Statement of
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before the
Subcommittee on Manpower and Personnel
Committee on Armed Services
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Mr. Chairman, I am pleased to appear before your Subcommittee today to discuss the analysis by the Congressional Budget Office (CBO) of the different programs that the military services use to train commissioned officers. My testimony today will be confined to the services' three principal programs for training officers (other than specialists, such as medical and legal officers). The three programs are the service academies, the Reserve Officers Training Corps (ROTC), and officer candidate or officer training schools (OCS/OTS).

After presenting some background on commissioning programs for officers, my testimony will address three main issues:

- Service needs for new officers;
- Costs of various commissioning programs; and
- Measurable differences in the performance of officers from the commissioning programs.

BACKGROUND

Each of the military departments operates a service academy--the Army operates the Military Academy at West Point, the Navy the Naval Academy

at Annapolis, and the Air Force the Air Force Academy at Colorado Springs. Together the three academies produced about 3,200 new officers in 1989. Cadets and midshipmen at the academies receive four years of college education and pay and allowances during their student period. In return, they agree to serve a minimum of five years (six years for future graduates) on active duty after graduation.

Each of the military services (Army, Navy, Air Force, and Marine Corps) operates both scholarship and nonscholarship ROTC programs. Non-scholarship programs generally provide participants with free tuition and books in their military science courses, paid summer training, and a minimal stipend for a period of two years. In most cases, scholarship programs offer a more complete payment that includes full tuition, books, and fees, plus a school-year stipend of $100 per month for a period of four years and paid summer training. (Most Air Force scholarships pay tuition only up to a maximum of $7,500 a year and the Army has also begun imposing limits.) In 1989, about 9,800 new officers entered from both types of ROTC programs.

The Army and Navy also operate officer candidate schools; the Air Force calls its school an officer training school. All of these schools accept enlisted personnel who wish to become officers, as well as civilians who have completed college and seek a commission. The programs last at most 16 weeks and provide basic military education for prospective officers. In 1989, about 3,300 new officers entered from OCS and OTS.

REOUIREMENTS FOR OFFICER ACCESSIONS

For the next several years, all of the military services are likely to face substantial force reductions, driven primarily by the perceived easing of East-West tensions but also by continuing pressure to reduce the federal budget deficit. Force reductions will almost surely result in a smaller officer corps. Indeed, the process of reducing the size of the commissioned officer corps has been under way for several years. This Committee initiated the process by mandating reductions in active-duty officer strength in fiscal years 1987, 1988, and 1989.

Reductions in the total number of commissioned officers, of course, will lead to cuts in the required number of officer accessions. CBO estimates suggest that the total number of officers entering the military in 1989 was roughly the number required to maintain today's size of the officer corps (see Table A-1 in the Appendix). This estimate is based on "steady state" calculations that assume that the willingness of officers to stay in service remains at its 1988 level. If willingness to stay does not change, then any cuts in the officer corps would result in proportional reductions in requirements for new officer accessions.

If history is a guide, reductions in required accessions will result in disproportionately large cuts in entrants from officer candidate and officer training schools. In recent years, such OCS/OTS commissionees have made

up a generally declining share of new officers--reduced from 28 percent to about 12 percent for all the services since 1980 (see Table 1). The share of military academy graduates has increased slightly from 9 percent to about 12 percent, while ROTC programs have increased their share from 25 percent to about 37 percent. Direct appointments, warrant officer appointments, and miscellaneous appointments make up the remainder of officer accessions.

The trend toward a decline in commissionees from OCS/OTS is particularly likely to continue if total officer strength is reduced over the next

TABLE 1. PERCENTAGE OF OFFICERS COMMISSIONED BY TRAINING PROGRAM

Calendar Year	Academies	ROTC	OCS/OTS
1980	9	25	28
1981	9	26	25
1982	9	30	20
1983	9	31	23
1984	11	36	19
1985	10	34	24
1986	11	31	23
1987	12	34	18
1988	13	38	13
1989	12	37	12

SOURCE: Data supplied by Department of Defense.

NOTES: Percentages do not add to 100 percent because numbers exclude direct appointments (lawyers, doctors, and so forth), warrant officers, and others.

OCS = Officer Candidate School.
OTS = Officer Training School.
ROTC = Reserve Officers Training Corps.

few years. Cadets and midshipmen already enrolled or accepted in the academies will provide a continuing flow of officer accessions through 1994. Similarly, the number of new ROTC commissionees for the next two years is largely fixed by the number of young men and women currently in the last two years of their ROTC programs. The services could minimize reductions in OCS and OTS programs by assigning ROTC graduates directly to the reserve components or by delaying their dates of entrance into military service. But substantial cuts in OCS/OTS seem probable.

In view of this prospect, the Congress may wish to evaluate the comparative cost and performance of the different commissioning programs. At issue is whether the number of officer accessions from any single source, such as the service academies, should be protected against reductions, or whether all commissioning programs should be retained by the services in roughly their present proportions.

COSTS OF COMMISSIONING PROGRAMS

Measured in terms of costs to the Department of Defense (DoD), the average cost of an academy graduate ranges from $153,000 to $229,000 (see Table 2).[1]

1. For several reasons, CBO's analysis does not include the Marine Corps. Since the Corps does not operate a military academy, cost comparisons with other commissioning programs would be incomplete; in addition, the Marine Corps Platoon Leaders Course is not precisely analogous to the programs of other services. Finally, the data on the performance of Marine Corps officers could not be analyzed in a manner similar to data from the other services because of the smaller number of Marine Corps officer accessions and the consequent lack of statistical validity.

The average cost per commissionee under the ROTC scholarship program is much lower, ranging from $53,000 to $58,000 in the three services. OCS/OTS costs per commissionee are much lower still, ranging between $15,000 and $20,000 for all three services. Costs were not available for graduates of nonscholarship ROTC programs.

As Table 2 shows, there is a sharp difference between the average costs of a graduate at the Naval Academy and costs at the other academies. Several possible reasons exist for this difference. One reason is the size of the physical plants. The Military Academy and Air Force Academy have, respectively, about 16,000 and 18,000 acres of land; the Naval Academy has less than 1,000 acres. The Naval Academy also provides less housing and medical care for its faculty, which is largely civilian. The faculties of the other service academies consist overwhelmingly of military personnel, who

TABLE 2. DOD AVERAGE COST PER GRADUATE IN 1989 (In dollars)

	Army	Navy	Air Force
Academy	229,000	153,000	225,000
ROTC (Scholarship)	55,000	53,000	58,000
Officer Candidate School/ Officer Training School	15,000	20,000	18,000

SOURCE: Data supplied by Department of Defense.

NOTE: ROTC = Reserve Officers Training Corps.

receive medical care and housing at government expense. There may also be other differences in costs among the academies, though these differences are difficult to discern from available data because the academies appear to account in different ways for similar costs--for example, those for administrative data processing and logistical support.

Differences in Costs Among Commissioning Sources

More important for this testimony are the sharp differences, regardless of service, in the costs among the three commissioning programs. A graduate of an ROTC scholarship program costs the Department of Defense about one-quarter to one-third as much as an academy graduate. These lower costs stem from several factors.

At most, ROTC scholarship programs pay the cost of all tuition and fees, rather than the full cost of a college education that would be financed in part by institutional support from gifts, grants, governmental aid, and perhaps other sources. The cost of ROTC graduates is also lower because many ROTC students attend schools that cost less to operate than the academies. The service academies would probably fall at the upper end of institutions ranked by cost. In this respect, they are similar to other highly selective colleges that focus on education in math, science, and engineering and provide a wide range of extracurricular activities. Finally, the service academies incur costs that other colleges and universities do not bear: full

pay for students, mandatory summer programs, clothing and allowances for full board, and a full complement of military instruction in addition to a rigorous engineering curriculum. While ROTC programs also incur some of these costs--for example, stipends, summer training, and military instruction--the service academies clearly devote more resources to these activities.

Of the three principal commissioning programs, OCS/OTS is the least costly. A graduate of OCS or OTS costs the Department of Defense, on average, 6 percent to 13 percent as much as an academy graduate and about one-quarter to one-third as much as an officer obtained through an ROTC scholarship. One reason for these differences is that the government does not pay for any of the college education of OCS/OTS graduates. Also, the duration of OCS/OTS programs is much shorter than other commissioning programs; they last a few months rather than two to four years.

Use of These Cost Data

The average costs borne by DoD, which are shown in Table 2, are appropriate to use in some comparisons and decisions, but not in others. The average costs are a reasonable guide to the effects on the DoD budget of large changes in the number of candidates in officer commissioning

programs.[2] Average costs would, however, overstate the effects of small changes in numbers of students, particularly at the academies. The academies incur substantial costs to maintain their facilities and basic educational services. Most of these costs would not change if there were small changes in the numbers of students. Assessing the effects of small changes in numbers of students would require an estimate of marginal costs, which cannot be obtained using the data available to CBO.

Moreover, use of the DoD costs in Table *2* clearly overstates cost differences among commissioning sources if the desired measure is not just cost to DoD but rather the total cost to train a new military officer. The DoD costs in Table *2* reflect all the costs of providing a college education to students attending the academies but none or only part of those costs for graduates of ROTC and OCS/OTS.[3] If the full costs of educating ROTC and OCS/OTS graduates were included, then costs per graduate among the various commissioning sources would be more similar than those in Table *2*.

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2. Use of the average costs in Table *2* could overstate, though probably to a modest degree, savings to the federal government as a whole associated with changes in the numbers of academy cadets or other officer candidates. If DoD were to alter the number of students in its commissioning programs--for example, by reducing the size of the academies or the number of ROTC scholarships--then some of the students who would have participated in those programs would probably apply for other federal government aid, such as student grants or loans. Thus, a reduction in DoD programs could lead to higher costs in other portions of the federal budget.

3. Academy costs also include wages paid to cadets, but costs for graduates from other sources do not include any measure of wages forgone by students.

Adequacy of Cost Data

The cost data available to CBO are adequate to support conclusions about the average cost per graduate borne by the Department of Defense, particularly since the differences are large. But more detailed comparisons of costs would require better information. It is not always evident that costs for various commissioning programs include all the same categories of costs. Moreover, data on costs at the service academies contain many anomalies that make comparing various categories of costs at the three academies nearly impossible. Nor, as I mentioned earlier, do the data available to CBO permit us to calculate the marginal costs of changing the numbers of commissionees, particularly for the academies.

PERFORMANCE OF COMMISSIONED OFFICERS

Are some or all of these sizeable differences in DoD costs among the various commissioning programs reflected in the performance of their graduates?

Measures of Performance

The performance of officers commissioned through the three principal programs could differ in two broad ways. First, the military services might realize longer service from one group, such as academy graduates, than from

another, such as ROTC graduates. Longer service means that the cost of the government's investment yields a greater return--for example, by reducing the required number of new officers and thus holding down costs.

Second, one group of officers might offer service of higher quality or productivity than another group. Comprehensive measures of quality are elusive. As surrogate measures of quality, we used two quantifiable variables: time to promotion and incidence of forced separation from service.

Sources and Limitations of Data

To examine officer performance, CBO compiled data from several sources. The services supplied some of our data. CBO also assembled data on all commissioned officers who entered active duty between 1979 and 1988. These data, which were provided by the Defense Manpower Data Center (DMDC), identified officers by source of commission as well as demographic, educational, and military characteristics. In all, nearly 255,000 individual officers were included in the data base, and up to 10 years of experience was analyzed for each officer.

Although our detailed data from DMDC were as extensive as we could acquire, they do exhibit some deficiencies. Perhaps most important, we were unable to go back before 1979 because of limitations in the data provided to DMDC by the services. Thus, we could not track officer careers beyond 10

years of experience. In addition, some portions of the data had higher rates of error in the early years after 1979. In most cases, we were able to resolve these problems by relying on the information in the later years of individual officers' files. Comparisons would, however, be aided by additional years of data on continuation, promotion, and separation rates, as well as by more accurate data.

Length of Service

Data supplied by the services suggest that, compared with officers from other commissioning programs, academy officers serve for modestly longer periods in the military. In the Army, for example, rates of continuation in 1989 suggest that academy officers will serve an average of 13.9 years on active duty compared with 13.0 years for OCS graduates and 12.3 years for ROTC graduates. Thus, average length of service for academy graduates would be greater by between 7 percent and 13 percent. Differences were modestly larger based on rates of continuation in 1987 and 1988 but never more than 16 percent.

These results, however, may reflect more than source of commission. The data include many factors that could affect length of service, including personal characteristics--such as race, sex, and marital status--as well as service factors such as military occupation. To isolate the effect of source of commission, CBO used statistical techniques to adjust for differences in these

and other factors. These techniques were applied to data for officers entering in 1979, the earliest year for which detailed data are available. Thus, the results apply only for the first 10 years of service.

Our data indicate that, in all three services, academy graduates have longer average lengths of service during their first 10 years of active duty than ROTC graduates. In the Army, academy graduates serve an average of 11 months longer than graduates of ROTC programs, either scholarship or nonscholarship (see Table 3). Similar findings are apparent for the Navy and Air Force, though the specific differences vary in size.

TABLE 3. AVERAGE MONTHS OF ACTIVE MILITARY SERVICE DURING THE 1979-1989 PERIOD, WITH AND WITHOUT ADJUSTMENTS TO ISOLATE SOURCE OF COMMISSION, FOR OFFICERS ENTERING IN 1979

	Army		Navy		Air Force	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Academy	98	98	98	98	106	106
ROTC (Scholarship)	87	90	95	96	99	101
ROTC (Nonscholarship)	87	89	77	82	99	102

SOURCE: Congressional Budget Office based on Department of Defense data.

NOTE: Unadjusted estimates reflect average months of service among all entering officers with the specified source of commission. Adjusted estimates are intended to isolate the effects of source of commission. Specifically, adjusted results are based on a regression analysis that was used to predict average months of service that would be expected from ROTC graduates if they had the same personal characteristics (for example, race and sex) and the same career characteristics (for example, military occupation) as academy graduates.

Roughly one-quarter of these modest differentials, however, stems from differences in the personal and career characteristics of officers rather than from their source of commission. For example, academy graduates in the Army actually served about eight months longer (during their first 10 years) than officers with the same personal characteristics and military occupation specialty who graduated from a scholarship ROTC program, rather than the 11 months shown in the unadjusted data (see Table 3). Similarly, Naval Academy graduates actually served only 16 months longer than nonscholarship ROTC graduates with the same characteristics, rather than 21 months. For Air Force academy graduates, the difference compared with scholarship ROTC commissionees was five months after adjustment for personal characteristics, rather than seven months.

Success at Being Promoted

The military services operate an extensive, highly competitive system for determining who is promoted. Thus, systematic differences in quality among officers from different commissioning programs should be more readily apparent in promotion data than in any other measure. Does the source of an officer's commission influence an officer's chance of successful promotion? CBO's analysis tested that proposition.

Promotion to Pav Grades O-3 and O-4. Based on the experience of officers entering the military between 1979 and 1988, academy graduates did appear

to fare better in terms of time between promotion to pay grade O-3 (captain or Navy lieutenant) and pay grade O-4 (major or Navy lieutenant commander, the highest pay grade reflected in our data on the first 10 years

TABLE 4. AVERAGE MONTHS BETWEEN PROMOTION, BY SERVICE AND SOURCE OF COMMISSION, FOR OFFICERS ENTERING BETWEEN 1979 AND 1988

	Pay Grades O-2 to O-3	Pay Grades O-3 to O-4
Army		
Academy	29	88
ROTC (Scholarship)	30[b]	a
ROTC (Nonscholarship)	29[b]	91[b]
Officer Candidate School	29	95[b]
Navy		
Academy	26	61
ROTC (Scholarship)	26	61
ROTC (Nonscholarship)	26	61
Officer Candidate School	26[b]	64[b]
Air Force		
Academy	24	88
ROTC (Scholarship)	24	90
ROTC (Nonscholarship)	24[b]	94[b]
Officer Training School	24[b]	95[b]

SOURCE: Congressional Budget Office based on Department of Defense data.

NOTES: Derived from regression analysis controlling for education, marital status, number of dependents, race, sex, and primary military occupational specialty. The analysis selected only those officers for whom complete data were available.

ROTC = Reserve Officers Training Corps.

a. Fewer than 25 observations available.

b. Differences between these numbers and those for academy graduates are statistically significant (p - .05). Because of the large sample size, some numbers differ in a statistically significant way even though they round to the same whole numbers.

of military service). In both the Army and the Air Force, academy graduates were promoted up to seven months more rapidly than others (see Table 4). Differences were smaller in the Navy but still apparent.

CBO also received data from the Army that showed that, among officers promoted in the typical manner ("due course" promotions), selection rates to pay grade O-4 were higher for academy graduates than for officers from all other sources of commissioning, including ROTC, OCS, and direct appointments. (Selection rates indicate the percentages promoted among those who both remained in service and were considered for promotion.) Indeed, selection rates were higher for all pay grades from O-2 to O-7. But these data did not permit CBO to compare academy graduates with those from ROTC and OCS, which is the focus of our analysis.

Another measure for the rate of promotion, however, did permit specific comparisons and showed less systematic difference by source of commission. The Army supplied data that indicated the percentages of all officers entering the service who were eventually promoted to pay grade O-4. This measure reflects both the number of officers who remain in the military long enough to be eligible for promotion and their ability to win promotion to the higher rank. Thus, the measure summarizes the effects of length of service and promotion.

Specifically, these Army data on entrants promoted to pay grade O-4 show that, in the three years between 1988 and 1990, the rates of promotion vary widely (see Table A-2). Academy graduates showed the highest rates of promotion in 1988 and 1990, though the differences were modest. In 1989, academy graduates were tied for second in the rankings.

Source of commission did not have much effect on time between promotion to pay grade O-2 and pay grade O-3. Indeed, in the Air Force, all of those promoted averaged 24 months between promotions (see Table 4). Scholarship ROTC graduates took the longest to be promoted in the Army, but they had the most rapid promotion in the Navy. No systematic differences are apparent between academy graduates and others. Moreover, most officers are promoted to pay grade O-3 at roughly the same time. Thus, promotion to pay grade O-3 is not as useful a measure as promotion to pay grade O-4.

Promotion to General and Admiral. Academy graduates clearly do fare better in promotions to general or admiral. The academies have usually provided roughly one-tenth or less of each year's new officers, but nearly one-third of the general officers in the Army and the Air Force, and almost one-half of all Navy admirals, were commissioned at the academies (see Table 5). ROTC graduates, and to a lesser extent OCS/OTS graduates, are well represented among the generals and admirals. But the academies are clearly represented more than proportionally.

There are several possible explanations for this disproportionate representation of academy graduates. It may reflect the effects of the source of commission; academy graduates may be better prepared for these senior ranks than are graduates of ROTC or OCS/OTS. The disproportionate representation may also reflect past officer personnel policies regarding officers. In earlier years, many ROTC and OCS/OTS graduates were commissioned as reserve officers. These officers served on active duty but

TABLE 5. NUMBER AND PERCENTAGE OF GENERALS AND ADMIRALS AS OF MARCH 1990, BY SOURCE OF COMMISSION

	Number	Percentage of Service Total
Army		
Academy	118	29
Reserve Officers Training Corps	229	56
Officer Candidate School	36	9
Other	25	6
Navy		
Academy	122	47
Reserve Officers Training Corps	38	15
Officer Candidate School	33	13
Other	66	25
Air Force[a]		
Academy	104	31
Reserve Officers Training Corps	153	45
Officer Training School	30	9
Other	52	15

SOURCE: Data supplied by the Department of Defense.

NOTE: Data include officers in pay grades O-7 to O-10.

a. Results include Air Force generals who attended the Military Academy or the Naval Academy.

were not allowed to remain past about 10 years of service unless they applied for and were accepted as regular officers. Thus, some ROTC and OCS/OTS graduates might not have been allowed to remain in the military long enough to compete for promotion to the ranks of general or admiral. Another explanation for the disproportionate representation of academy graduates in these senior ranks is that the services' decisions about promotions and careers may be influenced by academy graduates who promote the careers of academy-trained officers.

Involuntary Separation

Officers are involuntarily separated from the services if they fail to meet certain promotion standards. Other reasons for involuntary separation include moral, ethical, criminal, or professional misconduct.

Rates of involuntary separation, which are tabulated in Table 6 for all officers entering active duty between 1979 and 1988, are low for all groups of officers, though rates of involuntary separation do tend to be lower for ROTC graduates than for graduates of the academies and OCS or OTS. Indeed, rates of separation for misconduct among ROTC graduates are negligible in all three services.

CONCLUSION

The military services currently face diminishing requirements for new commissioned officers. In the face of reduced demand, the services and the Congress will have to judge what proportion of new officers should come from the various training programs.

TABLE 6. PERCENTAGE OF OFFICERS INVOLUNTARILY SEPARATED, BY SERVICE AND SOURCE OF COMMISSION, FOR OFFICERS ENTERING BETWEEN 1979 AND 1988

	Separated for Failure to Achieve Promotion	Separated for Misconduct
Army		
Academy	1.5	0.9
ROTC (Scholarship)	0.7	0.1
ROTC (Nonscholarship)	0.3	0.2
Officer Candidate School	1.2	1.3
Navy		
Academy	0.8	0.5
ROTC (Scholarship)	0.4	0.0
ROTC (Nonscholarship)	0.4	0.1
Officer Candidate School	0.8	1.0
Air Force		
Academy	0.6	0.7
ROTC (Scholarship)	0.1	0.0
ROTC (Nonscholarship)	0.2	0.1
Officer Training School	1.6	1.5

SOURCE: Data supplied by the Department of Defense data.

NOTE: ROTC = Reserve Officers Training Corps.

Measured in terms of costs to the Department of Defense, the service academies clearly are the most costly commissioning program. A new officer from the service academies costs the department about three to four times as much as one obtained through an ROTC scholarship program and about eight to fifteen times as much as an officer obtained through OCS/OTS. Costs to DoD are the appropriate measure in assessing how changes in commissioning programs would affect the department's budget. However, other measures of cost are more appropriate in judging the full costs of training a military officer.

Data available to CBO do indicate that academy graduates remain in the military for modestly longer periods and, by some measures, are promoted more rapidly or at higher rates. In most cases, these differences are not large, however. Moreover, some of these differences may not result solely from the source of commission.

CBO's analysis of officer performance focused on quantifiable measures, and important qualitative differences may remain that are not captured by our measures. Among the relevant criteria that our measures might not fully capture are leadership skills, suitability for senior command, and intangible personal qualities. Justification for a commissioning program for officers might be greater to the extent the program is superior at identifying or inculcating these qualities.

APPENDIX TABLES

TABLE A-1. NUMBER OF REQUIRED OFFICER ACCESSIONS COMPARED WITH 1989

	Accessions Required to Maintain 1989 Officer Level[a]	1989 Accessions
Army	10,300	9,500
Navy	6,600	7,800
Air Force	8,600	7,530

SOURCE: Congressional Budget Office based on Department of Defense data.

a. These estimates assume that 1988 patterns of continuation in the services remain unchanged.

TABLE A-2. PERCENTAGE OF ENTERING ARMY OFFICERS PROMOTED TO PAY GRADE O-4 (MAJOR), BY YEAR AND SOURCE OF COMMISSION

	1988	1989	1990
Academy	50	45	47
ROTC (Scholarship)	33	35	46
ROTC (Nonscholarship)	36	57	30
Officer Candidate School	48	45	38

SOURCE: U.S. Army.

NOTES: Percentages represent those in the primary zone as a percent of all accessions who entered in 1978, 1979, and 1980, respectively.

ROTC = Reserve Officers Training Corps.