCAA in 2014, when the average cost per participant, across all cohorts was $2,907 in the private-for-profit sector, $3,046 in the private not-for-profit sector, and $1,779 in the public sector. In that year the average across all cohorts *and* all reported sectors was $2,550.

First-time TA users had lower total costs than TA users overall, though the difference between the two groups varied substantially by Service, sector, and year. Total costs for first-time Army TA users in private not-for-profit institutions were only $17 lower in 2014 than total costs for all Army TA users at those institutions; by contrast, the corresponding difference for Air Force TA users in that sector and year was over $500.[16] These cost differences do not appear to correlate with sector or year; the smallest difference appears in the private for-profit sector in the Navy and Marine Corps but in the public sector for the Air Force. When aggregating the four Services, these differences are more uniform; on average, first-time TA users in 2014 paid $304 less in the public sector, $299 less in the private not-for-profit sector, and $375 less in the private for-profit sector than TA users overall. However, the fact that attrition was highest in the relatively less expensive public sector and lower in the more expensive private sector meant that the average cost across all reported sectors was $403 lower for first-time TA users than for TA users overall.[17] Costs for first-time MyCAA users were *higher* than overall costs at all institution types; this is most likely

[15] Total costs in the private not-for-profit sector in the Army may be inflated by data entry error because the associated variance is much higher than for any of the other sectors or Services. Marine Corps data in this sector may also be inflated, though the discrepancy is not as large.

[16] It seems likely that the $17 difference is driven by some form of measurement error, though this cannot be proved conclusively.

[17] Overall values may also be higher than the average value across sectors (weighted by the number of Servicemembers in each sector) because many Servicemembers are enrolled in multiple sectors during the same year. For example, a student who spent $500 each in the public and private for-profit sectors during a given year would have spent $1,000 overall.

because certification, licenses, and other short-term degree courses represent a large share of MyCAA courses and have high costs over a very short interval.

As with TA cost per participant, total cost per TA user is substantially lower for members of the 2014 cohort in their first year than in their second. This is partly to be expected—it would be curious if a change in TA costs was not accompanied by any change in total costs—though the difference is larger for total cost.[18] The most likely reason for the changes in both TA cost and total cost is that Servicemembers in their second year of TA use took more credits on average than those in their first. The change in total costs is smallest among Army TA users at private not-for-profit institutions (a $409 difference) and largest among Marine Corps TA users at private not-for-profit institutions (a $1,255 difference). Across the four Services, TA costs for students in their first year were $552 lower in the public sector, $646 lower in the private not-for-profit sector, and $551 lower in the private for-profit sector than for students in their second year; across all reported sectors and Services, there is a $643 difference between first-year TA users and other TA users.

Among MyCAA participants, we also observe a decrease in cost per participant from the first to the second year of participation—from a $656 decrease at public institutions to a $1,780 decrease at private not-for-profit institutions. Thus, MyCAA students who choose to enroll for a second year of study are likely to be those in less expensive programs.

[18] If we assume that total costs are accurate, or at least that data entry error is uncorrelated with the year in which a course was taken, this would imply that both TA costs and out-of-pocket costs are higher for students who take a second year of TA benefits than for those who take only one. However, we cannot say for certain if data entry error varies over time, except in the most egregious cases.

Table 14. Total costs per Servicemember: Army[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,372 (1506)	$2,563 (1538)	$2,545 (1866)	$2,546 (1639)	$1,927 (1604)	$2,033 (1773)	$2,343 (1671)	$2,446 (1653)
2000	$2,363 (1427)	$2,493 (1555)	$2,384 (1644)	$2,557 (1776)	$1,749 (1417)	$1,851 (1507)	$2,240 (1514)	$2,384 (1645)
2001	$2,386 (1382)	$2,401 (1444)	$2,492 (2114)	$2,492 (1826)	$1,635 (1415)	$1,826 (1723)	$2,233 (1652)	$2,307 (1667)
2002	$2,401 (1491)	$2,435 (1483)	$2,515 (1799)	$2,571 (2423)	$1,678 (1417)	$1,780 (1702)	$2,265 (1602)	$2,321 (1871)
2003	$2,414 (1505)	$2,468 (1605)	$2,611 (2497)	$2,641 (1968)	$1,771 (1620)	$1,877 (1658)	$2,319 (1873)	$2,392 (1747)
2004	$2,388 (1461)	$2,445 (1505)	$2,623 (2188)	$2,657 (2012)	$1,811 (1560)	$2,011 (2290)	$2,322 (1737)	$2,430 (1921)
2005	$2,369 (1472)	$2,372 (1491)	$2,689 (2754)	$2,612 (2193)	$1,772 (1690)	$1,911 (1955)	$2,291 (1925)	$2,338 (1843)
2006	$2,364 (1465)	$2,401 (1587)	$2,810 (2677)	$2,725 (2537)	$1,861 (1769)	$1,905 (2005)	$2,369 (1933)	$2,385 (2001)
2007	$2,386 (1457)	$2,361 (1426)	$2,690 (2442)	$(2,641 (2138)	$1,804 (1589)	$1,820 (1620)	$2,301 (1767)	$2,305 (1692)
2008	$2,317 (1464)	$2,383 (1416)	$2,641 (2067)	$2,639 (2465)	$1,791 (1561)	$1,694 (1425)	$2,248 (1665)	$2,253 (1732)
2009	$2,354 (1513)	$2,314 (1492)	$2,688 (2400)	$2,495 (2097)	$1,818 (1488)	$1,707 (1462)	$2,264 (1731)	$2,193 (1646)
2010	$2,327 (1501)	$2,326 (1448)	$2,917 (2808)	$2,551 (2107)	$1,920 (1526)	$1,784 (1565)	$2,295 (1817)	$2,215 (1655)
2011	$2,340 (1430)	$2,346 (1372)	$3,083 (3266)	$2,748 (2764)	$2,077 (1725)	$1,914 (1636)	$2,390 (1987)	$2,288 (1800)
2012	$2,373 (1485)	$2,325 (1444)	$3,185 (3060)	$2,790 (2532)	$2,111 (1811)	$1,951 (1718)	$2,418 (2009)	$2,285 (1808)
2013	$2,452 (1574)	$2,368 (1460)	$3,523 (3389)	$3,108 (3033)	$2,105 (1852)	$2,002 (1811)	$2,503 (2186)	$2,372 (2005)
2014	$1,932 (1350)	$2,518 (1670)	$2,872 (3262)	$3,281 (3009)	$1,617 (1601)	$2,056 (2247)	$1,934 (1921)	$2,503 (2263)
2015	-- --	$1,907 (1351)	-- --	$2,582 (2839)	-- --	$1,529 (1603)	-- --	$1,839 (1819)
All	$2,285 (1472)	$2,299 (1484)	$2,889 (2840)	$2,732 (2540)	$1,868 (1680)	$1,801 (1770)	$2,260 (1918)	$2,222 (1878)

Source: CNA calculations using data provided by the Army.

[a] Standard deviations are in parentheses.

Table 15. Total costs per Servicemember: Navy[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,626 (1941)	$2,476 (1648)	$2,609 (1990)	$2,584 (2065)	$2,337 (1940)	$2,211 (1667)	$2,585 (1974)	$2,503 (1853)
2000	$2,583 (1786)	$2,538 (1512)	$2,443 (1884)	$2,590 (2010)	$2,148 (1854)	$1,957 (1497)	$2,444 (1855)	$2,419 (1742)
2001	$2,640 (1751)	$2,447 (1419)	$2,513 (2056)	$2,382 (1573)	$2,000 (1893)	$2,126 (1955)	$2,459 (1941)	$2,373 (1649)
2002	$2,593 (1699)	$2,377 (1583)	$2,644 (2775)	$2,614 (2627)	$2,080 (1923)	$2,058 (1717)	$2,479 (2216)	$2,396 (2094)
2003	$2,597 (1874)	$2,415 (1629)	$2,439 (1810)	$2,414 (2356)	$1,914 (1479)	$1,968 (1547)	$2,390 (1774)	$2,329 (1957)
2004	$2,473 (1745)	$2,319 (1440)	$2,366 (1594)	$2,275 (1450)	$1,835 (1402)	$1,875 (1918)	$2,288 (1628)	$2,205 (1624)
2005	$2,556 (1654)	$2,325 (1561)	$2,300 (1654)	$2,307 (1985)	$1,780 (1429)	$1,883 (1571)	$2,265 (1633)	$2,224 (1752)
2006	$2,406 (1460)	$2,428 (1540)	$2,431 (1862)	$2,490 (2312)	$1,759 (1412)	$1,848 (1361)	$2,266 (1633)	$2,309 (1846)
2007	$2,424 (1457)	$2,293 (1411)	$2,394 (1637)	$2,365 (1865)	$1,812 (1553)	$1,794 (1492)	$2,253 (1583)	$2,201 (1646)
2008	$2,381 (1492)	$2,220 (1374)	$2,381 (1932)	$2,330 (1784)	$1,658 (1461)	$1,680 (1319)	$2,170 (1687)	$2,111 (1552)
2009	$2,395 (1468)	$2,244 (1488)	$2,380 (1774)	$2,437 (2194)	$1,775 (1357)	$1,805 (1564)	$2,236 (1574)	$2,240 (1826)
2010	$2,455 (1637)	$2,323 (1337)	$2,368 (1530)	$2,463 (2154)	$1,721 (1521)	$1,678 (1342)	$2,228 (1623)	$2,183 (1676)
2011	$2,330 (1398)	$2,338 (1478)	$2,325 (1490)	$2,408 (1523)	$1,753 (1307)	$1,817 (1409)	$2,169 (1433)	$2,254 (1508)
2012	$2,505 (1584)	$2,287 (1371)	$2,452 (1861)	$2,301 (1621)	$1,795 (1331)	$1,736 (1347)	$2,256 (1620)	$2,130 (1479)
2013	$2,581 (1721)	$2,412 (1388)	$2,717 (2568)	$2,465 (1695)	$1,933 (1594)	$1,794 (1309)	$2,379 (2010)	$2,217 (1509)
2014	$2,067 (1391)	$2,500 (1576)	$2,075 (1871)	$2,682 (2147)	$1,428 (1270)	$1,959 (1652)	$1,789 (1543)	$2,375 (1862)
2015	-- --	$2,106 (1301)	-- --	$2,082 (1648)	-- --	$1,470 (1284)	-- --	$1,836 (1454)
All	$2,403 (1587)	$2,294 (1434)	$2,370 (1959)	$2,340 (1883)	$1,713 (1456)	$1,703 (1441)	$2,165 (1711)	$2,118 (1641)

Source: CNA calculations using data provided by the Navy.

[a] Standard deviations are in parentheses.

Table 16. Total costs per Servicemember: Air Force[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	$2,423 (1,843)	$2,412 (1,410)	$2,659 (2,109)	$2,444 (1,702)	$2,347 (1,650)	$2,336 (2,090)	$2,534 (1,889)	$2,449 (1,695)
2000	$2,493 (1,698)	$2,633 (1,861)	$2,481 (1,650)	$2,474 (1,879)	$2,171 (1,812)	$2,412 (2,017)	$2,467 (1,722)	$2,588 (1,920)
2001	$2,352 (1,549)	$2,478 (1,674)	$2,600 (1,799)	$2,496 (1,769)	$2,083 (1,801)	$2,274 (2,229)	$2,429 (1,708)	$2,494 (1,842)
2002	$2,360 (1,614)	$2,418 (1,700)	$2,509 (1,867)	$2,413 (1,718)	$2,026 (1,816)	$2,273 (1,936)	$2,384 (1,753)	$2,437 (1,767)
2003	$2,373 (1,624)	$2,412 (1,753)	$2,445 (1,766)	$2,485 (1,903)	$1,872 (1,868)	$1,918 (1,561)	$2,341 (1,738)	$2,390 (1,785)
2004	$2,346 (1,639)	$2,326 (1,542)	$2,437 (2,212)	$2,501 (1,912)	$1,887 (1,807)	$1,989 (1,747)	$2,327 (1,875)	$2,369 (1,721)
2005	$2,274 (1,587)	$2,337 (1,599)	$2,364 (1,758)	$2,242 (1,709)	$1,740 (1,584)	$1,837 (1,543)	$2,241 (1,666)	$2,262 (1,638)
2006	$2,254 (1,499)	$2,282 (1,562)	$2,252 (1,630)	$2,260 (1,808)	$1,705 (1,536)	$1,812 (1,734)	$2,194 (1,579)	$2,235 (1,689)
2007	$2,277 (1,643)	$2,355 (1,627)	$2,492 (1,977)	$2,336 (1,718)	$1,668 (1,614)	$1,822 (1,797)	$2,265 (1,772)	$2,310 (1,720)
2008	$2,264 (1,580)	$2,275 (1,598)	$2,350 (1,871)	$2,340 (1,717)	$1,614 (1,512)	$1,770 (1,626)	$2,204 (1,683)	$2,252 (1,661)
2009	$2,242 (1,527)	$2,264 (1,556)	$2,295 (1,743)	$2,334 (1,898)	$1,556 (1,393)	$1,657 (1,497)	$2,158 (1,595)	$2,216 (1,665)
2010	$2,231 (1,525)	$2,270 (1,532)	$2,336 (1,771)	$2,320 (1,737)	$1,534 (1,478)	$1,666 (1,522)	$2,151 (1,625)	$2,228 (1,619)
2011	$2,152 (1,447)	$2,246 (1,510)	$2,288 (1,686)	$2,273 (1,777)	$1,502 (1,457)	$1,601 (1,520)	$2,078 (1,557)	$2,180 (1,623)
2012	$2,207 (1,522)	$2,186 (1,486)	$2,466 (2,160)	$2,380 (2,011)	$1,757 (1,821)	$1,634 (1,549)	$2,202 (1,821)	$2,152 (1,679)
2013	$2,240 (1,632)	$2,181 (1,463)	$2,745 (2,482)	$2,567 (2,114)	$1,847 (2,201)	$1,810 (1,915)	$2,318 (2,127)	$2,224 (1,820)
2014	$1,700 (1,231)	$2,251 (1,596)	$1,819 (1,676)	$2,642 (2,614)	$1,217 (1,437)	$1,945 (2,258)	$1,567 (1,476)	$2,323 (2,153)
2015	-- --	$1,687 (1,203)	-- --	$1,896 (2,008)	-- --	$1,183 (1,297)	-- --	$1,565 (1,500)
All	$2,173 (1,534)	$2,192 (1,538)	$2,338 (1,942)	$2,333 (2,002)	$1,591 (1,705)	$1,643 (1,731)	$2,107 (1,741)	$2,133 (1,757)

Source: CNA calculations using data provided by the Air Force.

[a] Standard deviations are in parentheses.

Table 17. Total costs per Servicemember: Marine Corps[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,568 (1521)	$2,746 (1620)	$2,837 (2201)	$3,074 (2615)	$2,023 (1434)	$2,458 (1990)	$2,527 (1756)	$2,824 (2083)
2000	$2,347 (1754)	$2,605 (1697)	$2,506 (1758)	$2,744 (1766)	$1,913 (1586)	$2,169 (2013)	$2,308 (1725)	$2,581 (1830)
2001	$2,181 (1584)	$2,638 (1934)	$2,241 (1701)	$2,987 (2462)	$1,723 (1373)	$2,365 (2495)	$2,119 (1583)	$2,733 (2280)
2002	$2,338 (1444)	$2,519 (1520)	$2,852 (2265)	$2,677 (2694)	$1,948 (1716)	$2,178 (1362)	$2,445 (1842)	$2,542 (2009)
2003	$2,139 (1408)	$2,431 (1548)	$2,538 (1899)	$2,636 (1900)	$2,111 (1902)	$2,138 (1890)	$2,282 (1727)	$2,476 (1786)
2004	$2,255 (1490)	$2,642 (1704)	$2,386 (2127)	$2,884 (2445)	$1,672 (1446)	$2,032 (1608)	$2,178 (1724)	$2,585 (1971)
2005	$2,237 (1706)	$2,480 (1529)	$2,564 (1939)	$2,869 (2071)	$1,749 (1868)	$1,889 (1762)	$2,256 (1832)	$2,483 (1800)
2006	$2,226 (1480)	$2,608 (1514)	$2,290 (1601)	$2,799 (3374)	$1,722 (1433)	$2,051 (1692)	$2,175 (1551)	$2,555 (2253)
2007	$2,316 (1511)	$2,462 (1537)	$2,277 (1488)	$2,485 (1677)	$1,607 (1269)	$1,967 (1714)	$2,181 (1485)	$2,419 (1627)
2008	$2,136 (1511)	$2,502 (1526)	$2,384 (1459)	$2,460 (1456)	$1,693 (1330)	$1,838 (1524)	$2,096 (1477)	$2,369 (1545)
2009	$2,105 (1366)	$2,417 (1522)	$2,409 (1841)	$2,740 (2161)	$1,676 (1878)	$2,029 (1776)	$2,113 (1611)	$2,436 (1750)
2010	$2,185 (1403)	$2,538 (1603)	$1,999 (1329)	$2,358 (1693)	$1,432 (1226)	$1,638 (1373)	$1,995 (1397)	$2,302 (1631)
2011	$2,017 (1369)	$2,539 (1565)	$2,369 (1446)	$2,767 (2075)	$1,450 (1296)	$1,741 (1638)	$1,965 (1421)	$2,421 (1765)
2012	$2,131 (1334)	$2,540 (1455)	$2,242 (1577)	$2,407 (1565)	$1,315 (1113)	$1,628 (1331)	$1,919 (1386)	$2,281 (1499)
2013	$2,106 (1448)	$2,375 (1484)	$2,531 (2315)	$2,601 (1867)	$1,319 (1218)	$1,550 (1341)	$1,881 (1664)	$2,146 (1602)
2014	$1,865 (1447)	$2,600 (1625)	$1,857 (2526)	$3,112 (2846)	$939 (1196)	$1,835 (1891)	$1,515 (1685)	$2,480 (2107)
2015	-- --	$1,988 (1499)	-- --	$1,976 (2339)	-- --	$1,037 (1216)	-- --	$1,551 (1670)
All	$2,111 (1462)	$2,401 (1565)	$2,320 (2019)	$2,537 (2271)	$1,369 (1370)	$1,524 (1559)	$1,950 (1633)	$2,164 (1823)

Source: CNA calculations using data provided by the Marine Corps.

a. Standard deviations are in parentheses.

Table 18. Total costs per Servicemember: All Services[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	$2,446 (1,629)	$2,560 (1,554)	$2,606 (1,962)	$2,614 (1,907)	$2,065 (1,679)	$2,152 (1,815)	$2,434 (1,772)	$2,508 (1,763)
2000	$2,435 (1,598)	$2,554 (1,673)	$2,439 (1,706)	$2,556 (1,851)	$1,937 (1,628)	$2,016 (1,685)	$2,350 (1,660)	$2,466 (1,762)
2001	$2,383 (1,511)	$2,454 (1,583)	$2,535 (1,940)	$2,503 (1,808)	$1,849 (1,640)	$2,047 (1,996)	$2,343 (1,715)	$2,418 (1,783)
2002	$2,401 (1,557)	$2,428 (1,578)	$2,552 (2,031)	$2,534 (2,275)	$1,848 (1,642)	$1,969 (1,761)	$2,343 (1,759)	$2,382 (1,877)
2003	$2,402 (1,587)	$2,440 (1,663)	$2,515 (2,100)	$2,549 (2,011)	$1,839 (1,694)	$1,918 (1,635)	$2,334 (1,806)	$2,389 (1,788)
2004	$2,375 (1,570)	$2,392 (1,525)	$2,490 (2,096)	$2,542 (1,916)	$1,832 (1,612)	$1,983 (2,048)	$2,312 (1,773)	$2,384 (1,814)
2005	$2,348 (1,555)	$2,359 (1,544)	$2,473 (2,149)	$2,430 (1,989)	$1,763 (1,621)	$1,885 (1,769)	$2,267 (1,785)	$2,301 (1,757)
2006	$2,320 (1,479)	$2,371 (1,569)	$2,493 (2,117)	$2,518 (2,337)	$1,787 (1,618)	$1,877 (1,792)	$2,279 (1,743)	$2,331 (1,891)
2007	$2,342 (1,539)	$2,357 (1,517)	$2,519 (2,043)	$2,454 (1,907)	$1,757 (1,577)	$1,822 (1,648)	$2,272 (1,722)	$2,294 (1,690)
2008	$2,290 (1,519)	$2,330 (1,501)	$2,461 (1,940)	$2,451 (2,015)	$1,710 (1,522)	$1,721 (1,471)	$2,212 (1,665)	$2,240 (1,671)
2009	$2,301 (1,506)	$2,295 (1,518)	$2,463 (2,027)	$2,440 (2,062)	$1,737 (1,463)	$1,727 (1,507)	$2,217 (1,658)	$2,223 (1,689)
2010	$2,295 (1,519)	$2,316 (1,482)	$2,549 (2,202)	$2,438 (1,967)	$1,778 (1,514)	$1,732 (1,517)	$2,225 (1,716)	$2,220 (1,644)
2011	$2,245 (1,434)	$2,318 (1,451)	$2,611 (2,436)	$2,509 (2,194)	$1,862 (1,618)	$1,809 (1,583)	$2,236 (1,770)	$2,255 (1,707)
2012	$2,306 (1,503)	$2,281 (1,459)	$2,730 (2,507)	$2,521 (2,148)	$1,941 (1,746)	$1,818 (1,616)	$2,298 (1,876)	$2,220 (1,710)
2013	$2,367 (1,610)	$2,300 (1,459)	$3,017 (2,890)	$2,733 (2,397)	$1,964 (1,883)	$1,882 (1,749)	$2,387 (2,116)	$2,282 (1,850)
2014	$1,871 (1,332)	$2,421 (1,634)	$2,247 (2,460)	$2,894 (2,672)	$1,439 (1,496)	$1,991 (2,126)	$1,775 (1,729)	$2,418 (2,150)
2015	-- --	$1,878 (1,319)	-- --	$2,177 (2,234)	-- --	$1,394 (1,445)	-- --	$1,743 (1,652)
All	$2,246 (1,509)	$2,265 (1,506)	$2,546 (2,334)	$2,491 (2,209)	$1,744 (1,645)	$1,723 (1,691)	$2,178 (1,817)	$2,172 (1,798)

Source: CNA calculations using data provided by all four Services.

[a.] Standard deviations are in parentheses.

Table 19. Total costs per participant: MyCAA[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
2009	$1,992 (905)	$1,783 (1623)	$997 (614)	$1,500 --	$1,356 (1138)	$1,248 (582)	$1,544 (1030)	$1,610 (1327)
2010	$1,920 (1083)	$1,627 (891)	$1,541 (1141)	$1,816 (2581)	$1,407 (1013)	$1,285 (598)	$1,673 (1079)	$1,520 (1155)
2011	$1,797 (2085)	$1,892 (1378)	$1,408 (992)	$1,383 (786)	$1,007 (723)	$1,410 (828)	$1,411 (1580)	$1,649 (1154)
2012	$1,752 (1828)	$1,958 (2247)	$1,370 (811)	$1,250 (696)	$1,081 (757)	$1,181 (1016)	$1,386 (1351)	$1,557 (1738)
2013	$1,869 (1474)	$1,825 (1708)	$1,669 (875)	$1,403 (757)	$1,328 (728)	$1,122 (723)	$1,573 (1125)	$1,432 (1258)
2014	$3,133 (4630)	$1,866 (1328)	$3,337 (8495)	$1,557 (838)	$2,088 (1243)	$1,432 (844)	$2,871 (4714)	$1,599 (1053)
2015	-- --	$3,184 (2423)	-- --	$2,756 (1784)	-- --	$2,335 (1464)	-- --	$2,900 (2159)
All	$2,907 (4295)	$2,994 (2367)	$3,046 (7814)	$2,437 (1697)	$1,779 (1169)	$2,009 (1378)	$2,550 (4208)	$2,607 (2067)

Source: CNA calculations using data provided by VolEd.

a. Standard deviations are in parentheses.

Top-Up beneficiaries and average payment amounts

As Tables 8-12 and 14-18 show, the average total tuition costs per participant always exceed the average amount of TA used per participant across sectors. This indicates that, in some cases, the total cost of enrolling in certain courses exceeds the amount of TA that a Servicemember is using. Therefore, some Servicemembers opt to use the Top-Up program, which allows them to use their Post-9/11 GI Bill and Montgomery GI Bill-Active Duty (MGIB-AD) benefits early to pay for tuition and fees that exceed TA maximums for up to 36 months. The number of unique beneficiaries using Top-Up and the average Top-Up payments were only available for those using the MGIB-AD and not the Post-9/11 GI Bill, as of February 3, 2016, when the most recent aggregate Top-Up statistics were reported by the Department of Veterans Affairs (VA) [9]. In FY 2014, there were 3,249 unique MGIB-AD Top-Up beneficiaries (1.2 percent of all TA users) averaging $1,975 in Top-Up payments each.[19] In FY 2015, there were 2,526 unique MGIB-AD Top-Up beneficiaries (1 percent of all TA users) averaging $2,028 in Top-Up payments each. There are several potential explanations for why the Top-Up participation rate is so low. First, it could be that, for most TA users, the $250 per-semester-hour maximum is enough to cover their required course tuition. In some

[19] FY for Top-Up data begins October 1.

cases, educational institutions may forgo all costs that exceed the cap of $250 per semester credit hour. Another reason for the low Top-Up utilization rates may be that, each time Servicemembers use Top-Up, they are depleting their future GI Bill benefits by the amount of Top-Up that they choose to use, so most Servicemembers prefer not to tap into this future benefit if they are planning to use their GI Bill benefits or transfer them to a dependent (in the case of the Post-9/11 GI Bill).[20] Finally, it could be that many Servicemembers are not aware of the Top-Up benefit, so they do not know that they can enroll in the program.

Course and credit enrollment

There are two main reasons why course and credit enrollment are outcomes of interest. First, they provide additional context for the variation in costs across Services, sectors, and years; higher costs are justified if they support additional learning. Second, they provide some indication of how Servicemembers are progressing toward a degree.

Table 20 through 24 show the average number of courses per participant. These are equal to the average number of observations for each student in each Service's course data file. As such, this variable is not vulnerable to data entry error in the same way that other variables are. Any measurement error would instead come from having multiple listings per course.[21]

In 2015, Servicemembers in all four Services took fewer courses in public institutions than in either type of private institution; it is not immediately clear why this would be the case, unless Servicemembers at public institutions are attempting different programs of study than those at private institutions. It also could be due to the July 2014 policy change in which fees were no longer covered by TA—if public institutions have higher fees than private institutions, this could explain the relative decrease in courses taken at public institutions. Averaging across Services, TA users took 2.64 courses in public institutions, 2.84 in private not-for-profit institutions, and 2.83 in private for-profit institutions; across all reported sectors, the average TA user took 2.82 courses overall (see Table 24). Soldiers took an average of 2.89 courses in private

[20] Although it is reasonable to expect Servicemembers who are planning to use or transfer their GI Bill benefits to forgo using Top-Up, we do not have data against which to test this hypothesis. We are therefore unable to report on the *extent* to which such decisions affect the use of Top-Up or other TA-related outcomes.

[21] Although the data-cleaning process corrects for multiple course grades and end dates (assuming all other variables are identical), it does not correct for such factors as multiple listed costs or courses appearing in multiple departments. It is likely that some of these cases are duplicates and do not truly reflect multiple courses, but it is also likely that many are indeed distinct courses. Without a way of determining which the case is, we have opted to leave such courses in the data. As a result, the number of courses taken is likely to be biased slightly upwards.

for-profit institutions, 2.96 courses in private not-for-profit institutions, and 2.81 courses in public institutions (see Table 20). Sailors took an average of 2.83 courses in private for-profit institutions, 2.85 courses in private not-for profit institutions, and 2.64 courses in public institutions (see Table 21). Airmen took the fewest courses in private institutions: 2.72 in private for-profit institutions and 2.66 in not-for-profit institutions (see Table 22). They also took 2.41 courses in public institutions, the second fewest of all the Services. Marines took the most courses in private institutions: 2.98 in for-profit institutions and 3.01 in not-for-profit institutions (see Table 23). However, they took the fewest in public institutions, at only 2.36. MyCAA participants, in contrast, took substantially more courses in public institutions than in private ones: 1.60 in for-profit institutions, 1.54 in not-for-profit institutions, and 2.77 in public institutions (see Table 25).

Table 20. Courses per Servicemember: Army[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	2.88 (1.62)	3.11 (1.67)	2.89 (1.56)	2.93 (1.61)	2.67 (1.63)	2.71 (1.60)	2.88 (1.62)	2.99 (1.65)
2000	2.95 (1.63)	3.05 (1.66)	2.87 (1.57)	2.98 (1.67)	2.64 (1.55)	2.64 (1.63)	2.91 (1.61)	2.98 (1.67)
2001	3.04 (1.68)	3.01 (1.66)	2.88 (1.58)	2.91 (1.65)	2.54 (1.62)	2.61 (1.64)	2.92 (1.67)	2.93 (1.67)
2002	2.98 (1.63)	3.01 (1.68)	2.94 (1.60)	2.93 (1.66)	2.61 (1.56)	2.64 (1.68)	2.92 (1.62)	2.93 (1.69)
2003	2.97 (1.66)	3.03 (1.68)	2.92 (1.57)	2.96 (1.65)	2.65 (1.59)	2.66 (1.65)	2.92 (1.64)	2.97 (1.68)
2004	2.96 (1.62)	3.01 (1.65)	2.94 (1.58)	2.93 (1.65)	2.70 (1.61)	2.76 (1.67)	2.94 (1.63)	2.98 (1.68)
2005	2.95 (1.62)	2.98 (1.67)	2.97 (1.67)	2.90 (1.60)	2.66 (1.63)	2.73 (1.66)	2.91 (1.66)	2.94 (1.67)
2006	2.96 (1.63)	2.95 (1.69)	3.02 (1.64)	2.96 (1.66)	2.82 (1.67)	2.73 (1.67)	3.00 (1.66)	2.95 (1.69)
2007	3.01 (1.67)	3.02 (1.71)	3.01 (1.63)	3.01 (1.66)	2.83 (1.68)	2.79 (1.67)	3.01 (1.67)	3.02 (1.71)
2008	2.93 (1.72)	3.03 (1.68)	3.05 (1.64)	3.02 (1.69)	2.88 (1.72)	2.70 (1.64)	3.00 (1.72)	2.98 (1.69)
2009	2.94 (1.63)	2.95 (1.69)	2.95 (1.61)	2.92 (1.66)	2.97 (1.76)	2.79 (1.71)	3.02 (1.69)	2.95 (1.70)
2010	2.93 (1.67)	2.96 (1.66)	3.16 (1.67)	3.02 (1.71)	3.18 (1.77)	2.88 (1.71)	3.12 (1.72)	3.00 (1.70)
2011	2.98 (1.66)	3.01 (1.67)	3.13 (1.68)	3.02 (1.64)	3.30 (1.84)	2.99 (1.79)	3.21 (1.76)	3.06 (1.72)
2012	2.98 (1.64)	2.96 (1.65)	3.28 (1.70)	3.05 (1.68)	3.47 (1.84)	3.05 (1.78)	3.31 (1.77)	3.07 (1.73)
2013	3.05 (1.71)	2.99 (1.66)	3.45 (1.75)	3.18 (1.67)	3.46 (1.84)	3.11 (1.78)	3.38 (1.80)	3.13 (1.73)
2014	2.46 (1.53)	3.11 (1.74)	2.78 (1.66)	3.29 (1.72)	2.78 (1.73)	3.13 (1.79)	2.69 (1.67)	3.20 (1.76)
2015	-- --	2.43 (1.50)	-- --	2.63 (1.61)	-- --	2.53 (1.62)	-- --	2.53 (1.59)
All	2.87 (1.65)	2.89 (1.66)	3.04 (1.67)	2.96 (1.67)	3.05 (1.78)	2.81 (1.72)	3.02 (1.72)	2.92 (1.70)

Source: CNA calculations using data provided by the Army.

[a] Standard deviations are in parentheses.

Table 21. Courses per Servicemember: Navy[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	2.96 (1.79)	2.83 (1.61)	2.82 (1.57)	2.79 (1.65)	2.74 (1.70)	2.66 (1.51)	2.90 (1.70)	2.83 (1.61)
2000	2.91 (1.58)	2.97 (1.70)	2.89 (1.72)	2.99 (1.76)	2.73 (1.72)	2.58 (1.55)	2.90 (1.67)	2.90 (1.70)
2001	3.10 (1.77)	2.95 (1.63)	2.95 (1.75)	2.80 (1.63)	2.58 (1.52)	2.61 (1.54)	2.95 (1.71)	2.85 (1.62)
2002	2.97 (1.63)	2.80 (1.62)	2.87 (1.77)	2.83 (1.69)	2.69 (1.64)	2.67 (1.67)	2.89 (1.69)	2.81 (1.67)
2003	2.95 (1.70)	2.82 (1.62)	2.90 (1.71)	2.77 (1.72)	2.68 (1.54)	2.67 (1.68)	2.91 (1.67)	2.80 (1.70)
2004	2.99 (1.77)	2.83 (1.64)	2.96 (1.71)	2.78 (1.61)	2.65 (1.61)	2.52 (1.56)	2.93 (1.72)	2.76 (1.62)
2005	3.06 (1.71)	2.88 (1.69)	2.82 (1.67)	2.73 (1.70)	2.61 (1.64)	2.59 (1.63)	2.89 (1.70)	2.79 (1.69)
2006	2.96 (1.68)	2.92 (1.65)	3.02 (1.79)	2.92 (1.73)	2.61 (1.55)	2.66 (1.62)	2.94 (1.70)	2.89 (1.68)
2007	3.00 (1.70)	2.84 (1.68)	3.03 (1.79)	2.87 (1.73)	2.69 (1.66)	2.60 (1.63)	2.97 (1.73)	2.83 (1.70)
2008	2.97 (1.69)	2.78 (1.65)	2.97 (1.75)	2.84 (1.70)	2.62 (1.58)	2.65 (1.64)	2.92 (1.71)	2.81 (1.68)
2009	2.98 (1.68)	2.77 (1.70)	3.06 (1.84)	2.98 (1.69)	2.78 (1.64)	2.66 (1.68)	3.02 (1.74)	2.90 (1.72)
2010	3.05 (1.79)	2.94 (1.67)	3.01 (1.68)	2.97 (1.72)	2.68 (1.65)	2.62 (1.68)	2.98 (1.75)	2.89 (1.71)
2011	2.98 (1.75)	2.93 (1.65)	3.01 (1.75)	3.05 (1.76)	2.77 (1.67)	2.74 (1.68)	2.99 (1.75)	3.00 (1.73)
2012	3.12 (1.76)	2.89 (1.67)	3.03 (1.70)	2.94 (1.69)	2.88 (1.65)	2.74 (1.66)	3.07 (1.71)	2.92 (1.69)
2013	3.14 (1.77)	3.00 (1.67)	3.28 (1.88)	3.08 (1.70)	3.07 (1.76)	2.81 (1.60)	3.22 (1.81)	3.00 (1.67)
2014	2.58 (1.54)	3.07 (1.75)	2.60 (1.57)	3.26 (1.78)	2.39 (1.46)	3.05 (1.70)	2.53 (1.53)	3.19 (1.76)
2015	-- --	2.63 (1.51)	-- --	2.60 (1.54)	-- --	2.45 (1.47)	-- --	2.58 (1.51)
All	2.94 (1.70)	2.83 (1.64)	2.92 (1.73)	2.85 (1.68)	2.67 (1.62)	2.64 (1.59)	2.89 (1.70)	2.82 (1.65)

Source: CNA calculations using data provided by the Navy.

[a] Standard deviations are in parentheses.

Table 22. Courses per Servicemember: Air Force[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	2.81 (1.75)	2.97 (1.78)	2.73 (1.81)	2.51 (1.51)	2.63 (1.55)	2.64 (2.28)	2.81 (1.73)	2.80 (1.85)
2000	2.88 (1.79)	3.02 (1.84)	2.77 (1.78)	2.72 (1.68)	2.85 (2.37)	3.11 (2.76)	2.89 (1.93)	2.99 (2.04)
2001	2.80 (1.71)	2.93 (1.74)	2.85 (1.77)	2.70 (1.66)	2.74 (2.24)	2.78 (2.32)	2.87 (1.87)	2.88 (1.86)
2002	2.85 (1.78)	2.89 (1.78)	2.81 (1.77)	2.68 (1.73)	2.67 (2.20)	2.81 (2.27)	2.85 (1.88)	2.87 (1.89)
2003	2.90 (1.79)	2.91 (1.80)	2.79 (1.80)	2.74 (1.74)	2.63 (2.17)	2.68 (2.09)	2.87 (1.89)	2.88 (1.87)
2004	2.89 (1.81)	2.87 (1.76)	2.79 (1.76)	2.80 (1.75)	2.49 (1.90)	2.54 (1.98)	2.84 (1.83)	2.86 (1.83)
2005	2.80 (1.76)	2.86 (1.76)	2.74 (1.79)	2.57 (1.70)	2.54 (2.01)	2.54 (1.94)	2.80 (1.85)	2.78 (1.80)
2006	2.82 (1.80)	2.82 (1.81)	2.66 (1.74)	2.61 (1.69)	2.45 (1.91)	2.53 (2.19)	2.78 (1.84)	2.78 (1.90)
2007	2.82 (1.83)	2.93 (1.88)	2.91 (1.86)	2.75 (1.79)	2.51 (2.04)	2.53 (2.02)	2.86 (1.92)	2.89 (1.94)
2008	2.81 (1.81)	2.83 (1.81)	2.80 (1.86)	2.78 (1.83)	2.47 (1.93)	2.64 (2.18)	2.82 (1.88)	2.86 (1.93)
2009	2.81 (1.84)	2.83 (1.86)	2.71 (1.83)	2.72 (1.80)	2.40 (1.81)	2.43 (1.93)	2.78 (1.86)	2.81 (1.89)
2010	2.78 (1.84)	2.87 (1.86)	2.78 (1.87)	2.78 (1.85)	2.41 (1.89)	2.55 (2.10)	2.78 (1.89)	2.89 (1.95)
2011	2.66 (1.77)	2.82 (1.83)	2.75 (1.91)	2.75 (1.85)	2.30 (1.72)	2.45 (2.03)	2.68 (1.84)	2.83 (1.93)
2012	2.68 (1.73)	2.74 (1.84)	2.73 (1.80)	2.73 (1.87)	2.50 (1.79)	2.44 (1.84)	2.73 (1.80)	2.76 (1.89)
2013	2.69 (1.76)	2.72 (1.77)	2.96 (1.88)	2.87 (1.87)	2.66 (1.89)	2.60 (1.94)	2.86 (1.88)	2.81 (1.89)
2014	2.09 (1.37)	2.78 (1.82)	2.11 (1.49)	2.89 (1.91)	1.93 (1.43)	2.74 (2.03)	2.09 (1.46)	2.91 (1.96)
2015	-- --	2.13 (1.42)	-- --	2.18 (1.55)	-- --	1.94 (1.51)	-- --	2.12 (1.52)
All	2.66 (1.75)	2.72 (1.78)	2.67 (1.79)	2.66 (1.78)	2.35 (1.81)	2.41 (1.92)	2.66 (1.81)	2.70 (1.86)

Source: CNA calculations using data provided by the Air Force.

[a] Standard deviations are in parentheses.

Table 23. Courses per Servicemember: Marine Corps[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	3.20 (1.87)	3.41 (2.05)	3.14 (1.99)	3.26 (2.27)	2.88 (1.96)	3.03 (1.89)	3.13 (1.93)	3.33 (2.08)
2000	2.77 (1.71)	3.18 (1.95)	2.87 (1.69)	3.33 (1.97)	2.61 (1.68)	2.77 (1.90)	2.79 (1.70)	3.18 (1.96)
2001	2.58 (1.74)	3.17 (1.87)	2.60 (1.47)	3.37 (1.83)	2.52 (1.61)	3.07 (2.09)	2.63 (1.64)	3.28 (1.95)
2002	2.87 (1.74)	3.19 (1.83)	3.16 (1.70)	3.05 (1.89)	2.69 (1.71)	2.84 (1.69)	2.96 (1.74)	3.12 (1.83)
2003	2.66 (1.65)	3.04 (1.93)	2.89 (1.67)	3.16 (1.83)	2.76 (1.86)	2.84 (1.92)	2.80 (1.75)	3.10 (1.91)
2004	2.79 (1.75)	3.31 (1.99)	2.61 (1.57)	3.21 (1.88)	2.42 (1.53)	2.81 (1.65)	2.67 (1.65)	3.19 (1.89)
2005	2.70 (1.74)	3.12 (1.90)	3.05 (1.83)	3.33 (1.90)	2.51 (1.81)	2.65 (1.78)	2.80 (1.79)	3.11 (1.89)
2006	2.78 (1.71)	3.34 (1.95)	2.74 (1.84)	3.07 (1.89)	2.60 (1.70)	2.86 (1.66)	2.79 (1.78)	3.19 (1.88)
2007	2.82 (1.71)	3.09 (1.92)	2.98 (1.90)	3.09 (1.84)	2.49 (1.69)	2.67 (1.75)	2.82 (1.76)	3.07 (1.88)
2008	2.67 (1.72)	3.21 (1.96)	3.21 (1.98)	3.14 (1.80)	2.68 (1.83)	2.76 (1.97)	2.81 (1.82)	3.14 (1.94)
2009	2.69 (1.73)	3.05 (1.87)	2.95 (1.80)	3.12 (1.93)	2.64 (1.78)	2.98 (1.90)	2.78 (1.76)	3.09 (1.90)
2010	2.79 (1.74)	3.21 (1.88)	2.58 (1.67)	2.98 (1.88)	2.44 (1.68)	2.61 (1.70)	2.70 (1.73)	3.05 (1.86)
2011	2.54 (1.68)	3.25 (2.00)	3.09 (1.92)	3.42 (1.88)	2.27 (1.48)	2.71 (1.80)	2.61 (1.72)	3.20 (1.95)
2012	2.72 (1.66)	3.26 (1.88)	2.85 (1.87)	3.12 (1.90)	2.34 (1.63)	2.55 (1.70)	2.66 (1.72)	3.08 (1.87)
2013	2.63 (1.71)	3.02 (1.89)	3.03 (1.90)	3.22 (1.94)	2.37 (1.58)	2.52 (1.69)	2.64 (1.72)	2.93 (1.86)
2014	1.91 (1.45)	3.30 (1.95)	2.03 (1.56)	3.51 (2.03)	1.68 (1.18)	2.93 (1.78)	1.86 (1.40)	3.26 (1.92)
2015	-- --	2.27 (1.63)	-- --	2.34 (1.67)	-- --	1.78 (1.33)	-- --	2.08 (1.54)
All	2.55 (1.70)	2.98 (1.90)	2.76 (1.81)	3.01 (1.90)	2.25 (1.59)	2.36 (1.69)	2.54 (1.71)	2.82 (1.87)

Source: CNA calculations using data provided by the Marine Corps.

[a] Standard deviations are in parentheses.

Table 24. Courses per Servicemember: All Services[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	2.93 (1.70)	3.10 (1.74)	2.89 (1.64)	2.90 (1.72)	2.71 (1.68)	2.74 (1.69)	2.91 (1.69)	2.99 (1.73)
2000	2.91 (1.69)	3.04 (1.75)	2.84 (1.68)	2.94 (1.73)	2.70 (1.82)	2.74 (1.93)	2.89 (1.73)	2.99 (1.82)
2001	2.91 (1.71)	2.98 (1.71)	2.86 (1.70)	2.83 (1.67)	2.62 (1.86)	2.69 (1.91)	2.89 (1.77)	2.92 (1.77)
2002	2.92 (1.69)	2.96 (1.72)	2.89 (1.70)	2.84 (1.71)	2.64 (1.78)	2.70 (1.84)	2.89 (1.73)	2.91 (1.77)
2003	2.93 (1.71)	2.97 (1.74)	2.86 (1.69)	2.86 (1.71)	2.65 (1.78)	2.68 (1.80)	2.90 (1.74)	2.93 (1.77)
2004	2.93 (1.72)	2.95 (1.72)	2.87 (1.68)	2.87 (1.70)	2.62 (1.70)	2.66 (1.75)	2.89 (1.72)	2.92 (1.74)
2005	2.89 (1.70)	2.93 (1.72)	2.85 (1.73)	2.77 (1.69)	2.61 (1.76)	2.65 (1.74)	2.86 (1.74)	2.87 (1.74)
2006	2.90 (1.71)	2.92 (1.75)	2.88 (1.73)	2.84 (1.71)	2.66 (1.73)	2.67 (1.82)	2.90 (1.74)	2.90 (1.78)
2007	2.92 (1.74)	2.97 (1.79)	2.97 (1.78)	2.89 (1.74)	2.69 (1.79)	2.67 (1.77)	2.94 (1.78)	2.94 (1.80)
2008	2.87 (1.76)	2.94 (1.76)	2.94 (1.77)	2.90 (1.76)	2.70 (1.78)	2.68 (1.82)	2.91 (1.79)	2.92 (1.80)
2009	2.88 (1.72)	2.89 (1.77)	2.88 (1.76)	2.88 (1.74)	2.78 (1.77)	2.68 (1.78)	2.93 (1.76)	2.90 (1.78)
2010	2.88 (1.75)	2.94 (1.76)	2.96 (1.76)	2.92 (1.78)	2.90 (1.82)	2.75 (1.82)	2.97 (1.79)	2.95 (1.80)
2011	2.83 (1.72)	2.94 (1.76)	2.96 (1.80)	2.95 (1.77)	2.93 (1.83)	2.80 (1.86)	2.97 (1.80)	2.98 (1.82)
2012	2.86 (1.70)	2.89 (1.75)	3.00 (1.77)	2.91 (1.78)	3.08 (1.85)	2.81 (1.80)	3.05 (1.79)	2.94 (1.80)
2013	2.90 (1.75)	2.89 (1.73)	3.22 (1.85)	3.05 (1.78)	3.13 (1.87)	2.88 (1.81)	3.15 (1.84)	2.99 (1.79)
2014	2.32 (1.49)	2.99 (1.79)	2.47 (1.60)	3.16 (1.83)	2.42 (1.63)	2.98 (1.86)	2.43 (1.60)	3.11 (1.84)
2015	-- --	2.36 (1.50)	-- --	2.47 (1.58)	-- --	2.31 (1.57)	-- --	2.40 (1.56)
All	2.78 (1.70)	2.83 (1.72)	2.87 (1.74)	2.84 (1.73)	2.76 (1.79)	2.64 (1.76)	2.85 (1.76)	2.82 (1.76)

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

[a] Standard deviations are in parentheses.

Table 25. Courses per MyCAA participant[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
2009	2.00	1.11	1.17	2.00	1.94	5.00	1.83	2.29
	(1.36)	(0.33)	(0.41)	--	(1.29)	(3.16)	(1.23)	(2.37)
2010	1.33	1.76	1.90	1.50	2.02	2.97	1.67	2.19
	(0.97)	(1.67)	(1.29)	(0.71)	(1.66)	(1.63)	(1.35)	(1.67)
2011	1.77	1.63	1.35	1.30	2.44	2.83	2.05	2.10
	(1.44)	(1.28)	(0.60)	(0.67)	(1.77)	(2.11)	(1.60)	(1.76)
2012	1.97	1.63	1.48	1.29	2.81	2.64	2.37	2.07
	(1.62)	(1.28)	(0.89)	(0.64)	(1.84)	(2.09)	(1.76)	(1.75)
2013	2.26	1.98	1.84	1.50	3.70	2.87	3.01	2.40
	(1.69)	(1.81)	(1.03)	(0.90)	(2.30)	(1.99)	(2.15)	(1.91)
2014	1.54	2.20	1.30	2.08	2.60	3.80	1.82	3.15
	(1.28)	(1.63)	(0.85)	(0.99)	(2.09)	(2.39)	(1.61)	(2.22)
2015	--	1.53	--	1.46	--	2.44	--	1.82
	--	(1.36)	--	(0.98)	--	(2.09)	--	(1.67)
All	1.64	1.60	1.36	1.54	2.85	2.77	2.02	2.03
	(1.37)	(1.41)	(0.88)	(0.99)	(2.15)	(2.22)	(1.75)	(1.82)

Source: CNA calculations using data provided by VolEd.

a. Standard deviations are in parentheses.

In 2014 and 2015, new TA users in all Services and sectors took fewer courses than the average TA user in their Service and sector.[22] Across all reported sectors and Services, new TA users took 0.42 fewer courses than TA users overall.[23] This finding most likely reflects the limitations on the number of first-year courses that Servicemembers can take, imposed by force management controls. However, it also could reflect either (a) Servicemembers attempting to avoid overburdening themselves in their first year of TA use or (b) new cohorts being less academically oriented on average than the remaining members of older cohorts. The magnitude of this difference varies widely: first-year Navy TA users in public institutions in 2015 took only 0.19 fewer courses than Navy TA users in public institutions overall, while first-year Marine TA users in private not-for-profit institutions in 2014 took 0.73 fewer courses than Marines in private not-for-profit institutions overall. Among MyCAA users, there is also evidence that first-time users take fewer courses than their more experienced counterparts. In 2015, first-time users in the private for-profit sector took

[22] This is determined, for example, by comparing the course numbers for the 2014 cohort *in the year 2014* with the average course numbers for all cohorts *in the year 2014*.

[23] DOD TA data are available only by fiscal year, not by academic year. As a result, the number of courses a Servicemember is able to take in his or her first year of TA use may be limited. Specifically, those who begin using TA at the start of a standard academic year will be limited in the number of courses they can feasibly take by the end of the fiscal year.

1.53 courses (compared with 1.60 for all MyCAA users in 2015). In the private not-for-profit and public sectors, new MyCAA users took an average of 1.46 and 2.44 courses, respectively (compared with 1.54 and 2.77 for all users), in 2015. These small differences may reflect that first-year users are a large share of all users in any given year and that these programs require few courses.

Servicemembers who use a second year of TA take more courses than first-time users.[24] Combining all reported sectors, Soldiers see the smallest increase (an increase of approximately 0.5 course), while the change in Marines' courseload is nearly three times larger, nearly doubling the number of courses taken by first-time Marine TA users. Across all reported sectors and Services, TA users in their second year took 0.67 more courses than those in their first year.

Combining across all reported sectors, second-year MyCAA participants took 1.33 courses more than first-year MyCAA participants. The increase in MyCAA overall course-taking is larger than the increase in any single sector, in large part because the composition of the 2014 MyCAA cohort shifts from being overwhelmingly concentrated in the private for-profit sector (where students were taking a low number of courses) to being similarly skewed toward the public sector (where students not only took more courses in both 2014 and 2015 than in the other sectors, but also increased the number of courses taken between 2014 and 2015 by the largest amount).

Table 26 through 30 present the number of credits taken per participant. This information is complementary to the number of courses taken per sector. Some students may enroll in many courses but have relatively few credits (e.g., if they sign up for a large number of lab-based courses worth few credits each). This measure has two main weaknesses: (1) the MyCAA data contain no information on credits attempted or earned and (2) there may be differences in how credits are listed for each course. Some values may reflect credits earned rather than credits attempted, and some courses or institutions may use different scales or units for credit reporting. In particular, course credits are *typically* listed in semester hours but occasionally are listed in clock hours. Although this is relatively uncommon, the difference in scale necessitated correction for the Navy and Marine Corps data, where these types of courses are most common.[25]

In all four Services, Servicemembers in both types of private institutions took more credits, on average, than those in public institutions. This gap was relatively small for

[24] This is determined by comparing the course numbers for the 2014 cohort *in the year 2014* with the 2014 cohort course numbers *in the year 2015*.

[25] Conversion guidelines state that one semester hour is at least 37.5 clock hours. As such, observations specifying that credits were listed in clock hours or that had a credit value of 30 or higher were divided by 37.5. Army and Air Force data did not specify units of measurement, so no conversion was done for credits in those Services. As a result, Army and Air Force data may slightly overestimate the number of (semester hour) credits that students take.

the Army, at less than 0.5 credit (8.90 in private for-profits and 8.84 in private not-for-profits, versus 8.41 in public institutions), but was more than 2 credits in the Marine Corps (9.46 in private for-profits and 9.65 in private not-for-profits, versus 7.07 in public institutions); pooling across all Services, the difference was slightly under 1 credit (8.81 in private for-profits, 8.64 in private not-for-profits, and 7.89 in public institutions).

In all Services and sectors, first-time TA participants took fewer credits than did participants overall. Members of the 2014 TA cohort in their second year of TA use also took substantially more credits than those in their first year of TA use—this gap was smallest among Soldiers at public institutions (a 1.23-credit difference) and largest among Marines at private not-for-profit institutions (a 4.90-credit difference); across all reported sectors and Services, the difference was 2.14 credits. These differences likely result, at least in part, from the fact that Servicemembers become TA-eligible at sometime *within* their 1st year, whereas those in the 2nd year are eligible for the full 12 months. Also, some services restrict TA use among first-year users.

Table 26. Credits per Servicemember: Army[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	8.99 (4.99)	9.62 (5.06)	8.60 (4.71)	8.67 (4.80)	7.91 (4.71)	8.13 (4.70)	8.74 (4.89)	9.05 (4.94)
2000	9.15 (5.00)	9.41 (5.00)	8.46 (4.67)	8.82 (5.01)	7.90 (4.64)	7.89 (4.76)	8.81 (4.86)	9.02 (4.99)
2001	9.46 (5.18)	9.35 (5.07)	8.48 (4.76)	8.62 (4.98)	7.47 (4.60)	7.83 (4.89)	8.82 (5.00)	8.89 (5.04)
2002	9.23 (5.00)	9.32 (5.08)	8.75 (4.81)	8.73 (4.97)	7.76 (4.58)	7.89 (4.97)	8.85 (4.91)	8.91 (5.07)
2003	9.20 (5.07)	9.35 (5.13)	8.66 (4.74)	8.79 (4.99)	7.92 (4.63)	7.93 (4.86)	8.86 (4.95)	8.99 (5.08)
2004	9.17 (4.98)	9.34 (5.09)	8.71 (4.71)	8.78 (4.98)	8.04 (4.61)	8.21 (4.90)	8.92 (4.87)	9.07 (5.07)
2005	9.10 (4.98)	9.17 (5.10)	8.76 (4.87)	8.73 (4.93)	7.89 (4.75)	8.10 (4.78)	8.80 (4.95)	8.92 (5.03)
2006	9.12 (4.99)	9.10 (5.12)	9.09 (4.99)	8.84 (4.98)	8.49 (4.85)	8.14 (4.90)	9.14 (4.99)	8.96 (5.05)
2007	9.22 (5.05)	9.29 (5.19)	8.93 (4.80)	9.00 (5.02)	8.48 (4.82)	8.38 (4.96)	9.11 (4.95)	9.15 (5.12)
2008	9.00 (5.05)	9.37 (5.15)	9.05 (4.86)	9.03 (5.19)	8.64 (5.01)	8.14 (4.82)	9.07 (5.04)	9.07 (5.13)
2009	9.05 (5.01)	9.07 (5.18)	8.82 (4.81)	8.74 (4.97)	8.87 (5.04)	8.38 (4.99)	9.15 (5.02)	8.96 (5.12)
2010	8.99 (5.02)	9.11 (5.06)	9.48 (4.97)	9.00 (5.15)	9.53 (5.07)	8.65 (5.06)	9.43 (5.07)	9.10 (5.12)
2011	9.15 (5.05)	9.27 (5.11)	9.36 (4.92)	9.11 (4.98)	9.86 (5.20)	8.95 (5.15)	9.68 (5.14)	9.30 (5.15)
2012	9.14 (4.97)	9.08 (5.06)	9.85 (5.02)	9.19 (5.07)	10.34 (5.22)	9.21 (5.21)	9.98 (5.14)	9.33 (5.16)
2013	9.34 (5.14)	9.21 (5.09)	10.33 (5.11)	9.61 (5.03)	10.24 (5.21)	9.38 (5.23)	10.12 (5.20)	9.53 (5.15)
2014	7.44 (4.50)	9.59 (5.28)	8.19 (4.81)	9.88 (5.13)	8.17 (4.96)	9.40 (5.27)	7.98 (4.82)	9.71 (5.27)
2015	-- --	7.36 (4.51)	-- --	7.79 (4.84)	-- --	7.52 (4.80)	-- --	7.57 (4.74)
All	8.80 (4.98)	8.90 (5.07)	9.06 (4.93)	8.84 (5.03)	9.04 (5.11)	8.41 (5.05)	9.10 (5.06)	8.84 (5.09)

Source: CNA calculations using data provided by the Navy.

[a.] Standard deviations are in parentheses.

Table 27. Credits per Servicemember: Navy[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	9.65	9.31	8.73	8.82	8.29	8.16	9.09	9.00
	(6.06)	(5.67)	(4.97)	(5.37)	(5.02)	(4.63)	(5.45)	(5.33)
2000	9.69	9.93	9.07	9.45	8.25	7.84	9.19	9.25
	(5.43)	(5.80)	(5.68)	(5.90)	(5.12)	(4.66)	(5.46)	(5.62)
2001	10.05	9.64	9.00	8.81	7.84	8.07	9.19	9.03
	(5.79)	(5.43)	(5.62)	(5.51)	(4.67)	(4.95)	(5.50)	(5.39)
2002	9.95	9.02	9.14	9.09	8.12	8.04	9.20	8.85
	(5.73)	(5.40)	(6.20)	(5.90)	(4.95)	(4.96)	(5.72)	(5.50)
2003	9.64	9.19	8.99	8.63	8.08	7.98	9.14	8.78
	(5.48)	(5.37)	(5.51)	(5.81)	(4.59)	(4.88)	(5.30)	(5.49)
2004	9.73	9.14	9.21	8.63	7.89	7.54	9.16	8.61
	(6.00)	(5.37)	(5.73)	(5.22)	(4.71)	(4.64)	(5.65)	(5.18)
2005	9.97	9.29	8.80	8.62	7.77	7.75	9.05	8.73
	(5.65)	(5.61)	(5.58)	(5.79)	(4.82)	(4.72)	(5.49)	(5.48)
2006	9.70	9.61	9.32	9.13	7.85	8.11	9.20	9.13
	(5.69)	(5.47)	(5.80)	(5.65)	(4.66)	(5.10)	(5.51)	(5.49)
2007	9.80	9.29	9.33	8.92	8.16	7.87	9.28	8.87
	(5.78)	(5.62)	(5.69)	(5.58)	(5.04)	(4.99)	(5.58)	(5.46)
2008	9.69	9.01	9.30	8.99	7.80	7.86	9.11	8.78
	(5.69)	(5.44)	(5.76)	(5.82)	(4.71)	(4.81)	(5.53)	(5.44)
2009	9.74	9.11	9.70	9.41	8.36	8.05	9.51	9.17
	(5.63)	(5.77)	(6.27)	(5.75)	(4.93)	(5.02)	(5.72)	(5.65)
2010	9.97	9.62	9.37	9.31	8.07	7.94	9.36	9.10
	(6.03)	(5.74)	(5.44)	(5.45)	(4.85)	(5.06)	(5.60)	(5.51)
2011	9.61	9.46	9.38	9.53	8.42	8.28	9.35	9.39
	(5.73)	(5.40)	(5.67)	(5.81)	(5.17)	(5.15)	(5.58)	(5.54)
2012	10.11	9.39	9.60	9.30	8.69	8.26	9.63	9.15
	(5.83)	(5.60)	(5.62)	(5.70)	(4.93)	(4.95)	(5.49)	(5.46)
2013	10.32	9.94	10.18	9.73	9.32	8.57	10.05	9.49
	(6.13)	(5.78)	(5.99)	(5.59)	(5.38)	(4.90)	(5.82)	(5.46)
2014	8.61	10.23	7.91	10.23	7.16	9.16	7.82	9.99
	(5.35)	(6.01)	(4.98)	(5.91)	(4.40)	(5.05)	(4.88)	(5.65)
2015	--	8.74	--	7.98	--	7.30	--	7.97
	--	(5.37)	--	(4.93)	--	(4.38)	--	(4.87)
All	9.64	9.32	9.05	8.92	8.05	7.94	9.01	8.82
	(5.75)	(5.59)	(5.62)	(5.52)	(4.88)	(4.78)	(5.47)	(5.34)

Source: CNA calculations using data provided by the Navy.

[a] Standard deviations are in parentheses.

Table 28. Credits per Servicemember: Air Force[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	9.08 (5.56)	9.26 (5.53)	8.27 (5.48)	7.72 (4.78)	8.13 (4.64)	7.84 (5.57)	8.81 (5.34)	8.60 (5.38)
2000	9.15 (5.65)	9.45 (5.68)	8.30 (5.37)	8.16 (5.18)	8.02 (5.44)	8.54 (5.74)	8.81 (5.55)	9.04 (5.64)
2001	8.83 (5.36)	9.17 (5.44)	8.55 (5.37)	8.16 (5.02)	7.89 (5.30)	7.96 (5.26)	8.73 (5.41)	8.78 (5.35)
2002	8.96 (5.63)	9.03 (5.50)	8.50 (5.38)	8.15 (5.35)	7.67 (5.19)	8.04 (5.40)	8.72 (5.51)	8.76 (5.50)
2003	9.04 (5.51)	9.01 (5.53)	8.40 (5.46)	8.33 (5.43)	7.51 (5.50)	7.68 (5.21)	8.72 (5.55)	8.76 (5.49)
2004	9.02 (5.61)	8.92 (5.43)	8.37 (5.27)	8.45 (5.32)	7.38 (5.19)	7.42 (5.03)	8.69 (5.48)	8.71 (5.40)
2005	8.75 (5.52)	8.89 (5.43)	8.28 (5.48)	7.70 (5.12)	7.48 (5.82)	7.47 (5.18)	8.56 (5.68)	8.48 (5.38)
2006	8.81 (5.60)	8.79 (5.57)	8.05 (5.30)	7.89 (5.20)	7.17 (5.03)	7.24 (5.31)	8.49 (5.51)	8.44 (5.51)
2007	8.79 (5.65)	9.11 (5.80)	8.82 (5.68)	8.30 (5.50)	7.29 (5.27)	7.33 (5.26)	8.73 (5.67)	8.81 (5.75)
2008	8.77 (5.61)	8.79 (5.63)	8.48 (5.64)	8.41 (5.61)	7.39 (5.36)	7.61 (5.49)	8.66 (5.66)	8.71 (5.69)
2009	8.74 (5.63)	8.81 (5.76)	8.22 (5.65)	8.26 (5.64)	7.09 (5.17)	7.08 (4.97)	8.50 (5.65)	8.58 (5.67)
2010	8.71 (5.75)	8.90 (5.71)	8.34 (5.63)	8.40 (5.63)	7.15 (5.22)	7.39 (5.40)	8.52 (5.72)	8.78 (5.75)
2011	8.34 (5.56)	8.75 (5.62)	8.31 (5.76)	8.33 (5.68)	6.87 (4.87)	7.16 (5.33)	8.23 (5.58)	8.62 (5.71)
2012	8.40 (5.42)	8.51 (5.68)	8.23 (5.46)	8.22 (5.63)	7.55 (5.40)	7.22 (5.23)	8.39 (5.55)	8.39 (5.67)
2013	8.46 (5.69)	8.44 (5.50)	8.91 (5.66)	8.69 (5.73)	8.02 (5.65)	7.76 (5.46)	8.78 (5.80)	8.58 (5.63)
2014	6.51 (4.35)	8.62 (5.64)	6.34 (4.49)	8.73 (5.75)	5.81 (4.11)	8.24 (5.85)	6.35 (4.40)	8.87 (5.86)
2015	-- --	6.52 (4.37)	-- --	6.55 (4.72)	-- --	5.77 (4.05)	-- --	6.39 (4.43)
All	8.34 (5.47)	8.43 (5.49)	8.06 (5.43)	8.02 (5.43)	7.00 (5.09)	7.10 (5.15)	8.13 (5.47)	8.21 (5.50)

Source: CNA calculations using data provided by the Air Force.

[a] Standard deviations are in parentheses.

Table 29. Credits per Servicemember: Marine Corps[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	9.95 (5.79)	10.67 (6.58)	10.33 (7.24)	10.47 (7.52)	8.50 (5.43)	9.16 (5.54)	9.77 (6.20)	10.40 (6.65)
2000	8.86 (5.52)	10.14 (6.49)	9.43 (6.05)	10.70 (6.71)	7.64 (4.97)	8.33 (5.65)	8.81 (5.61)	10.02 (6.42)
2001	8.33 (5.51)	9.83 (6.00)	8.16 (4.93)	10.66 (6.51)	7.36 (4.73)	9.12 (6.09)	8.20 (5.19)	10.13 (6.27)
2002	9.20 (5.46)	10.05 (5.83)	9.92 (5.83)	9.64 (6.41)	8.14 (5.22)	8.54 (5.00)	9.30 (5.62)	9.74 (5.91)
2003	8.46 (5.27)	9.65 (6.18)	9.37 (6.03)	10.17 (6.64)	8.21 (5.44)	8.45 (5.64)	8.79 (5.65)	9.72 (6.28)
2004	8.90 (5.54)	10.51 (6.40)	8.46 (5.70)	10.55 (6.96)	7.11 (4.36)	8.29 (4.72)	8.43 (5.40)	10.05 (6.27)
2005	8.77 (5.90)	9.86 (6.08)	9.96 (6.32)	10.62 (6.37)	7.42 (5.27)	7.79 (5.28)	8.95 (5.95)	9.72 (6.06)
2006	8.84 (5.40)	10.45 (6.21)	8.92 (6.58)	10.11 (6.94)	7.64 (4.92)	8.58 (4.96)	8.79 (5.74)	10.02 (6.23)
2007	8.93 (5.43)	9.71 (6.06)	9.49 (6.28)	9.81 (6.24)	7.44 (5.14)	7.96 (5.44)	8.85 (5.64)	9.58 (6.04)
2008	8.44 (5.37)	10.01 (6.20)	10.43 (7.25)	9.98 (5.98)	8.10 (5.46)	8.20 (5.84)	8.85 (5.91)	9.74 (6.15)
2009	8.61 (5.54)	9.75 (6.14)	9.72 (6.41)	10.12 (6.53)	7.96 (5.43)	8.90 (5.61)	8.85 (5.77)	9.78 (6.17)
2010	9.11 (5.75)	10.22 (6.02)	8.39 (5.88)	9.74 (6.84)	7.23 (5.01)	7.83 (4.98)	8.63 (5.70)	9.65 (6.11)
2011	8.26 (5.41)	10.20 (6.32)	9.87 (6.42)	10.96 (6.35)	6.85 (4.46)	8.00 (5.28)	8.32 (5.56)	9.96 (6.19)
2012	8.71 (5.35)	10.31 (6.09)	9.21 (6.43)	10.01 (6.46)	6.97 (4.83)	7.65 (5.07)	8.38 (5.53)	9.63 (6.02)
2013	8.48 (5.46)	9.59 (6.09)	9.89 (6.71)	10.50 (6.66)	6.97 (4.69)	7.65 (5.13)	8.24 (5.58)	9.23 (6.03)
2014	7.00 (5.06)	10.60 (6.43)	6.41 (5.21)	11.31 (7.22)	5.08 (3.60)	8.76 (5.30)	6.20 (4.73)	10.27 (6.34)
2015	-- --	7.25 (5.07)	-- --	7.37 (5.55)	-- --	5.34 (4.00)	-- --	6.43 (4.85)
All	8.35 (5.46)	9.46 (6.08)	8.93 (6.30)	9.65 (6.55)	6.69 (4.71)	7.07 (5.03)	8.07 (5.56)	8.82 (6.03)

Source: CNA calculations using data provided by the Marine Corps.

[a.] Standard deviations are in parentheses.

Table 30. Credits per Servicemember: All Services[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	9.24 (5.36)	9.68 (5.44)	8.81 (5.23)	8.85 (5.40)	8.08 (4.87)	8.26 (4.89)	8.95 (5.24)	9.18 (5.34)
2000	9.20 (5.32)	9.53 (5.44)	8.62 (5.26)	8.92 (5.45)	7.97 (4.96)	8.06 (5.05)	8.87 (5.25)	9.14 (5.42)
2001	9.16 (5.35)	9.32 (5.33)	8.58 (5.21)	8.56 (5.20)	7.66 (4.88)	7.98 (5.11)	8.79 (5.26)	8.93 (5.30)
2002	9.20 (5.34)	9.22 (5.31)	8.78 (5.32)	8.66 (5.39)	7.81 (4.84)	7.99 (5.07)	8.87 (5.27)	8.90 (5.33)
2003	9.14 (5.30)	9.22 (5.37)	8.65 (5.23)	8.70 (5.43)	7.84 (4.94)	7.90 (5.02)	8.84 (5.26)	8.93 (5.36)
2004	9.16 (5.39)	9.20 (5.33)	8.66 (5.20)	8.73 (5.29)	7.78 (4.81)	7.87 (4.89)	8.85 (5.25)	8.92 (5.29)
2005	9.05 (5.34)	9.11 (5.35)	8.64 (5.36)	8.45 (5.33)	7.73 (5.12)	7.84 (4.91)	8.76 (5.37)	8.78 (5.30)
2006	9.07 (5.36)	9.12 (5.43)	8.77 (5.42)	8.68 (5.40)	7.93 (4.90)	7.92 (5.07)	8.90 (5.32)	8.88 (5.39)
2007	9.10 (5.42)	9.24 (5.56)	9.01 (5.46)	8.79 (5.43)	8.02 (5.04)	7.96 (5.09)	8.99 (5.38)	9.01 (5.48)
2008	8.93 (5.38)	9.13 (5.46)	8.93 (5.51)	8.84 (5.55)	8.09 (5.12)	7.95 (5.07)	8.91 (5.40)	8.93 (5.46)
2009	8.98 (5.36)	9.02 (5.54)	8.82 (5.57)	8.82 (5.51)	8.29 (5.13)	8.00 (5.05)	8.97 (5.39)	8.92 (5.47)
2010	8.98 (5.45)	9.14 (5.45)	8.96 (5.39)	8.88 (5.51)	8.65 (5.19)	8.19 (5.17)	9.08 (5.41)	9.02 (5.45)
2011	8.82 (5.36)	9.14 (5.44)	8.98 (5.49)	9.02 (5.55)	8.78 (5.26)	8.34 (5.26)	9.08 (5.41)	9.11 (5.48)
2012	8.93 (5.28)	8.97 (5.46)	9.15 (5.43)	8.89 (5.52)	9.24 (5.38)	8.46 (5.25)	9.32 (5.40)	9.00 (5.45)
2013	9.08 (5.52)	9.01 (5.42)	9.78 (5.64)	9.37 (5.56)	9.34 (5.43)	8.67 (5.29)	9.59 (5.55)	9.18 (5.45)
2014	7.26 (4.65)	9.36 (5.62)	7.39 (4.85)	9.66 (5.73)	7.18 (4.71)	8.96 (5.44)	7.37 (4.77)	9.51 (5.63)
2015	-- --	7.32 (4.71)	-- --	7.49 (4.93)	-- --	6.88 (4.55)	-- --	7.26 (4.74)
All	8.69 (5.30)	8.81 (5.37)	8.68 (5.37)	8.64 (5.42)	8.22 (5.14)	7.89 (5.06)	8.71 (5.31)	8.63 (5.34)

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

a. Standard deviations are in parentheses.

Course completion

Course-taking is only beneficial to the extent that students complete their courses.[26] Incomplete courses cannot count toward a degree, and failing to complete a course would constitute a poor use of DOD funds. Table 31 through 36 show the total number of courses completed per Servicemember or spouse.

In 2015, Soldiers and Sailors completed about 2.5 courses, on average, in both private sectors, and about 2.2 courses in public institutions (see Table 31 and 32). Airmen also completed roughly 2.5 courses in both private sectors, but just over 2 courses in the public sector (see Table 33). Marines completed the most courses in both private sectors, about 2.75, but the fewest in public institutions, just over 2 courses (see Table 34). Servicemembers completed 2.44 courses across all reported sectors and Services (see Table 35). Finally, MyCAA participants completed slightly over 1 course in private for-profits, 1.23 courses in private not-for-profits, and 2.34 courses in public institutions (see Table 36).

We find that first-year TA users in all reported sectors and Services complete fewer courses than TA users overall; this is to be expected because they initially take fewer courses. This difference is as small as 0.13 course completed (Sailors in public institutions in 2015) and as large as 0.75 (Marines in private not-for-profit institutions in 2014). Across all reported sectors and Services in 2015, first-year TA users completed 0.37 fewer courses than TA users overall: Army, 0.43 fewer courses; Navy, 0.20 fewer courses; Air Force, 0.54 fewer courses; and Marine Corps, 0.71 fewer courses.

First-year MyCAA users also completed fewer courses in a given year than MyCAA users overall though, owing to the high attrition among MyCAA users, these differences are fairly small: in 2015, first-year MyCAA participants completed 0.06 fewer courses in the private for-profit sector, 0.09 fewer courses in the private not-for-profit sector, and 0.35 fewer courses in the public sector than MyCAA participants overall in each respective sector.

Members of the 2014 cohort in their second year of TA use completed more courses than those in their first year of TA use. Soldiers, for example, completed approximately 0.7 more courses in each sector. Sailors completed the fewest additional courses in the private for-profit sector (an increase of 0.56) but more in the private not-for-profit and public sectors (increases of 0.75 and 0.86, respectively). Airmen increased their course completions by roughly 0.9 in the public sector, by 0.77 in the private not-for-profit sector, and roughly 0.69 in the private for-profit sector. Marines had the greatest

[26] We refer to course completion rather than passing courses because a wide range of course grades in Army data, such as “CREDIT,” align more closely with the former.

increase across all three sectors—1.37 additional courses in the private for-profit sector, 1.48 in the private not-for-profit sector, and 1.46 in the public sector. The overall increase across all Services was approximately 0.7-0.8 in each sector.

Members of the 2014 cohort of MyCAA participants also completed more courses in their second year than in their first—0.69 more in the private for-profit sector, 0.78 more in the private not-for-profit sector, and 1.23 more in the public sector. As with courses and credits taken, some of these increases may be due to additional diligence on the part of Servicemembers and their spouses, but much is likely due to second-year students taking more, and therefore completing more, courses.

Table 31. Course completions per Servicemember: Army[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	2.50 (1.75)	2.70 (1.79)	2.54 (1.69)	2.64 (1.68)	2.15 (1.63)	2.18 (1.66)	2.46 (1.72)	2.58 (1.74)
2000	2.58 (1.77)	2.70 (1.77)	2.52 (1.64)	2.71 (1.73)	2.14 (1.63)	2.10 (1.66)	2.50 (1.71)	2.59 (1.77)
2001	2.63 (1.83)	2.65 (1.81)	2.56 (1.67)	2.60 (1.65)	1.99 (1.70)	2.11 (1.68)	2.47 (1.79)	2.53 (1.75)
2002	2.62 (1.77)	2.64 (1.76)	2.59 (1.66)	2.63 (1.68)	2.03 (1.63)	2.11 (1.69)	2.49 (1.74)	2.53 (1.75)
2003	2.57 (1.79)	2.63 (1.79)	2.49 (1.68)	2.65 (1.69)	2.06 (1.68)	2.13 (1.69)	2.45 (1.76)	2.55 (1.76)
2004	2.59 (1.75)	2.61 (1.78)	2.53 (1.70)	2.60 (1.71)	2.05 (1.67)	2.19 (1.72)	2.47 (1.74)	2.54 (1.77)
2005	2.56 (1.76)	2.58 (1.76)	2.58 (1.69)	2.59 (1.67)	2.07 (1.69)	2.22 (1.70)	2.45 (1.75)	2.52 (1.75)
2006	2.56 (1.75)	2.55 (1.76)	2.62 (1.75)	2.61 (1.75)	2.10 (1.74)	2.14 (1.69)	2.49 (1.77)	2.50 (1.76)
2007	2.62 (1.79)	2.63 (1.80)	2.54 (1.72)	2.67 (1.72)	2.12 (1.74)	2.23 (1.75)	2.49 (1.79)	2.57 (1.80)
2008	2.49 (1.86)	2.60 (1.80)	2.58 (1.73)	2.60 (1.74)	2.13 (1.80)	2.13 (1.73)	2.44 (1.83)	2.49 (1.79)
2009	2.51 (1.77)	2.49 (1.77)	2.49 (1.68)	2.51 (1.74)	2.15 (1.85)	2.14 (1.75)	2.43 (1.81)	2.43 (1.77)
2010	2.51 (1.80)	2.55 (1.76)	2.67 (1.77)	2.61 (1.78)	2.33 (1.87)	2.23 (1.78)	2.51 (1.84)	2.49 (1.79)
2011	2.55 (1.80)	2.58 (1.79)	2.58 (1.79)	2.61 (1.68)	2.41 (1.93)	2.35 (1.84)	2.55 (1.87)	2.55 (1.81)
2012	2.55 (1.79)	2.53 (1.78)	2.75 (1.81)	2.64 (1.76)	2.53 (1.95)	2.41 (1.83)	2.61 (1.88)	2.55 (1.81)
2013	2.57 (1.86)	2.54 (1.80)	2.91 (1.91)	2.80 (1.76)	2.49 (1.95)	2.48 (1.85)	2.63 (1.93)	2.60 (1.83)
2014	1.93 (1.65)	2.63 (1.88)	2.19 (1.76)	2.90 (1.81)	1.79 (1.79)	2.48 (1.88)	1.92 (1.75)	2.66 (1.88)
2015	-- --	1.93 (1.61)	-- --	2.20 (1.63)	-- --	1.93 (1.65)	-- --	1.99 (1.64)
All	2.43 (1.79)	2.46 (1.78)	2.56 (1.77)	2.58 (1.73)	2.18 (1.86)	2.20 (1.76)	2.39 (1.83)	2.42 (1.78)

Source: CNA calculations using data provided by the Army.

[a.] Standard deviations are in parentheses.

Table 32. Course completions per Servicemember: Navy[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	2.57 (1.97)	2.47 (1.75)	2.46 (1.62)	2.43 (1.72)	2.17 (1.65)	2.18 (1.68)	2.46 (1.77)	2.43 (1.74)
2000	2.51 (1.76)	2.57 (1.82)	2.49 (1.84)	2.76 (1.78)	2.13 (1.81)	2.13 (1.67)	2.43 (1.81)	2.55 (1.80)
2001	2.73 (1.88)	2.56 (1.81)	2.53 (1.83)	2.56 (1.71)	2.02 (1.67)	2.20 (1.68)	2.50 (1.83)	2.50 (1.75)
2002	2.60 (1.70)	2.47 (1.66)	2.50 (1.81)	2.52 (1.77)	2.09 (1.71)	2.17 (1.71)	2.43 (1.76)	2.43 (1.73)
2003	2.55 (1.81)	2.44 (1.71)	2.52 (1.80)	2.52 (1.81)	2.08 (1.61)	2.20 (1.65)	2.45 (1.78)	2.45 (1.75)
2004	2.61 (1.87)	2.52 (1.71)	2.62 (1.80)	2.50 (1.68)	2.08 (1.65)	2.06 (1.65)	2.50 (1.81)	2.41 (1.71)
2005	2.72 (1.85)	2.54 (1.78)	2.47 (1.76)	2.46 (1.77)	2.02 (1.70)	2.14 (1.67)	2.46 (1.81)	2.43 (1.76)
2006	2.63 (1.79)	2.60 (1.75)	2.69 (1.85)	2.67 (1.76)	2.04 (1.65)	2.23 (1.69)	2.53 (1.81)	2.55 (1.76)
2007	2.62 (1.83)	2.53 (1.75)	2.73 (1.88)	2.58 (1.76)	2.15 (1.69)	2.13 (1.62)	2.55 (1.83)	2.47 (1.74)
2008	2.64 (1.82)	2.46 (1.74)	2.62 (1.80)	2.55 (1.81)	2.04 (1.64)	2.17 (1.66)	2.48 (1.81)	2.44 (1.77)
2009	2.60 (1.81)	2.43 (1.78)	2.67 (1.93)	2.67 (1.74)	2.16 (1.68)	2.19 (1.65)	2.54 (1.84)	2.52 (1.76)
2010	2.71 (1.89)	2.62 (1.78)	2.68 (1.79)	2.70 (1.78)	2.08 (1.70)	2.15 (1.69)	2.54 (1.84)	2.53 (1.77)
2011	2.58 (1.85)	2.62 (1.74)	2.66 (1.81)	2.80 (1.80)	2.18 (1.71)	2.35 (1.72	2.52 (1.82)	2.67 (1.79)
2012	2.76 (1.88)	2.54 (1.82)	2.69 (1.79)	2.63 (1.75)	2.30 (1.75)	2.30 (1.72)	2.62 (1.83)	2.53 (1.79)
2013	2.75 (1.90)	2.67 (1.79)	2.94 (1.92)	2.82 (1.79)	2.50 (1.82)	2.34 (1.72)	2.76 (1.90)	2.63 (1.79)
2014	2.17 (1.67)	2.73 (1.87)	2.24 (1.65)	2.98 (1.86)	1.73 (1.55)	2.59 (1.80)	2.01 (1.64)	2.81 (1.86)
2015	-- --	2.32 (1.61)	-- --	2.38 (1.60)	-- --	2.09 (1.55)	-- --	2.27 (1.59)
All	2.56 (1.83)	2.51 (1.74)	2.56 (1.80)	2.60 (1.74)	2.07 (1.69)	2.22 (1.66)	2.42 (1.80)	2.47 (1.73)

Source: CNA calculations using data provided by the Navy.

[a.] Standard deviations are in parentheses.

Table 33. Course completions per Servicemember: Air Force[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	2.61 (1.85)	2.72 (1.82)	2.41 (1.78)	2.31 (1.54)	2.07 (1.58)	2.04 (1.77)	2.48 (1.79)	1.48 (1.75)
2000	2.63 (1.87)	2.76 (1.90)	2.56 (1.81)	2.49 (1.72)	2.23 (2.11)	2.41 (2.07)	2.57 (1.91)	2.66 (1.90)
2001	2.53 (1.77)	2.66 (1.80)	2.62 (1.82)	2.47 (1.67)	2.22 (1.99)	2.13 (1.72)	2.55 (1.85)	2.55 (1.77)
2002	2.60 (1.86)	2.64 (1.86)	2.57 (1.78)	2.42 (1.76)	2.09 (1.99)	2.33 (1.81)	2.53 (1.88)	2.57 (1.85)
2003	2.66 (1.85)	2.68 (1.87)	2.59 (1.81)	2.51 (1.75)	2.13 (1.92)	2.27 (1.77)	2.58 (1.88)	2.62 (1.84)
2004	2.65 (1.87)	2.64 (1.82)	2.61 (1.81)	2.64 (1.78)	2.02 (1.76)	2.13 (1.73)	2.56 (1.86)	2.60 (1.82)
2005	2.55 (1.82)	2.62 (1.80)	2.52 (1.82)	2.34 (1.71)	2.09 (1.88)	2.16 (1.67)	2.51 (1.86)	2.51 (1.78)
2006	2.59 (1.85)	2.61 (1.84)	2.42 (1.74)	2.40 (1.71)	1.97 (1.67)	2.14 (1.87)	2.48 (1.82)	2.52 (1.83)
2007	2.60 (1.87)	2.71 (1.89)	2.68 (1.86)	2.55 (1.75)	2.05 (1.87)	2.16 (1.79)	2.57 (2.91)	2.64 (1.88)
2008	2.55 (1.85)	2.61 (1.84)	2.59 (1.86)	2.59 (1.86)	2.01 (1.80)	2.22 (1.85)	2.52 (1.87)	2.60 (1.87)
2009	2.56 (1.89)	2.61 (1.88)	2.52 (1.86)	2.52 (1.84)	1.95 (1.72)	2.03 (1.69)	2.49 (1.89)	2.54 (1.87)
2010	2.53 (1.87)	2.66 (1.90)	2.54 (1.87)	2.59 (1.85)	1.91 (1.67)	2.15 (1.79)	2.46 (1.87)	2.63 (1.90)
2011	2.43 (1.81)	2.59 (1.86)	2.51 (1.88)	2.58 (1.84)	1.84 (1.54)	2.07 (1.78)	2.37 (1.81)	2.56 (1.89)
2012	2.44 (1.78)	2.54 (1.87)	2.53 (1.80)	2.55 (1.88)	1.99 (1.66)	2.08 (1.72)	2.40 (1.80)	2.50 (1.88)
2013	2.43 (1.84)	2.49 (1.81)	2.71 (1.89)	2.66 (1.88)	2.10 (1.74)	2.25 (1.81)	2.48 (1.87)	2.54 (1.86)
2014	1.85 (1.44)	2.54 (1.87)	1.92 (1.49)	2.69 (1.90)	1.44 (1.32)	2.39 (1.94)	1.74 (1.45)	2.63 (1.95)
2015	-- --	1.93 (1.47)	-- --	2.01 (1.55)	-- --	1.69 (1.34)	-- --	1.90 (1.47)
All	2.42 (1.80)	2.49 (1.82)	2.46 (1.80)	2.46 (1.79)	1.85 (1.66)	2.06 (1.71)	2.33 (1.81)	2.44 (1.82)

Source: CNA calculations using data provided by the Air Force.

[a] Standard deviations are in parentheses.

Table 34. Course completions per Servicemember: Marine Corps[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	2.97 (1.97)	3.13 (2.16)	2.80 (2.03)	2.95 (2.34)	2.45 (2.00)	2.71 (1.97)	2.81 (2.01)	3.02 (2.17)
2000	2.52 (1.81)	2.92 (2.07)	2.59 (1.70)	3.13 (1.98)	2.18 (1.72)	2.54 (1.93)	2.48 (1.74)	2.94 (2.02)
2001	2.42 (1.82)	2.99 (1.98)	2.21 (1.59)	3.14 (1.88)	1.99 (1.64)	2.70 (2.05)	2.29 (1.72)	3.03 (1.99)
2002	2.62 (1.89)	2.95 (1.94)	2.86 (1.83)	2.81 (1.98)	2.11 (1.67)	2.38 (1.88)	2.61 (1.85)	2.82 (1.96)
2003	2.41 (1.75)	2.70 (2.03)	2.70 (1.74)	2.90 (1.85)	2.12 (1.74)	2.55 (1.98)	2.45 (1.78)	2.79 (1.99)
2004	2.57 (1.78)	3.06 (2.07)	2.31 (1.59)	2.91 (1.96)	1.88 (1.54)	2.58 (1.67)	2.35 (1.70)	2.92 (1.95)
2005	2.43 (1.84)	2.81 (2.00)	2.80 (1.95)	3.12 (2.02)	2.11 (1.86)	2.33 (1.82)	2.50 (1.90)	2.83 (1.99)
2006	2.52 (1.77)	3.10 (2.05)	2.48 (1.89)	2.84 (2.00)	2.02 (1.77)	2.59 (1.73)	2.45 (1.82)	2.94 (1.98)
2007	2.55 (1.80)	2.84 (1.99)	2.76 (1.98)	2.88 (1.87)	1.87 (1.65)	2.33 (1.89)	2.48 (1.84)	2.80 (1.96)
2008	2.38 (1.82)	(2.91 (1.96)	2.96 (2.09)	2.90 (1.87)	2.12 (1.87)	2.39 (2.01)	2.46 (1.92)	2.83 (1.98)
2009	2.43 (1.83)	2.81 (1.94)	2.72 (1.86)	2.84 (1.99)	2.03 (1.75)	2.66 (2.00)	2.44 (1.84)	2.82 (1.98)
2010	2.47 (1.89)	2.88 (1.99)	2.32 (1.72)	2.70 (1.94)	1.87 (1.64)	2.20 (1.82)	2.33 (1.83)	2.71 (1.96)
2011	2.21 (1.78)	2.94 (2.05)	2.83 (1.94)	3.14 (1.97)	1.77 (1.54)	2.35 (1.95)	2.25 (1.80)	2.88 (2.04)
2012	2.42 (1.75)	2.99 (2.00)	2.61 (1.93)	2.89 (1.98)	1.88 (1.65)	2.19 (1.80)	2.32 (1.79)	2.78 (1.98)
2013	2.32 (1.82)	2.76 (2.00)	2.76 (1.97)	2.95 (2.01)	1.81 (1.59)	2.16 (1.75)	2.22 (1.80)	2.63 (1.95)
2014	1.60 (1.52)	2.97 (2.09)	1.74 (1.55)	3.22 (2.15)	1.13 (1.20)	2.60 (1.81)	1.46 (1.45)	2.94 (2.03)
2015	-- --	2.07 (1.70)	-- --	2.13 (1.70)	-- --	1.51 (1.40)	-- --	1.83 (1.61)
All	2.26 (1.79)	2.72 (1.98)	2.49 (1.86)	2.76 (1.96)	1.71 (1.60)	2.05 (1.75)	2.17 (1.79)	2.54 (1.94)

Source: CNA calculations using data provided by the Marine Corps.

[a] Standard deviations are in parentheses.

Table 35. Course completions per Servicemember: All Services[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	2.58 (1.83)	2.73 (1.85)	2.54 (1.73)	2.60 (1.78)	2.18 (1.68)	2.24 (1.73)	2.50 (1.78)	2.60 (1.82)
2000	2.59 (1.81)	2.72 (1.84)	2.53 (1.74)	2.69 (1.77)	2.16 (1.79)	2.21 (1.78)	2.51 (1.80)	2.64 (1.84)
2001	2.58 (1.90)	2.66 (1.82)	2.57 (1.76)	2.57 (1.69)	2.08 (1.80)	2.17 (1.73)	2.50 (1.82)	2.56 (1.78)
2002	2.61 (1.81)	2.64 (1.80)	2.58 (1.74)	2.55 (1.74)	2.06 (1.75)	2.19 (1.73)	2.50 (1.80)	2.54 (1.79)
2003	2.59 (1.82)	2.64 (1.83)	2.54 (1.75)	2.60 (1.74)	2.09 (1.75)	2.21 (1.73)	2.50 (1.81)	2.57 (1.80)
2004	2.62 (1.81)	2.63 (1.80)	2.57 (1.76)	2.61 (1.75)	2.04 (1.69)	2.17 (1.71)	2.50 (1.80)	2.56 (1.79)
2005	2.57 (1.80)	2.60 (1.79)	2.54 (1.77)	2.50 (1.74)	2.07 (1.76)	2.19 (1.69)	2.47 (1.81)	2.52 (1.77)
2006	2.58 (1.80)	2.61 (1.82)	2.56 (1.78)	2.57 (1.76)	2.04 (1.70)	2.19 (1.74)	2.49 (1.80)	2.54 (1.80)
2007	2.61 (1.83)	2.66 (1.85)	2.65 (1.83)	2.62 (1.75)	2.10 (1.77)	2.19 (1.74)	2.53 (1.84)	2.59 (1.83)
2008	2.53 (1.85)	2.61 (1.82)	2.61 (1.82)	2.60 (1.81)	2.08 (1.78)	2.17 (1.77)	2.47 (1.85)	2.55 (1.83)
2009	2.53 (1.82)	2.55 (1.83)	2.55 (1.81)	2.57 (1.79)	2.09 (1.79)	2.14 (1.73)	2.46 (1.84)	2.50 (1.82)
2010	2.54 (1.84)	2.62 (1.83)	2.61 (1.81)	2.63 (1.82)	2.17 (1.80)	2.20 (1.77)	2.49 (1.85)	2.56 (1.84)
2011	2.48 (1.81)	2.61 (1.83)	2.58 (1.84)	2.67 (1.79)	2.21 (1.81)	2.28 (1.82)	2.47 (1.84)	2.59 (1.85)
2012	2.52 (1.80)	2.57 (1.84)	2.65 (1.81)	2.62 (1.82)	2.33 (1.86)	2.29 (1.79)	2.53 (1.85)	2.54 (1.84)
2013	2.52 (1.86)	2.55 (1.82)	2.84 (1.91)	2.76 (1.83)	2.36 (1.87)	2.37 (1.82)	2.58 (1.90)	2.59 (1.84)
2014	1.91 (1.58)	2.63 (1.89)	2.09 (1.64)	2.87 (1.88)	1.65 (1.61)	2.48 (1.88)	1.85 (1.63)	2.69 (1.91)
2015	-- --	2.00 (1.58)	-- --	2.20 (1.61)	-- --	1.88 (1.55)	-- --	2.02 (1.59)
All	2.43 (1.80)	2.49 (1.80)	2.52 (1.79)	2.56 (1.77)	2.05 (1.78)	2.16 (1.73)	2.36 (1.82)	2.44 (1.80)

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

a. Standard deviations are in parentheses.

Table 36. Course completions per MyCAA participant[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
2009	0.86 (0.86)	0.78 (0.44)	0.50 (0.84)	2.00 --	1.75 (1.24)	5.00 (3.16)	1.19 (1.14)	2.07 (2.50)
2010	0.76 (0.93)	1.37 (1.55)	1.50 (0.85)	1.30 (0.82)	1.76 (1.58)	2.63 (1.85)	1.24 (1.32)	1.85 (1.71)
2011	1.12 (1.33)	1.27 (1.37)	0.97 (0.76)	0.90 (0.99)	2.09 (1.73)	2.48 (2.24)	1.56 (1.58)	1.75 (1.87)
2012	1.22 (1.42)	1.07 (1.11)	1.13 (0.95)	1.02 (0.78)	2.42 (1.90)	2.32 (2.13)	1.84 (1.77)	1.64 (1.76)
2013	1.67 (1.60)	1.34 (1.61)	1.53 (1.13)	1.13 (1.03)	3.24 (2.36)	2.58 (2.01)	2.51 (2.17)	1.95 (1.90)
2014	0.99 (1.20)	1.68 (1.50)	1.01 (0.89)	1.79 (1.21)	2.14 (2.15)	3.38 (2.48)	1.32 (1.60)	2.70 (2.27)
2015	-- --	1.06 (1.27)	-- --	1.14 (1.11)	-- --	1.99 (2.16)	-- --	1.36 (1.65)
All	1.07 (1.28)	1.12 (1.31)	1.06 (0.92)	1.23 (1.13)	2.40 (2.20)	2.34 (2.29)	1.53 (1.75)	1.58 (1.82)

Source: CNA calculations using data provided by VolEd.

a. Standard deviations are in parentheses.

The number of courses completed is only slightly lower than the number of courses attempted in each Service and sector. Table 37 through 42 show course completion rates for Servicemembers and their spouses. Readers should note that the course completion rate excludes certain course grades that could not easily be assigned to categories of "complete" or "incomplete." For instance, "AMSTY" (for "amnesty") could be interpreted as a course completion (since amnesty was granted) or as failure to complete the course (since amnesty was required). Appendix C provides a full list of grades by completion status (or lack thereof). Because some courses are omitted from completion calculations, the completion rate will be slightly higher than course completions divided by total courses.

Course completion rates provide more information than the number of courses completed, by controlling for differences in the number of courses attempted. Across all Services, completion rates in 2015 were lowest in the public sector and highest in the private not-for-profit sector: 88.7 percent in public institutions, 93.1 percent in private not-for-profit institutions, 91.0 percent in private for-profit institutions, and 90.7 percent overall (see Table 41). We find that completion rates were slightly higher in the Marine Corps and the Air Force than in the Army and Navy. Course completion rates in 2015 were near 90 percent in all reported sectors in both the Army and the Navy. Soldiers had an 89.0-percent completion rate in the private for-profit sector, a 92.2-percent completion rate in the private not-for-profit sector, and an 87.1-percent completion rate in the public sector (see Table 37). Sailors had slightly higher completion rates in each sector—91.1 percent in the private for-profit sector, 92.8 percent in the private not-for-profit sector, and 89.8 percent in the public sector (see

Table 38). The Marine Corps had slightly higher completion rates—92.8 percent in private for-profit institutions, 93.7 percent in private not-for-profit institutions, and 89.9 percent in public institutions (see Table 40). The Air Force had the highest completion rates in each sector—93.0 percent in private for-profit institutions, 94.1 percent in private not-for-profit institutions, and 90.8 percent in public institutions (see Table 39).

Although we found that Service completion rates in 2015 were highest in the private not-for-profit sector and lowest in the public sector, among MyCAA participants, we observe a lower completion rate in the private for-profit sector than in the other two sectors. In 2015, the completion rate across all cohorts was 69.8 percent in the private for-profit sector, compared with 84.4 percent in the public sector and 79.7 percent in the private not-for-profit sector (see Table 42). It is not immediately clear whether any Service-level differences reflect differences in the types of students choosing each sector, the types of schools that students attend, or some other set of factors.

If there is a learning curve or weeding-out process associated with balancing active component military service with college course-taking, we should expect course completion rates in new cohorts to be lower than those in older cohorts. Indeed, course completion rates were lower for first-year TA users than for TA users overall in all reported sectors in the Army, Navy, and Marine Corps in both 2014 and 2015. The Air Force's course completion rates were *not* lower for first-year TA users in three cases: the public sector in 2014, the private not-for-profit sector in 2014, and the public sector in 2015. When all reported sectors are combined, however, the Air Force reveals the same overall trend as the other Services: lower completion rates for first-time TA users. Across all Services, new TA users had lower course completion rates than TA users overall in all reported sectors in both 2014 and 2015. Course completion rates among first-year MyCAA users also were lower than those among MyCAA users overall in all reported sectors. There are possible explanations for why pass rates would be systematically lower among first-year TA or MyCAA users (for example, if they are less academically engaged or learning how to juggle school and military responsibilities) or higher among first-year TA or MyCAA users (for example, if single-year programs or introductory courses are less demanding).

The corollary to either the learning curve or weeding-out hypothesis above is that, as a cohort of TA users learns to manage its time properly and as less academically engaged members drop out, we would expect the cohort's completion rate to rise. In fact, we observe that members of the 2014 cohort in all four Services had higher course completion rates in 2015 than 2014. This likely reflects that the weakest students are the most likely to quit their studies; the weakest members of the 2014 cohorts likely would not continue taking classes in 2015, thus increasing the overall completion rate. Across all Services, course completion rates improved by over 5 percentage points in the private for-profit sector and by 2.9 percentage points in the private not-for-profit sector; the average improvement was 4.7 percentage points. Across all Services and

sectors, every cohort experienced higher completion rates in 2015 than in 2014. A possible explanation for this is the corresponding change in grade requirements that took place in September 2014: any Servicemembers receiving a grade below C in an undergraduate course or below B in a graduate course then was required to pay back the TA funds (the previously required grades were D and C, respectively). This policy change may have led only the more serious students to enroll in TA courses, thus increasing completion rates.

Table 37. Course completion rate: Army[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	89.3%	91.6%	92.9%	94.5%	91.3%	90.2%	90.8%	92.1%
2000	90.2%	92.4%	93.4%	93.9%	90.1%	89.6%	91.0%	92.1%
2001	89.1%	92.3%	93.1%	94.0%	88.6%	90.4%	90.0%	92.3%
2002	90.5%	91.7%	92.4%	94.5%	89.4%	89.9%	90.7%	92.0%
2003	89.0%	92.1%	91.1%	93.6%	89.0%	89.7%	89.5%	91.8%
2004	90.4%	91.3%	92.2%	93.3%	87.9%	89.1%	90.1%	91.3%
2005	89.3%	91.2%	92.3%	94.3%	90.1%	90.4%	90.2%	91.6%
2006	89.0%	90.6%	92.2%	93.2%	87.8%	87.9%	89.4%	90.4%
2007	89.7%	91.3%	91.8%	93.4%	88.5%	88.8%	89.8%	91.0%
2008	87.6%	90.1%	90.9%	91.5%	87.8%	88.3%	88.4%	89.9%
2009	88.1%	89.6%	90.1%	91.2%	85.9%	86.7%	87.7%	89.0%
2010	88.2%	90.1%	91.6%	91.6%	87.3%	87.4%	88.4%	89.4%
2011	88.0%	89.5%	89.7%	92.0%	87.8%	87.8%	88.1%	89.2%
2012	87.9%	89.2%	91.6%	91.4%	87.7%	87.3%	88.4%	88.8%
2013	86.7%	88.7%	91.9%	92.8%	86.8%	87.7%	87.6%	89.0%
2014	82.1%	89.1%	89.0%	93.2%	83.2%	88.2%	83.7%	89.5%
2015	--	83.4%	--	89.2%	--	84.4%	--	84.8%
All	87.3%	89.0%	91.2%	92.2%	86.6%	87.1%	87.8%	88.9%

Source: CNA calculations using data provided by the Army.
[a] Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 38. Course completion rate: Navy[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
1999	87.4%	91.4%	90.6%	89.7%	90.4%	89.5%	89.4%	90.2%
2000	87.3%	90.4%	90.2%	94.0%	87.1%	89.6%	88.3%	91.6%
2001	88.5%	90.0%	89.1%	93.0%	88.2%	91.9%	88.7%	91.7%
2002	88.9%	92.5%	90.6%	92.0%	87.7%	88.4%	89.1%	91.0%
2003	87.9%	90.5%	90.7%	92.7%	85.7%	89.8%	88.3%	91.2%
2004	89.0%	92.5%	91.4%	92.5%	87.6%	88.4%	89.5%	91.3%
2005	90.0%	91.2%	90.8%	92.2%	86.4%	89.7%	89.3%	91.1%
2006	90.3%	91.5%	92.4%	92.9%	87.9%	89.5%	90.4%	91.4%
2007	88.6%	92.5%	93.5%	92.0%	89.4%	89.2%	90.6%	91.3%
2008	90.3%	91.8%	91.9%	91.9%	88.0%	87.6%	90.1%	90.4%
2009	88.8%	90.7%	91.4%	91.6%	86.9%	89.0%	89.0%	90.5%
2010	89.5%	91.3%	91.8%	93.4%	89.2%	88.2%	90.1%	91.1%
2011	88.2%	91.9%	92.8%	94.2%	89.3%	91.6%	89.9%	92.5%
2012	89.7%	90.4%	91.7%	91.4%	89.7%	89.3%	90.3%	90.3%
2013	88.8%	91.2%	92.5%	93.4%	90.3%	89.8%	90.6%	91.4%
2014	86.9%	92.1%	91.2%	94.1%	88.3%	91.6%	88.9%	92.6%
2015	--	90.2%	--	92.7%	--	89.4%	--	90.7%
All	88.7%	91.1%	91.7%	92.8%	88.7%	89.8%	89.6%	91.2%

Source: CNA calculations using data provided by the Navy.

[a]. Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 39. Course completion rate: Air Force[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	93.2%	93.7%	89.7%	92.3%	87.8%	91.6%	91.0%	92.8%
2000	92.1%	93.0%	93.5%	93.4%	88.5%	90.5%	91.8%	92.6%
2001	90.8%	92.4%	92.8%	93.1%	90.4%	88.9%	91.4%	92.0%
2002	91.3%	92.5%	92.3%	91.4%	90.6%	92.7%	91.5%	92.3%
2003	91.9%	93.5%	93.4%	93.7%	90.7%	91.7%	92.1%	93.2%
2004	91.9%	93.3%	94.2%	95.7%	89.4%	90.9%	92.1%	93.5%
2005	91.3%	92.9%	92.5%	92.9%	90.8%	91.2%	91.5%	92.6%
2006	92.2%	93.6%	92.2%	93.6%	90.0%	91.4%	91.8%	93.2%
2007	92.1%	93.5%	93.6%	94.8%	91.4%	91.7%	92.4%	93.5%
2008	91.3%	93.3%	93.3%	94.6%	90.9%	91.2%	91.8%	93.2%
2009	91.7%	93.2%	93.7%	94.6%	89.2%	89.6%	91.6%	92.8%
2010	91.4%	93.5%	92.7%	94.3%	89.0%	90.2%	91.2%	93.0%
2011	91.7%	92.8%	92.3%	95.4%	90.2%	90.4%	91.5%	92.9%
2012	91.7%	93.9%	93.9%	95.0%	89.8%	90.3%	91.6%	93.2%
2013	91.0%	93.1%	93.2%	94.0%	90.6%	90.6%	91.4%	92.5%
2014	89.4%	92.8%	93.2%	94.5%	90.3%	91.0%	90.6%	92.6%
2015	--	91.7%	--	93.2%	--	90.8%	--	91.7%
All	91.3%	93.0%	93.1%	94.1%	90.2%	90.8%	91.5%	92.7%

Source: CNA calculations using data provided by the Air Force.

[a.] Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 40. Course completion rate: Marine Corps[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	93.8%	93.5%	92.6%	93.8%	92.6%	93.3%	93.1%	93.5%
2000	92.0%	93.9%	92.3%	94.4%	92.1%	93.0%	92.1%	93.9%
2001	95.6%	95.9%	91.2%	93.8%	89.7%	92.1%	92.7%	94.3%
2002	92.6%	94.8%	93.5%	93.6%	92.9%	88.3%	93.0%	93.0%
2003	92.6%	91.1%	95.3%	93.4%	89.9%	93.4%	92.7%	92.5%
2004	93.2%	93.7%	90.5%	93.8%	88.9%	93.6%	91.5%	93.6%
2005	91.7%	91.9%	94.1%	95.3%	92.6%	91.0%	92.7%	92.7%
2006	93.0%	94.4%	92.5%	94.9%	88.9%	93.2%	92.0%	94.3%
2007	91.2%	93.6%	94.2%	93.3%	87.3%	91.8%	91.3%	93.2%
2008	90.9%	92.1%	94.0%	94.1%	91.5%	89.1%	91.8%	91.9%
2009	91.5%	94.1%	93.5%	93.6%	88.4%	91.5%	91.3%	93.4%
2010	91.3%	91.1%	91.9%	91.6%	90.3%	87.1%	91.2%	90.3%
2011	89.2%	92.2%	93.0%	93.8%	89.5%	89.1%	90.1%	91.9%
2012	91.4%	93.1%	93.1%	93.7%	90.1%	89.9%	91.4%	92.4%
2013	90.7%	93.2%	93.8%	93.6%	88.1%	89.1%	90.4%	91.9%
2014	89.9%	92.1%	91.6%	94.3%	88.8%	92.0%	89.9%	92.6%
2015	--	92.1%	--	93.1%	--	87.8%	--	90.6%
All	91.3%	92.8%	93.0%	93.7%	89.5%	89.9%	91.2%	92.2%

Source: CNA calculations using data provided by the Marine Corps.

[a.] Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 41. Course completion rate: All Services[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
1999	90.0%	92.1%	92.0%	93.1%	90.9%	90.7%	90.9%	92.1%
2000	90.6%	92.5%	92.7%	93.8%	89.3%	90.1%	90.9%	92.4%
2001	90.1%	92.4%	92.2%	93.4%	89.3%	90.2%	90.6%	92.2%
2002	90.7%	92.3%	92.2%	93.1%	89.6%	90.3%	90.9%	92.0%
2003	90.2%	92.5%	92.2%	93.5%	89.1%	90.5%	90.5%	92.3%
2004	91.0%	92.3%	92.7%	94.1%	88.3%	89.8%	90.8%	92.2%
2005	90.3%	91.9%	92.2%	93.4%	89.7%	90.5%	90.7%	91.9%
2006	90.6%	92.1%	92.3%	93.4%	88.5%	89.5%	90.5%	91.8%
2007	90.6%	92.5%	93.0%	93.5%	89.4%	89.8%	90.9%	92.1%
2008	89.6%	91.7%	92.2%	92.9%	88.9%	89.0%	90.0%	91.3%
2009	89.7%	91.4%	91.8%	92.5%	86.9%	88.1%	89.3%	90.8%
2010	89.7%	91.6%	92.1%	92.9%	88.0%	88.2%	89.6%	90.9%
2011	89.5%	91.2%	91.4%	93.7%	88.5%	89.0%	89.5%	91.0%
2012	89.7%	91.4%	92.5%	92.9%	88.5%	88.4%	89.8%	90.7%
2013	88.6%	90.9%	92.6%	93.4%	88.3%	88.9%	89.3%	90.7%
2014	85.2%	90.9%	91.0%	93.9%	86.0%	89.9%	86.8%	91.3%
2015	--	87.6%	--	91.7%	--	87.1%	--	88.3%
All	89.1%	91.0%	92.1%	93.1%	87.9%	88.7%	89.4%	90.7%

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

[a]. Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 42. Course completion rate: MyCAA[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
2009	42.9%	70.0%	42.9%	100.0%	90.3%	100.0%	65.2%	90.6%
2010	56.9%	77.6%	78.9%	86.7%	86.8%	88.8%	74.2%	84.2%
2011	63.4%	78.2%	71.7%	69.2%	85.9%	87.8%	76.0%	83.1%
2012	61.8%	65.3%	76.3%	79.6%	86.3%	87.9%	77.4%	79.2%
2013	74.0%	67.6%	83.1%	75.4%	87.6%	89.6%	83.3%	81.5%
2014	64.3%	76.5%	77.4%	86.3%	82.4%	88.7%	72.8%	85.7%
2015	--	69.1%	--	78.3%	--	81.4%	--	74.9%
All	65.4%	69.8%	77.9%	79.7%	84.3%	84.4%	75.4%	77.7%

Source: CNA calculations using data provided by VolEd.

[a]. Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

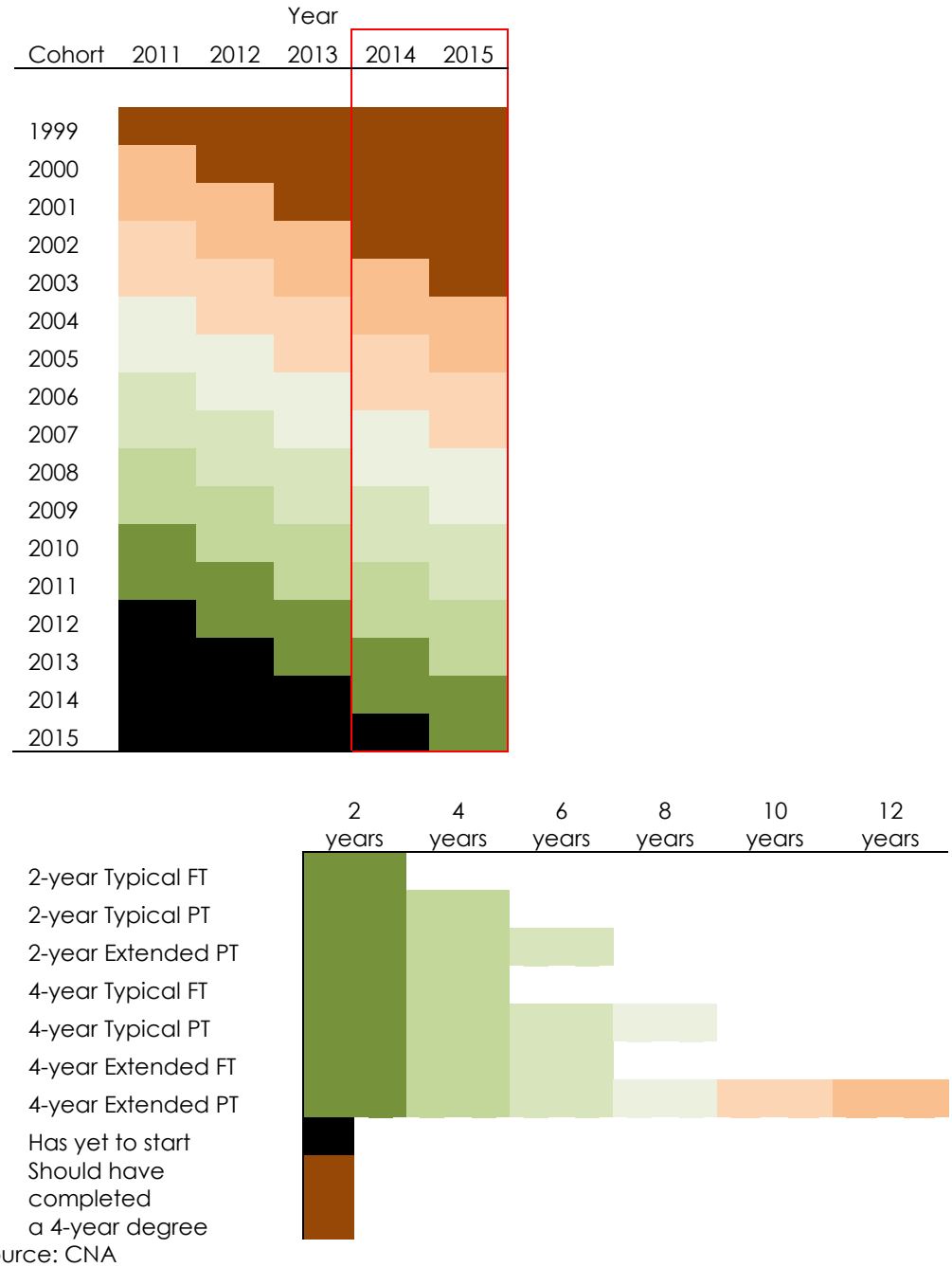
Degree completion

The ultimate goal of college attendance, from the perspective of any organization providing financial aid, is to earn a degree. We therefore measure both the number of degrees completed and the percentage of Servicemembers or their spouses who completed a degree.

Earning a degree requires a large time commitment. Since most TA and MyCAA users are enrolled less than full-time, their time commitment will be even greater than for most college students. To illustrate this process, Figure 1 shows the degrees that a student in a given cohort and year could reasonably be expected to be working toward. While we have focused our attention on 2014 and 2015 (outlined in red on the figure), the figure has been expanded to include three additional years for clarity and ease of interpretation. Colors in the top graph reflect the number of years that a cohort has been observed in the data; colors in the bottom graph show which degrees a student could reasonably be working toward, under the assumption that part-time students are taking half of a full-time courseload in each semester or year. Extended study in the bottom graph refers to 150 percent of the anticipated time to degree—thus, a part-time two-year degree might reasonably take four years, so an extended part-time two-year degree would take six.

Turning our attention back to the top graph, students in the bottom-left corner had not yet begun their studies during the years listed (by definition, the 2012 cohort did not begin until 2012). Students in the darkest green echelon are in their first two years and, therefore, could be working toward a two-year or a four-year degree under any credit load or any timeline. Students in the next highest echelon (members of the 2008 and 2009 cohorts in 2011, members of the 2009 and 2010 cohorts in 2012, and so on) should have finished a two-year degree under full-time study, but they could still be progressing toward a two-year degree under part-time study or toward a four-year degree. At the next highest echelon, students still could be attempting a two-year degree only under part-time study *and* an extended timeline; in fact, these students should have finished a four-year degree under a full-time courseload and a standard timeline. At the lightest green echelon, it is reasonable to expect that students should have finished a two-year degree regardless of credit load and that they should have finished a four-year degree under a full-time credit load, regardless of timeline. This pattern continues up to the top-right corner of the figure, in which the darkest brown shade signified that students should have finished an associate or bachelor's degree under any credit load or timeline.

Figure 1. How cohorts should progress toward degrees



Source: CNA

Table 43 through 48 show the average number of degrees attained per Servicemember or spouse. Specifically, they show the average number attained *by* 2014 or 2015, for those Servicemembers who first used TA in the years 1999 through 2015 (this is how

they are assigned to cohorts).[27] These include certificates, licenses, and degrees listed at any level. There are some striking differences between sectors in the number of degrees earned per Servicemember or spouse. Overall, Servicemembers received 0.1 degree in the private for-profit sector, 0.13 in the private not-for-profit sector, and 0.06 in the public sector, on average (see Table 47). In 2015, the average Soldier completed 0.10 degree in the private for-profit sector, 0.09 in the private not-for-profit sector, and 0.04 in the public sector. Sailors completed notably more degrees on average: 0.15 degree in the private for-profit sector, 0.21 in the private not-for-profit sector, and 0.13 in the public sector (see Table 43). Airmen earned fewer degrees than Soldiers or Sailors in the private-for-profit sector, but were roughly on par with Soldiers in other sectors: 0.09 per Airman in the private for-profit sector, 0.13 in the private not-for-profit sector, and 0.04 in the public sector. Marines earned fewer degrees than all other Servicemembers: 0.02 in the private for-profit sector, 0.02 in the private not-for-profit sector, and 0.01 in the public sector (see Table 46).

MyCAA participants, however, earned 0.14 and 0.06 degree in the private for-profit and public sectors, respectively (see Table 48). They also earned 0.10 degree per participant in the private not-for-profit sector. However, we should expect MyCAA degrees per participant to be relatively high, due to the program's goals. MyCAA is meant to help users earn a certificate, license, or an associate degree. It is reasonable to complete some of these in the first year of MyCAA use.

It is not surprising that Servicemembers in their second year of TA use earn more degrees than those in their first year. Most Servicemembers, however, are only part-time students, meaning that two academic years of TA could, at most, translate to a single year of full-time college attendance. Practically speaking, it is more likely to take three years of TA use to equate to a single year of full-time attendance.[28] Nonetheless, students who earn degrees in their second year of TA use likely either are completing certificates or associate degrees or had earned many college credits before their first TA use. While cohorts may be qualitatively different, the third-most recent cohort in each Service, sector, and year generally earns more degrees per Servicemember than the second-most recent cohort, which universally earns more degrees per Servicemember than the most recent cohort. Once again, selection likely plays a significant role when comparing completion rates across cohorts or years, because students who are less likely to earn a degree may also be more likely to stop using TA.

[27] For the MyCAA data, cohorts are defined based on when a spouse first took a course using MyCAA.

[28] As noted earlier, the average TA user takes only nine semester hours per FY across all Services and cohorts, implying that it would take three academic years of TA use to translate into a year of full-time college attendance.

Table 43. Number of degrees per student: Army[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	0.188	0.207	0.087	0.093	0.042	0.044	0.097	0.104
	(0.422)	(0.442)	(0.299)	(0.309)	(0.213)	(0.217)	(0.332)	(0.344)
2000	0.177	0.200	0.094	0.100	0.046	0.049	0.100	0.108
	(0.408)	(0.434)	(0.310)	(0.322)	(0.221)	(0.228)	(0.333)	(0.348)
2001	0.160	0.182	0.099	0.107	0.051	0.053	0.101	0.110
	(0.388)	(0.412)	(0.320)	(0.332)	(0.233)	(0.239)	(0.337)	(0.352)
2002	0.155	0.178	0.093	0.102	0.057	0.060	0.105	0.114
	(0.390)	(0.419)	(0.307)	(0.323)	(0.246)	(0.252)	(0.343)	(0.361)
2003	0.130	0.153	0.076	0.083	0.043	0.045	0.083	0.092
	(0.361)	(0.391)	(0.275)	(0.288)	(0.213)	(0.219)	(0.302)	(0.320)
2004	0.122	0.142	0.081	0.088	0.040	0.042	0.080	0.089
	(0.349)	(0.375)	(0.285)	(0.298)	(0.202)	(0.210)	(0.292)	(0.310)
2005	0.122	0.138	0.086	0.093	0.039	0.042	0.083	0.091
	(0.349)	(0.371)	(0.289)	(0.302)	(0.199)	(0.207)	(0.296)	(0.312)
2006	0.125	0.140	0.105	0.113	0.041	0.044	0.090	0.099
	(0.350)	(0.371)	(0.318)	(0.329)	(0.204)	(0.212)	(0.306)	(0.321)
2007	0.115	0.131	0.117	0.126	0.040	0.044	0.090	0.099
	(0.339)	(0.362)	(0.331)	(0.344)	(0.200)	(0.209)	(0.301)	(0.318)
2008	0.101	0.114	0.101	0.110	0.037	0.040	0.080	0.088
	(0.319)	(0.340)	(0.308)	(0.321)	(0.192)	(0.200)	(0.285)	(0.300)
2009	0.095	0.109	0.090	0.099	0.034	0.038	0.073	0.082
	(0.307)	(0.329)	(0.292)	(0.307)	(0.185)	(0.194)	(0.270)	(0.287)
2010	0.093	0.108	0.092	0.101	0.033	0.037	0.071	0.081
	(0.301)	(0.325)	(0.293)	(0.307)	(0.181)	(0.190)	(0.265)	(0.283)
2011	0.078	0.097	0.098	0.109	0.034	0.040	0.065	0.077
	(0.273)	(0.305)	(0.302)	(0.320)	(0.183)	(0.197)	(0.251)	(0.274)
2012	0.054	0.076	0.091	0.107	0.027	0.034	0.049	0.064
	(0.228)	(0.270)	(0.291)	(0.312)	(0.164)	(0.183)	(0.219)	(0.248)
2013	0.024	0.046	0.064	0.090	0.014	0.024	0.026	0.044
	(0.154)	(0.211)	(0.247)	(0.288)	(0.120)	(0.155)	(0.161)	(0.206)
2014	0.008	0.029	0.005	0.050	0.004	0.017	0.006	0.028
	(0.091)	(0.169)	(0.069)	(0.218)	(0.060)	(0.131)	(0.076)	(0.165)
2015	--	0.004	--	0.006	--	0.003	--	0.004
	--	(0.067)	--	(0.075)	--	(0.057)	--	(0.064)
All	0.101	0.114	0.089	0.096	0.039	0.041	0.077	0.084
	(0.317)	(0.338)	(0.295)	(0.308)	(0.200)	(0.207)	(0.285)	(0.299)

Source: CNA calculations using data provided by the Army.

[a.] Standard deviations are in parentheses.

Table 44. Number of degrees per student: Navy[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	0.234 (0.508)	0.241 (0.518)	0.312 (0.586)	0.316 (0.590)	0.172 (0.448)	0.173 (0.450)	0.306 (0.625)	0.311 (0.632)
2000	0.213 (0.508)	0.221 (0.517)	0.277 (0.573)	0.287 (0.583)	0.155 (0.441)	0.158 (0.446)	0.278 (0.614)	0.286 (0.624)
2001	0.210 (0.503)	0.223 (0.519)	0.278 (0.569)	0.290 (0.582)	0.144 (0.409)	0.148 (0.417)	0.271 (0.590)	0.281 (0.606)
2002	0.200 (0.501)	0.211 (0.514)	0.262 (0.563)	0.272 (0.574)	0.142 (0.411)	0.147 (0.419)	0.256 (0.582)	0.266 (0.597)
2003	0.192 (0.490)	0.203 (0.504)	0.240 (0.547)	0.252 (0.559)	0.132 (0.393)	0.137 (0.405)	0.237 (0.561)	0.249 (0.577)
2004	0.159 (0.449)	0.170 (0.465)	0.212 (0.510)	0.227 (0.529)	0.126 (0.387)	0.132 (0.397)	0.209 (0.525)	0.221 (0.543)
2005	0.161 (0.452)	0.173 (0.468)	0.196 (0.490)	0.215 (0.514)	0.129 (0.387)	0.137 (0.400)	0.203 (0.513)	0.218 (0.536)
2006	0.158 (0.442)	0.174 (0.464)	0.201 (0.495)	0.221 (0.518)	0.139 (0.395)	0.148 (0.412)	0.206 (0.507)	0.224 (0.533)
2007	0.128 (0.391)	0.144 (0.418)	0.166 (0.453)	0.191 (0.488)	0.134 (0.384)	0.144 (0.400)	0.178 (0.462)	0.197 (0.492)
2008	0.134 (0.397)	0.153 (0.425)	0.165 (0.439)	0.190 (0.472)	0.126 (0.372)	0.143 (0.398)	0.172 (0.452)	0.196 (0.486)
2009	0.120 (0.365)	0.143 (0.399)	0.141 (0.401)	0.169 (0.437)	0.117 (0.358)	0.132 (0.322)	0.151 (0.415)	0.176 (0.451)
2010	0.100 (0.335)	0.127 (0.379)	0.140 (0.395)	0.166 (0.431)	0.095 (0.327)	0.114 (0.363)	0.128 (0.380)	0.156 (0.424)
2011	0.074 (0.280)	0.103 (0.326)	0.127 (0.359)	0.165 (0.412)	0.105 (0.335)	0.131 (0.378)	0.117 (0.351)	0.152 (0.402)
2012	0.047 (0.225)	0.086 (0.298)	0.104 (0.325)	0.151 (0.389)	0.073 (0.284)	0.101 (0.336)	0.084 (0.299)	0.124 (0.363)
2013	0.024 (0.174)	0.062 (0.257)	0.056 (0.236)	0.123 (0.342)	0.036 (0.199)	0.076 (0.288)	0.043 (0.216)	0.095 (0.313)
2014	0.004 (0.067)	0.036 (0.193)	0.012 (0.109)	0.074 (0.264)	0.005 (0.074)	0.050 (0.238)	0.007 (0.087)	0.057 (0.244)
2015	-- --	0.007 (0.085)	-- --	0.008 (0.091)	-- --	0.010 (0.103)	-- --	0.009 (0.096)
All	0.146 (0.423)	0.157 (0.438)	0.207 (0.498)	0.218 (0.510)	0.128 (0.387)	0.134 (0.397)	0.197 (0.506)	0.206 (0.518)

Source: CNA calculations using data provided by the Navy.

[a.] Standard deviations are in parentheses.

Table 45. Number of degrees per student: Air Force[a]

Cohort	Private for-profit		Private not-for-profit		Public		All reported sectors	
	2014	2015	2014	2015	2014	2015	2014	2015
1999	0.129 (0.398)	0.135 (0.403)	0.203 (0.502)	0.205 (0.504)	0.076 (0.339)	0.077 (0.342)	0.175 (0.452)	0.179 (0.458)
2000	0.147 (0.427)	0.158 (0.441)	0.212 (0.531)	0.215 (0.534)	0.076 (0.341)	0.077 (0.343)	0.186 (0.471)	0.190 (0.478)
2001	0.155 (0.443)	0.168 (0.458)	0.233 (0.557)	0.237 (0.562)	0.083 (0.364)	0.085 (0.367)	0.205 (0.492)	0.211 (0.500)
2002	0.152 (0.437)	0.167 (0.453)	0.176 (0.491)	0.180 (0.495)	0.054 (0.295)	0.056 (0.298)	0.156 (0.429)	0.163 (0.439)
2003	0.135 (0.422)	0.151 (0.444)	0.143 (0.459)	0.148 (0.465)	0.041 (0.261)	0.043 (0.266)	0.126 (0.390)	0.134 (0.403)
2004	0.134 (0.420)	0.151 (0.441)	0.111 (0.406)	0.116 (0.416)	0.036 (0.242)	0.038 (0.248)	0.107 (0.355)	0.115 (0.370)
2005	0.116 (0.404)	0.132 (0.428)	0.096 (0.383)	0.100 (0.392)	0.035 (0.247)	0.037 (0.253)	0.092 (0.332)	0.101 (0.349)
2006	0.095 (0.354)	0.110 (0.375)	0.091 (0.373)	0.095 (0.381)	0.035 (0.245)	0.037 (0.254)	0.083 (0.309)	0.092 (0.326)
2007	0.085 (0.346)	0.100 (0.371)	0.081 (0.364)	0.086 (0.373)	0.041 (0.270)	0.043 (0.280)	0.077 (0.299)	0.086 (0.318)
2008	0.082 (0.342)	0.098 (0.370)	0.068 (0.338)	0.075 (0.354)	0.032 (0.246)	0.035 (0.255)	0.065 (0.271)	0.076 (0.296)
2009	0.058 (0.280)	0.071 (0.307)	0.052 (0.291)	0.059 (0.304)	0.027 (0.220)	0.029 (0.227)	0.049 (0.230)	0.058 (0.251)
2010	0.043 (0.241)	0.056 (0.270)	0.043 (0.265)	0.051 (0.285)	0.024 (0.210)	0.026 (0.220)	0.038 (0.201)	0.047 (0.226)
2011	0.034 (0.222)	0.047 (0.256)	0.029 (0.209)	0.039 (0.237)	0.017 (0.171)	0.020 (0.189)	0.027 (0.168)	0.037 (0.199)
2012	0.018 (0.158)	0.030 (0.204)	0.021 (0.175)	0.029 (0.204)	0.009 (0.125)	0.013 (0.151)	0.014 (0.121)	0.023 (0.157)
2013	0.008 (0.123)	0.018 (0.160)	0.016 (0.168)	0.023 (0.194)	0.005 (0.092)	0.008 (0.113)	0.007 (0.082)	0.013 (0.116)
2014	0.001 (0.051)	0.007 (0.109)	0.002 (0.064)	0.009 (0.112)	0.002 (0.067)	0.005 (0.090)	0.001 (0.035)	0.005 (0.072)
2015	-- --	0.003 (0.075)	-- --	0.004 (0.084)	-- --	0.003 (0.069)	-- --	0.002 (0.043)
All	0.084 (0.338)	0.093 (0.354)	0.123 (0.424)	0.126 (0.428)	0.043 (0.267)	0.044 (0.270)	0.097 (0.343)	0.101 (0.351)

Source: CNA calculations using data provided by the Air Force.

[a] Standard deviations are in parentheses.

Table 46. Number of degrees per student: Marine Corps[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	0.024 (0.191)	0.028 (0.199)	0.045 (0.220)	0.046 (0.225)	0.011 (0.117)	0.013 (0.125)	0.031 (0.195)	0.033 (0.204)
2000	0.025 (0.178)	0.028 (0.186)	0.026 (0.172)	0.026 (0.173)	0.010 (0.106)	0.010 (0.110)	0.021 (0.165)	0.023 (0.170)
2001	0.017 (0.147)	0.018 (0.151)	0.025 (0.187)	0.027 (0.190)	0.010 (0.104)	0.011 (0.107)	0.020 (0.160)	0.021 (0.164)
2002	0.022 (0.163)	0.027 (0.187)	0.027 (0.174)	0.029 (0.183)	0.008 (0.101)	0.009 (0.109)	0.020 (0.164)	20.03 (0.179)
2003	0.024 (0.182)	0.026 (0.190)	0.026 (0.184)	0.028 (0.193)	0.008 (0.097)	0.010 (0.105)	0.021 (0.170)	0.023 (0.179)
2004	0.017 (0.149)	0.019 (0.159)	0.020 (0.168)	0.023 (0.179)	0.006 (0.080)	0.008 (0.094)	0.016 (0.149)	0.019 (0.161)
2005	0.013 (0.115)	0.016 (0.127)	0.015 (0.142)	0.019 (0.156)	0.006 (0.083)	0.009 (0.101)	0.013 (0.125)	0.017 (0.142)
2006	0.015 (0.128)	0.017 (0.139)	0.011 (0.114)	0.012 (0.124)	0.006 (0.082)	0.008 (0.092)	0.013 (0.124)	0.015 (0.135)
2007	0.016 (0.138)	0.019 (0.151)	0.011 (0.107)	0.013 (0.118)	0.007 (0.092)	0.010 (0.108)	0.013 (0.130)	0.017 (0.146)
2008	0.017 (0.137)	0.021 (0.154)	0.009 (0.113)	0.013 (0.129)	0.007 (0.087)	0.009 (0.103)	0.013 (0.124)	0.017 (0.142)
2009	0.012 (0.109)	0.017 (0.131)	0.008 (0.094)	0.013 (0.123)	0.004 (0.060)	0.005 (0.080)	0.009 (0.099)	0.013 (0.122)
2010	0.012 (0.112)	0.017 (0.133)	0.012 (0.116)	0.014 (0.131)	0.005 (0.073)	0.008 (0.089)	0.010 (0.106)	0.014 (0.125)
2011	0.012 (0.113)	0.016 (0.131)	0.004 (0.061)	0.009 (0.095)	0.006 (0.080)	0.009 (0.103)	0.009 (0.098)	0.013 (0.122)
2012	0.008 (0.089)	0.013 (0.119)	0.004 (0.060)	0.010 (0.113)	0.005 (0.073)	0.011 (0.110)	0.007 (0.081)	0.013 (0.119)
2013	0.005 (0.070)	0.011 (0.103)	0.006 (0.077)	0.013 (0.123)	0.001 (0.030)	0.008 (0.090)	0.003 (0.058)	0.010 (0.104)
2014	0.001 (0.025)	0.006 (0.074)	0.000 (0.000)	0.006 (0.075)	0.000 (0.000)	0.005 (0.082)	0.000 (0.017)	0.006 (0.079)
2015	-- --	0.001 (0.035)	-- --	0.000 (0.000)	-- --	0.000 (0.020)	-- --	0.001 (0.024)
All	0.015 (0.132)	0.018 (0.146)	0.021 (0.157)	0.023 (0.166)	0.007 (0.091)	0.009 (0.103)	0.015 (0.138)	0.018 (0.150)

Source: CNA calculations using data provided by the Marine Corps.

[a.] Standard deviations are in parentheses.

Table 47. Number of degrees per student: All Services[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	0.168	0.180	0.164	0.169	0.075	0.077	0.154	0.159
	(0.427)	(0.441)	(0.440)	(0.445)	(0.303)	(0.306)	(0.445)	(0.453)
2000	0.157	0.171	0.171	0.176	0.071	0.073	0.152	0.158
	(0.424)	(0.440)	(0.466)	(0.473)	(0.305)	(0.309)	(0.440)	(0.450)
2001	0.153	0.167	0.191	0.197	0.073	0.075	0.161	0.168
	(0.422)	(0.439)	(0.495)	(0.503)	(0.312)	(0.317)	(0.445)	(0.456)
2002	0.149	0.165	0.152	0.158	0.066	0.069	0.138	0.147
	(0.417)	(0.437)	(0.440)	(0.448)	(0.287)	(0.293)	(0.414)	(0.428)
2003	0.133	0.149	0.125	0.132	0.053	0.055	0.114	0.122
	(0.397)	(0.419)	(0.407)	(0.416)	(0.255)	(0.263)	(0.376)	(0.391)
2004	0.123	0.138	0.114	0.121	0.051	0.054	0.107	0.116
	(0.383)	(0.403)	(0.384)	(0.397)	(0.251)	(0.259)	(0.361)	(0.377)
2005	0.116	0.130	0.106	0.114	0.051	0.054	0.102	0.111
	(0.373)	(0.393)	(0.369)	(0.383)	(0.250)	(0.259)	(0.351)	(0.369)
2006	0.109	0.122	0.112	0.120	0.054	0.058	0.103	0.113
	(0.354)	(0.374)	(0.374)	(0.387)	(0.256)	(0.266)	(0.348)	(0.366)
2007	0.099	0.113	0.105	0.115	0.055	0.059	0.097	0.108
	(0.338)	(0.361)	(0.364)	(0.382)	(0.257)	(0.268)	(0.332)	(0.353)
2008	0.091	0.105	0.092	0.103	0.046	0.051	0.083	0.094
	(0.324)	(0.347)	(0.338)	(0.357)	(0.234)	(0.247)	(0.305)	(0.326)
2009	0.080	0.094	0.081	0.092	0.042	0.047	0.074	0.085
	(0.295)	(0.320)	(0.308)	(0.328)	(0.222)	(0.234)	(0.281)	(0.303)
2010	0.072	0.087	0.079	0.090	0.036	0.041	0.066	0.077
	(0.277)	(0.305)	(0.298)	(0.319)	(0.205)	(0.220)	(0.262)	(0.286)
2011	0.057	0.074	0.072	0.087	0.035	0.042	0.056	0.070
	(0.247)	(0.280)	(0.276)	(0.304)	(0.198)	(0.218)	(0.239)	(0.268)
2012	0.038	0.057	0.062	0.080	0.027	0.035	0.041	0.056
	(0.199)	(0.244)	(0.254)	(0.290)	(0.171)	(0.199)	(0.204)	(0.240)
2013	0.017	0.035	0.042	0.068	0.014	0.026	0.021	0.040
	(0.141)	(0.194)	(0.212)	(0.267)	(0.124)	(0.169)	(0.148)	(0.201)
2014	0.005	0.021	0.006	0.040	0.003	0.019	0.004	0.025
	(0.074)	(0.151)	(0.079)	(0.200)	(0.063)	(0.147)	(0.066)	(0.160)
2015	--	0.004	--	0.006	--	0.005	--	0.004
	--	(0.071)	--	(0.081)	--	(0.071)	--	(0.067)
All	0.094	(0.105)	0.119	0.125	0.052	0.055	0.096	0.103
	(0.330)	(0.348)	(0.387)	(0.396)	(0.252)	(0.260)	(0.342)	(0.354)

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

[a.] Standard deviations are in parentheses.

Table 48. Number of degrees per student: MyCAA[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
2009	0.065	0.065	0.024	0.024	0.034	0.034	0.078	0.078
	(0.246)	(0.246)	(0.152)	(0.152)	(0.181)	(0.181)	(0.339)	(0.339)
2010	0.065	0.066	0.065	0.067	0.053	0.054	0.097	0.099
	(0.249)	(0.251)	(0.246)	(0.251)	(0.228)	(0.229)	(0.373)	(0.375)
2011	0.111	0.112	0.077	0.077	0.052	0.052	0.107	0.108
	(0.315)	(0.316)	(0.266)	(0.266)	(0.228)	(0.228)	(0.355)	(0.356)
2012	0.119	0.121	0.139	0.142	0.049	0.052	0.114	0.116
	(0.324)	(0.327)	(0.347)	(0.352)	(0.220)	(0.226)	(0.351)	(0.356)
2013	0.143	0.148	0.155	0.166	0.053	0.061	0.130	0.138
	(0.351)	(0.356)	(0.362)	(0.372)	(0.228)	(0.245)	(0.362)	(0.376)
2014	0.180	0.190	0.035	0.045	0.098	0.113	0.146	0.162
	(0.384)	(0.393)	(0.183)	(0.207)	(0.298)	(0.317)	(0.354)	(0.390)
2015	--	0.152	--	0.033	--	0.070	--	0.120
	--	(0.359)	--	(0.179)	--	(0.255)	--	(0.325)
All	0.133	0.139	0.101	0.098	0.059	0.065	0.121	0.126
	(0.340)	(0.346)	(0.302)	(0.298)	(0.239)	(0.249)	(0.356)	(0.362)

Source: CNA calculations using data provided by VolEd.

[a]. Standard deviations are in parentheses.

Table 49 through 54 show the cumulative graduation rate for Servicemembers and their spouses, where this graduation rate is defined as the percentage of TA or MyCAA users who receive any degree at any level. As a result, this number does not take multiple degrees into account (for example, a Servicemember who earns two certificates in a single year will count twice toward the number of degrees completed but only once toward the graduation rate). As before, Servicemembers are assigned to cohorts based on the year in which they first took a course using TA. Thus, each row of the tables reveals the following: of all Servicemembers who first took a course using TA in that year, what percentage of them have obtained a degree (or certificate) by 2014 or 2015? These graduation rates are presented separately for each sector and for all reported sectors combined. Some Servicemembers will enter into the graduation rate calculation for more than one sector (if they took courses using TA in more than one sector). Earning a degree does not prevent a Servicemember (or spouse) from continuing to appear in the TA (or MyCAA) data. Some will continue their studies at a higher level, while others may take additional courses at the same level as the initial degree, license, or certification. A Servicemember who earns one certification in 2014 and another in 2015 will count toward both years' graduation rates.

Since very few Servicemembers or spouses earned multiple degrees in the same year, the graduation rate is very similar to the number of degrees earned. Nearly all overall rates in 2015 are within rounding error of the number of degrees earned. Looking specifically at the 2014 and 2015 cohorts, only the Air Force has any substantial difference between its graduation rate and the number of degrees earned; this suggests

that while few Servicemembers in 2014 and 2015 Air Force TA cohorts earned *any* form of degree, those that did so were especially likely to earn multiple degrees.

Table 49. Graduation rate: Army[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	17.6%	19.2%	8.2%	8.8%	4.0%	4.2%	8.6%	9.2%
2000	16.7%	18.5%	8.8%	9.4%	4.4%	4.6%	9.0%	9.6%
2001	15.2%	17.1%	9.3%	10.0%	4.8%	5.0%	9.1%	9.7%
2002	14.5%	16.4%	8.8%	9.6%	5.3%	5.6%	9.3%	10.0%
2003	12.2%	14.1%	7.4%	8.0%	4.1%	4.3%	7.6%	8.3%
2004	11.6%	13.3%	7.7%	8.4%	3.8%	4.1%	7.4%	8.1%
2005	11.5%	13.0%	8.3%	8.9%	3.8%	4.0%	7.7%	8.4%
2006	11.8%	13.2%	10.2%	10.9%	4.0%	4.2%	8.4%	9.2%
2007	10.9%	12.2%	11.4%	12.2%	4.0%	4.3%	8.5%	9.3%
2008	9.5%	10.7%	9.8%	10.7%	3.6%	3.9%	7.6%	8.4%
2009	9.1%	10.4%	8.9%	9.6%	3.4%	3.8%	7.1%	7.9%
2010	8.9%	10.4%	9.1%	9.9%	3.3%	3.6%	6.9%	7.8%
2011	7.6%	9.4%	9.6%	10.7%	3.4%	3.9%	6.4%	7.5%
2012	5.3%	7.4%	9.1%	10.6%	2.7%	3.4%	4.9%	6.3%
2013	2.4%	4.6%	6.3%	8.9%	1.4%	2.4%	2.6%	4.3%
2014	0.8%	2.9%	0.5%	5.0%	0.4%	1.7%	0.6%	2.8%
2015	--	0.4%	--	0.6%	--	0.3%	--	0.4%
All	9.6%	10.8%	8.6%	9.3%	3.7%	4.0%	7.1%	7.8%

Source: CNA calculations using data provided by the Army.

[a.] Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 50. Graduation rate: Navy[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
1999	19.9%	20.4%	25.7%	26.0%	14.7%	14.8%	23.5%	23.7%
2000	17.5%	18.1%	22.2%	23.0%	13.1%	13.2%	20.8%	21.3%
2001	17.3%	18.2%	22.6%	23.4%	12.5%	12.7%	20.8%	21.3%
2002	16.0%	16.9%	20.9%	21.6%	12.1%	12.4%	19.4%	19.9%
2003	15.6%	16.5%	18.9%	19.7%	11.4%	11.7%	18.1%	18.8%
2004	13.0%	13.8%	17.1%	18.0%	10.9%	11.4%	16.1%	16.9%
2005	13.0%	13.9%	16.0%	17.2%	11.3%	11.8%	15.9%	16.8%
2006	13.0%	14.1%	16.4%	17.9%	12.2%	12.9%	16.5%	17.6%
2007	10.9%	12.1%	13.7%	15.4%	12.0%	12.7%	14.8%	16.0%
2008	11.5%	12.9%	14.0%	15.9%	11.3%	12.7%	14.4%	16.1%
2009	10.7%	12.6%	12.3%	14.6%	10.5%	11.7%	13.1%	15.0%
2010	9.2%	11.4%	12.4%	14.6%	8.5%	10.0%	11.3%	13.4%
2011	7.0%	9.6%	11.9%	15.0%	9.6%	11.7%	10.8%	13.7%
2012	4.5%	8.1%	9.8%	14.0%	6.6%	9.0%	7.8%	11.3%
2013	2.2%	5.9%	5.5%	11.8%	3.3%	7.0%	4.0%	8.9%
2014	0.4%	3.5%	1.2%	7.3%	0.5%	4.5%	0.7%	5.4%
2015	--	0.7%	--	0.8%	--	1.0%	--	0.9%
All	12.2%	13.2%	17.0%	17.9%	11.1%	11.6%	15.6%	16.3%

Source: CNA calculations using data provided by the Navy.

[a.] Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 51. Graduation rate: Air Force[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
1999	11.2%	11.7%	16.8%	16.9%	5.8%	5.9%	14.7%	14.9%
2000	12.5%	13.4%	17.0%	17.1%	5.8%	5.9%	15.3%	15.6%
2001	13.0%	14.1%	18.4%	18.8%	6.1%	6.3%	16.9%	17.3%
2002	12.7%	14.1%	14.0%	14.3%	4.0%	4.1%	13.2%	13.7%
2003	11.0%	12.5%	11.0%	11.4%	2.9%	3.0%	10.6%	11.2%
2004	11.0%	12.4%	8.6%	9.0%	2.5%	2.7%	9.2%	9.9%
2005	9.3%	10.7%	7.3%	7.6%	2.3%	2.5%	8.0%	8.7%
2006	7.9%	9.2%	6.9%	7.3%	2.3%	2.5%	7.4%	8.1%
2007	7.0%	8.1%	5.8%	6.2%	2.5%	2.7%	6.9%	7.7%
2008	6.5%	7.8%	4.8%	5.4%	1.9%	2.2%	5.9%	6.8%
2009	4.8%	5.9%	3.8%	4.4%	1.6%	1.8%	4.6%	5.4%
2010	3.5%	4.7%	3.1%	3.7%	1.5%	1.7%	3.6%	4.4%
2011	2.7%	3.8%	2.3%	3.0%	1.1%	1.3%	2.6%	3.4%
2012	1.4%	2.5%	1.7%	2.4%	0.6%	0.9%	1.4%	2.3%
2013	0.5%	1.4%	1.0%	1.6%	0.3%	0.6%	0.6%	1.3%
2014	0.1%	0.5%	0.1%	0.7%	0.1%	0.3%	0.1%	0.5%
2015	--	0.2%	--	0.2%	--	0.2%	--	0.2%
All	6.9%	7.7%	9.6%	9.8%	3.1%	3.1%	8.3%	8.6%

Source: CNA calculations using data provided by the Air Force.

[a]. Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 52. Graduation rate: Marine Corps[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
1999	2.0%	2.3%	4.2%	4.3%	1.0%	1.2%	2.7%	2.9%
2000	2.2%	2.5%	2.4%	2.4%	0.9%	0.9%	1.9%	2.0%
2001	1.5%	1.6%	2.2%	2.3%	0.9%	1.0%	1.8%	1.9%
2002	1.9%	2.2%	2.5%	2.6%	0.7%	0.8%	1.7%	1.9%
2003	2.0%	2.2%	2.2%	2.4%	0.8%	0.9%	1.8%	1.9%
2004	1.4%	1.6%	1.6%	1.8%	0.6%	0.8%	1.4%	1.6%
2005	1.3%	1.6%	1.3%	1.6%	0.6%	0.9%	1.2%	1.5%
2006	1.4%	1.6%	1.0%	1.1%	0.6%	0.8%	1.2%	1.4%
2007	1.4%	1.8%	1.0%	1.3%	0.6%	0.9%	1.2%	1.5%
2008	1.6%	1.9%	0.7%	1.1%	0.7%	0.9%	1.2%	1.6%
2009	1.2%	1.7%	0.8%	1.1%	0.4%	0.5%	0.9%	1.2%
2010	1.2%	1.6%	1.0%	1.3%	0.5%	0.7%	1.0%	1.3%
2011	1.2%	1.6%	0.4%	0.9%	0.6%	0.9%	0.9%	1.3%
2012	0.8%	1.3%	0.4%	0.9%	0.5%	1.0%	0.7%	1.3%
2013	0.5%	1.1%	0.6%	1.1%	0.1%	0.7%	0.3%	1.0%
2014	0.1%	0.6%	0.0%	0.6%	0.0%	0.5%	0.0%	0.5%
2015	--	0.1%	--	0.0%	--	0.0%	--	0.1%
All	1.3%	1.7%	1.9%	2.1%	0.7%	0.9%	1.4%	1.6%

Source: CNA calculations using data provided by the Marine Corps.

[a]. Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 53. Graduation rate: All Services[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
1999	15.0%	15.9%	14.1%	14.4%	6.6%	6.7%	12.5%	12.8%
2000	13.8%	14.9%	14.1%	14.5%	6.1%	6.2%	12.4%	12.8%
2001	13.3%	14.5%	15.6%	16.0%	6.1%	6.2%	13.3%	13.8%
2002	12.9%	14.3%	12.6%	13.1%	5.7%	5.9%	11.5%	12.1%
2003	11.5%	12.9%	10.3%	10.8%	4.6%	4.8%	9.6%	10.2%
2004	10.7%	11.9%	9.5%	10.0%	4.5%	4.7%	9.1%	9.8%
2005	10.1%	11.3%	8.9%	9.6%	4.5%	4.8%	8.8%	9.5%
2006	9.7%	10.8%	9.5%	10.2%	4.8%	5.1%	9.0%	9.8%
2007	8.8%	9.9%	8.9%	9.7%	4.8%	5.2%	8.7%	9.5%
2008	8.1%	9.2%	7.9%	8.8%	4.1%	4.5%	7.6%	8.5%
2009	7.4%	8.6%	7.2%	8.2%	3.9%	4.3%	6.9%	7.8%
2010	6.7%	8.1%	7.1%	8.1%	3.3%	3.7%	6.2%	7.2%
2011	5.4%	6.9%	6.8%	8.0%	3.3%	3.9%	5.4%	6.6%
2012	3.6%	5.4%	5.9%	7.6%	2.5%	3.3%	4.0%	5.4%
2013	1.6%	3.3%	3.9%	6.5%	1.3%	2.5%	2.1%	3.9%
2014	0.5%	2.0%	0.5%	3.9%	0.3%	1.8%	0.4%	2.4%
2015	--	0.4%	--	0.5%	--	0.4%	--	0.4%
All	8.3%	9.3%	10.0%	10.6%	4.5%	4.8%	8.3%	8.9%

Source: CNA calculations using data provided by the Army, Navy, Air Force, and Marine Corps.

[a]. Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Table 54. Graduation rate: MyCAA[a]

	Private for-profit		Private not-for-profit		Public		All reported sectors	
Cohort	2014	2015	2014	2015	2014	2015	2014	2015
2009	6.5%	6.5%	2.4%	2.4%	3.4%	3.4%	5.7%	5.7%
2010	6.5%	6.6%	6.5%	6.7%	5.3%	5.3%	7.3%	7.4%
2011	11.1%	11.1%	7.7%	7.7%	5.1%	5.1%	9.3%	9.3%
2012	11.8%	12.1%	13.8%	14.1%	4.9%	5.1%	10.3%	10.5%
2013	14.3%	14.8%	15.5%	16.6%	5.2%	5.9%	12.1%	12.7%
2014	18.0%	19.0%	3.5%	4.5%	9.8%	11.3%	14.6%	15.4%
2015	--	15.2%	--	3.3%	--	7.0%	--	12.0%
All	13.2%	13.9%	10.1%	9.7%	5.8%	6.4%	11.2%	11.6%

Source: CNA calculations using data provided by VolEd.

[a]. Standard deviations have been excluded from this table since the interpretation of a standard deviation on binary variable (one that takes values of zero or one) is not intuitive.

Conclusion

In this report, we used individual-level data provided by each of the Services and Force Education and Training to calculate the TA and MyCAA educational outcome statistics requested in the 2014 DOD Appropriations Bill. These tabulations compare not only TA Servicemembers' outcomes by Service but also TA and MyCAA users' outcomes by institutional sector. By making these Service- and sector-level comparisons, we highlight differences in TA and MyCAA enrollment, cost, number of courses taken, credits received, courses completed, and degrees received. These summarized outcome measures provide policy-makers with a better understanding of the differences that exist across Services and education sectors, allowing them to evaluate whether certain Services are using these VolEd benefits more (or less) effectively. The summarized data also identify whether students' outcomes vary by type of educational sector.

We find, overall, that TA use is highest in the Army, followed by the Air Force, Navy, and Marine Corps. Overall TA costs were fairly similar across the four Services, although generally higher at both types of private institutions than at public institutions. In terms of the number of courses taken per participant, in recent years fewer courses were taken at public than private institutions and *new* TA and MyCAA users took fewer courses than the average TA or MyCAA users. These trends are mimicked in other metrics, namely the number of credits earned per participant, the number of courses completed, and course completion rates. We find that 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. Overall, course completion rates were highest at private not-for-profit institutions and lowest at public institutions. In addition, they were generally lower for first-time TA or MyCAA users. Similarly, across all Services, the number of degrees earned was highest in the private, not-for-profit sector, followed by the private, for-profit sector, and lowest in the public sector. Graduation rates follow this pattern as well.

Note, however, that these are only summary statistics and have not controlled for differences in the participants' characteristics or in the quality of institutions attended. Future research using this same data set should characterize both Servicemembers who use TA and those who ultimately graduate, and attempt to parse out such differences.

Appendix A: Data Cleaning

The course-level data required substantial cleaning. Much of this process was similar for the four Services. First, a large number of extraneous observations were dropped. These observations tended to fit several patterns: a large number of courses or institutions were listed as "FEE," "FEES," or something similar; some students had variables with values such as "DUPLICATE – DO NOT USE" or "ERROR"; and some institution names were not actual institutions (e.g., "A SCHOOL CODE FOR TESTING," "CAMPUS BOOKSTORE," or "EDUCATION"; see Appendix C for a full list). 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 therefore 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 particularly significant amount of cleaning. First, there was a wider range of possible grades listed than in any of the other three 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 increases by a factor of approximately 25 in 2006 and redoubles in 2010, as can be seen in Table 55.

Table 55. Number of unique OPE ID values by year (Army's raw 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.

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

We were able to only partially solve the second and third issues with 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* in fact 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 showed how to standardize Campbellsville College (8 missing values). Writing the extra code for Campbellsville College took a negligible amount of additional time compared with the rest of the standardization process.

- 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 56.

Table 56. 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 for which they were dropped, and any differences in the distribution of grades or completions that resulted from dropping these observations.

Army

In Table 57, 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 initially 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 rest of the table, until ultimately 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 perhaps skewed the overall distribution of grades (and, thus, completion and graduation rates). That is, did this data cleaning process result in our 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 58. Although there are differences in the grade distributions, they are not drastic. Most importantly, 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 57. Army 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 isn't 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 58. Distribution of Army grades: Dropped observations versus final sample

Dropped Observations						Final Sample					
Credit		No Credit		Unable to Determine		Credit		No Credit		Unable to Determine	
Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency
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 59 and Table 60. In this case, we initially 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 60 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 A's and a somewhat lower percentage of B's. If anything, this suggests that our final sample is slightly skewed *toward* course completion. This is also noted in the differences between the overall completion rates (calculations not shown): 87.9 percent in the final sample versus 87.9 percent among the dropped observations.

Table 59. Navy 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 60. Distribution of Navy grades: Dropped observations versus final sample

Dropped Observations						Final Sample					
Credit		No Credit		Impossible To Determine		Credit		No Credit		Impossible To Determine	
Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency
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

Information regarding the Air Force's dropped observations is presented in Table 61 and Table 62. We initially 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 62 shows the comparison of grade distributions between the dropped observations and the final sample. Our final sample contains a higher percentage of A's and B's 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 61. Air Force sample size remaining (in IDs and rows of data) after each 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 62. Distribution of Air Force grades: Dropped observations versus final sample

Dropped Observations						Final Sample					
Credit		No Credit		Impossible to Determine		Credit		No Credit		Impossible to Determine	
Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency
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 63 and Table 64 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 63, 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 A's, slightly fewer B's and D's, and slightly more F's. 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 63. Marine Corps 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 64. Distribution of Marine Corps grades: Dropped observations versus final sample

Dropped Observations						Final Sample					
Credit		No Credit		Impossible To Determine		Credit		No Credit		Impossible To Determine	
Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency	Grade	Frequ-ency
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 65 shows the list of grades corresponding to course completion, Table 66 shows the list of grades corresponding to no course completions, and Table 67 shows the list of grades not used in determining the course completion rate.

Table 65. 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 66. 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
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

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 67. 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.

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3003 Washington Boulevard, Arlington, VA 22201
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