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Analyses of the Marine Corps Officer Manpower System: Final Report

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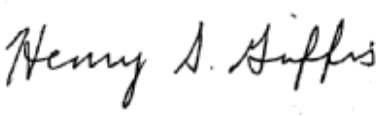

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Executive summary

The Officer Plans section in Manpower and Reserve Affairs asked CNA to examine the officer manpower system for unrestricted officers by documenting the degree to which officer inventories did not match requirements and by identifying options for addressing any shortfalls. Our guidance was that any option for addressing a shortfall must keep the Marine Corps (MC) promotion policy for unrestricted officers of promoting the "best and most fully qualified" from all promotion-eligible officers in a given rank without regard to primary military occupational specialty (PMOS). We focus on three tasks:

1. Analyze critically short PMOSs.
2. Evaluate MC officer manpower system success/failure in supporting officer structure requirements.
3. Develop strategies for improving the health of critically short PMOSs.

In our analysis of critically short PMOSs, we defined shortages using two different measures: (a) we compared manning requirements from the Grade Adjusted Recapitulation (GAR) with onboard inventory (OB) from the MOS Status Reports, and (b) we compared the A-billet requirement to OB. A-billets are those for which the billet military occupational specialty (BMOS) matches the officer's PMOS. Using the GAR, we developed an index based on the average size and recency of the shortages. Using the index, we found the following PMOSs to have greater shortages:

- Captain: MAGTF Intelligence Officer
- Major: MAGTF Intelligence Officer, Communications Officer, and Adjutant
- Lieutenant Colonel: MAGTF Intelligence Officer, C-130 Pilot, Public Affairs Officer, Aviation Maintenance Officer, Finance Officer, and Engineer.

We also constructed the index for the Colonel PMOSs[1] because we are concerned that the level of aggregation for these PMOSs masks shortage issues. PMOSs that are the most poorly staffed for Captains–Lieutenant Colonels are often grouped in the same Colonel PMOS with PMOSs that are the most well staffed for Captains–Lieutenant Colonels. For example, the Ground Colonel PMOS includes Adjutant, a PMOS that was poorly staffed for Lieutenant Colonels, along with Infantry Officer, a PMOS that was well staffed for Lieutenant Colonels.

We also examined OB relative to A-billet requirements. According to this analysis, the following PMOSs were staffed at below 85 percent at least once during FY92 through FY05:

- MAGTF Intelligence Officer
- C-130 Pilot
- UH-1 Pilot
- CH-53 A/D Pilot.

While MAGTF Intelligence Officer shows up as seriously short using either the GAR or the A-billet measure, the magnitude of shortage using the two measures can differ tremendously because the GAR does not account for the unique flow of this particular Occupational Field (OCCFIELD) through the PMOSs. In this OCCFIELD, officers change their PMOS while they are Captains according to whether they have completed the MAGTF Intelligence Officer Course (MIOC). The GAR inventory does not take into account these within-grade PMOS changes in calculating manning requirements, which makes MAGTF Intelligence appear shorter than it actually is.

The ambiguous results from measuring inventories at the aggregated Colonel PMOSs and from not considering the unique flow of the Intelligence OCCFIELD through the PMOSs underline the importance of having accurate measures of inventory in calculating shortages. Other issues that may contribute to an imprecise picture are (a)

1. Colonels have only four PMOSs: Logistician (9904), Ground (9906), Judge Advocate (9914), and Naval Aviator/Naval Flight Officer (9907).

measuring shortages using only the percentage fill, not the number of Marines that a particular PMOS was over or under, and (b) fair-sharing the B-billets that are not assigned to a particular PMOS since some of these B-billets may not be appropriate for all PMOSs.

We next evaluated the degree to which the MC officer manpower system supported the officer structure requirements. To do this, we first examined whether there were some PMOSs with promotion rates consistently lower than the average promotion rate. In each grade, we did find instances of PMOSs with promotion rates consistently below the average. We then examined the degree to which differences in "quality" between the Marines in different PMOSs were driving these results. Controlling for quality,[2] we looked at promotions to Major and found that, with the exception of some pilot occupations, the differences in promotion rates disappeared. This suggests that the differences in promotion rates are being influenced by differences in quality. The evidence, however, is not definitive because we had data on quality for only one grade and for relatively few years.

One way the USMC currently addresses shortages is by including PMOSs in the skill shortage guidance in the precepts to promotion boards. We found that PMOSs were promoted at a higher rate when they were included in the precepts and, for the most part, they were promoted above the average promotion rate.

Addressing shortages in PMOSs using the promotion board precepts is limited, however, because that method does not address the pool of officers eligible for promotion for a grade; it affects the promotion rate only of officers already in the pool. We analyzed the degree to which promotion policies affect the pool of officers available for promotion to Captain, Major, and Lieutenant Colonel. In looking at non-retirement-eligible Marines, we found no compelling evidence that promotion rates affect the pool for any PMOS at any grade.

Finally, we offer both short- and long-term strategies for improving the health of chronically short PMOSs.

2. We proxied for quality by using class standing in The Basic School—the Marine's ranking in the top, middle, or bottom third of the class.

Introduction

This study, sponsored by the Officer Plans section in Manpower and Reserve Affairs, looks at the officer manpower system for unrestricted officers. Our research effort consists of the following tasks:

- Review the legislation and policies that govern Marine Corps officers.
- Document the promotion systems for unrestricted officers in the Marine Corps, other Services, and some foreign militaries.
- Measure shortages and surpluses in officer primary military occupational specialties (PMOSs) using two different measures of requirements.
- Analyze differences in promotion rates by PMOS.
- Discuss the Marine Corps officer manpower system's success in supporting officer structure requirements.
- Evaluate options for improving the health of chronically short PMOSs.

All Department of Defense (DoD) and Marine Corps policies and regulations related to the promotion of active-duty officers are based on Title 10 of the United States Code (U.S.C.). Title 10 codifies the DOPMA (Defense Officer Personnel Management Act, 1980), which is the collection of laws that currently govern officer personnel management within the armed forces below the rank of Brigadier General. Together, these laws are designed to achieve a uniform career management system across the Services to balance accession, promotion, retirement, and separation flows. Appendix A details the legislative review, outlining the relevant provisions of Title 10, and the DoD, Department of the Navy (DoN), and Marine Corps policy related to each area.

In the Marine Corps, officers are promoted within five competitive categories, the largest of which is the unrestricted officer category. We turn now to the Marine Corps' promotion selection process for these officers. (Appendix B provides the information on promotion systems in other Services and foreign militaries.)

Process for Marine Corps commissioned officer promotion selection

Title 10 of the U.S.C. governs the promotion selection process for active-duty officers and provides the authority for convening a selection board.[3] The provisions of Title 10 set the "Officer Grade Distribution" (i.e., the limitations on the number of officers that may serve in each rank from Major to Colonel), provide the standards for career progression, state the guidelines for composition of the board and the notification to eligible officers, and mandate that promotions be based on a 5-year plan. Title 10 and DoD Directives also authorize the establishment of competitive categories to provide separate promotion consideration and career development of groups of officers with related education, training, skills, and experience needed to meet mission objectives.[4] Despite being universally governed by Title 10, there are some differences in the promotion selection processes across the four branches of the U.S. military (see appendix B).

According to the Marine Corps Promotion Manual,[5] active-duty officers in the Marine Corps are divided into three competitive categories:

- Unrestricted
- Restricted (limited duty officers)
- Warrant officers.

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3. See appendix A for a discussion of the legislation and regulations governing the U.S. Marine Corps (USMC) promotion system. See appendix B for a discussion of promotion policies in the other Services and in the U.K. Royal Marines, the British Army, the Canadian Forces, and the Australian Regular Army.
4. Title 10, U.S.C., Sec. 521, and DoD Directive 1320.12.
5. Marine Corps Promotion Manual, Volume 1, Officer Promotions. MCO P1400.31B (Washington, DC: HQMC, 2000), 1-6.

The Marine Corps promotes officers separately within these three categories. We focus on the largest category—active-duty unrestricted officers—in which officers are promoted without regard to MOS.[6]

The USMC unrestricted officer promotion process begins with a promotion plan prepared by the Manpower Plans, Program, and Budget Branch (MPP) of Manpower and Reserve Affairs (M&RA), forwarded by the Commandant, and approved by the Secretary of the Navy. From this approved promotion plan, a precept is prepared—a legal document in the form of a letter from the Secretary of the Navy—that orders the convening of a board, establishes the membership, and sets out any special instructions concerning the proceedings of the board.[7] Among the special instructions in the precept is the following selection standard:[8]

> The board shall carefully consider without prejudice or partiality the record of every eligible officer. The officers selected will be those officers whom a majority of the members of the board consider best qualified for promotion. In addition to the standard of best qualified, the officers recommended for promotion by the board must be fully qualified; that is, each officer's qualifications and performance of duty must clearly demonstrate that the officer would be capable of performing the duties normally associated with the next higher grade.

6. Limited Duty Officers and Chief Warrant Officers (CWO3–CWO5) compete for promotion within their MOS. Active Reserve (AR) Officers compete with fellow AR officers of the same rank, while AR CWOs compete within their MOS for CWO3–CWO5. Specialist officers possess skills not found elsewhere in the USMC and are appointed and promoted according to the needs of the Marine Corps. At present, one specialist officer, a historian, is serving to record the events of OIF for the Marine Corps (MCO P1400.31B, 1-6, 1-7, and 3-9).

7. MCO P1400.31B, 2-4.

8. USMC FY06 Major Precept, p. 2. Available at https://lnweb1.manpower.usmc.mil/manpower/mm/MMPR/mmpr1_boards.nsf/9b1e3b868b8213a785256e69004d0dae/93103f7472e5f71c85256e6d004f0e62?OpenDocument&ExpandSection=2#_Section2.

Thus, the policy regarding the promotion of unrestricted officers is to promote the "best and most fully qualified" from all promotion-eligible officers in a given rank without regard to MOS. There are usually additional special instructions in the precept that address the "needs of the Marine Corps for officers with particular skills."[9] For example, table 1 shows critical shortages in five Occupational Fields (OCCFIELDS) corresponding to 12 short MOSs.

Table 1. FY06 promotion to Major: Critically short MOSs[a]

MOS	Skill	Number short	Percentage short of requirement
0180	Adjutant	40	43%
02XX	Intelligence	81	35%
0602	Command and Control	42	18%
6602	Aviation Supply	12	23%
72XX	Air Command and Control	40	30%

a. Source: USMC FY06 Major Precept.

Skill shortage precepts do not establish quotas for promotion within these short MOSs, but they do instruct the board to "make every effort to consider the needs of the Marine Corps for officers with these particular skills when determining those officers who are best and fully qualified for promotion."[10]

Promotion boards for unrestricted officers

The selection board members, who must reflect the eligible population in each competitive category (by race and gender) and hold at least a grade higher than that under consideration, do not personally review every eligible officer's record, but they do vote on each eligible officer's record. The process works as follows. The eligible above-zone, in-zone, and below-zone population is distributed randomly

9. USMC FY06 Major Precept, p. 3.

10. USMC FY06 Major Precept, p. 3.

and equally to each board member. Each member is responsible for reviewing each assigned record in detail and briefing the other board members as to each person's qualifications for promotion. All board members have full visibility of each officer's complete record regardless of whether the officer is assigned to them.

In the first step in the process, the board members prepare full briefs on their assigned in-zone officers to establish the quality of the in-zone population. Next, the board members prepare short briefs on their assigned above-zone[11] and below-zone officers. Then all board members hear these short briefs on all above-zone and below-zone officers and vote to determine if the officers are competitive enough to be considered along with the in-zone officers. Next, the board hears full briefs on all of the in-zone officers and those above-zone and below-zone officers voted in by the board during the short briefs. At the conclusion of these full briefs, the board members vote to select those officers best and fully qualified for promotion. Board members are limited in the number of yes votes they can cast based on the number of available allocations.[12]

11. Above-zone officers are those that have previously failed to select for the next grade, and below-zone officers are junior officers who are eligible but will not incur a Failure of Selection if not selected.

12. MCO P1400.31B, 3-7 and 3-8.

PMOS shortages and surpluses

Introduction

We used two different methods to determine which PMOSs are suffering the most significant and/or chronic shortages or surpluses. First, we compared manning requirements from the Grade Adjusted Recapitulation (GAR)[13] and onboard inventory (OB) from the MOS Status Reports for FY90 through FY05.[14] The Manpower Plans and Policy Division (MPP) is responsible for producing the GAR and for ensuring that the correct inventory is built. Second, we looked at OB officer inventory compared with A-billet requirements, based on data received from Marine Corps Monitors Officer Assignment Branch (MMOA) for FY92 through FY05. Since MMOA is responsible for officer assignments, its concern with shortages focuses on current assignment difficulties.

Measuring shortages in the GAR

Traditionally, the Marine Corps has measured shortages by comparing OB with the GAR.[15] The GAR is important because it ensures that the Marine Corps grows a sufficient number of officers in each PMOS

13. GAR reports before FY99 are from available data at some point in the fiscal year (varying times); from March 1999, they are from quarterly reports.

14. For many years, these documents were unofficially called FARMER Reports or The Dean's List. For the fiscal years before FY00, where two or more MOS Status Reports were available for one fiscal year, we averaged the two reports; otherwise, the only available report for the year was used. From FY00 onward, we had quarterly data that we used to calculate an annual average.

15. Skill shortage precepts to promotion boards have been based on defining shortages as OB relative to the GAR .

to cover not only A-billet (PMOS billet) requirements but also those for B-billets, while still allowing for patients, prisoners, trainees, and transients (P2T2). In the GAR, every MOS billet that is not a PMOS billet is mapped back (assigned) to a PMOS because the GAR fair-shares among the PMOSs the B-billets that could be filled by any Marine Corps officer. Thus, in the GAR every requirement is mapped back to a PMOS and grade.

For the purpose of this analysis, surpluses are represented as occurring when the OB is greater than 100 percent of the GAR, and shortages are represented by two measures:

- OB is less than 85 percent of the GAR, the critically short PMOSs
- OB is less than 100 percent of the GAR.[16]

We look at PMOS shortages in several different ways. For the FY90-FY05 period, we look at:

- Average percentage OB relative to the GAR for the period
- Frequency of shortages and surpluses that occurred during the period
- Average of the shortages and surpluses that occurred during the period
- Shortage index illustrating the overall greatest shortage and surplus issues that emerged during the period.

Colonel PMOSs

We show the summary statistics for each occupation for Captains to Lieutenant Colonels, both individually and as belonging to occupational groups. At the Colonel level, however, all Marine Corps officers are combined into four PMOSs (Logistician (9904), Ground (9906), Judge Advocate (9914), and Naval Aviator/Naval Flight Officer (9907)). Figures for Colonels show these PMOSs. The relationships

16. Having less than 100 percent of the GAR onboard (a "shortage") does not necessarily indicate a scarcity of Marines to fill A-billets.

between occupational groups for Captain–Lieutenant Colonels and Colonel PMOSs are as follows:

- Colonel, Logisticians (9904)
  - URLog - logistics group (PMOSs: 6002, 6602, 0402, 1302, 3002)
- Colonel, Ground (9906)
  - URCS - combat support group (PMOSs: 0180, 3404, 4302, 5803)
  - URCA - combat arms group (PMOSs: 0302, 0802, 1802, 1803)
  - C2/C4I - communications and intelligence group (PMOSs: 0202, 0602, 7202)
- Colonel, Judge Advocate (9914)
  - URJA - judge advocate (PMOS: 4402)
- Colonel, Naval Aviator/Naval Flight Officer (9907)
  - FW - fixed-wing pilot group[17] (PMOSs: 7509, 7523, 7543, 7557)
  - RW - rotary-wing pilot group (PMOSs: 7562, 7563, 7564, 7565, 7566).

The Colonel PMOSs are so aggregated that it is difficult to identify shortage issues for Colonels: serious shortages in one part of a group may be hidden by surpluses in other parts within that same group.[18] To show how misleading this is, we group the Captain–Lieutenant Colonel occupations in the same manner as the Colonel PMOSs and compare the results against the PMOS-level analysis for Captains–Lieutenant Colonels. In most of the figures that follow, we denote these groups by either color or dotted lines.

17. EA-6 and FA-18 include pilots, weapon system officers, and electronic warfare officers. Weapon system officers and electronic warfare officers are also known as Naval Flight Officers (NFOs).

18. There is a proposal to retain the Lieutenant Colonel PMOS for the rank of Colonel. If this is done, it will alleviate the problem of identifying shortages at the rank of Colonel.

Data issues

MOS names or numerical designations required standardization because many changed during the period (i.e., the FY99 merge of the Motor Transport and Logistics occupations). Appendix C contains details of this PMOS nomenclature standardization.[19]

In addition, every PMOS exhibited several spikes in the GAR during the study period: we define a spike as a year when the GAR was either higher or lower than both the preceding and following year. For example, the GAR for Captain CH-46 pilots increased from 372 in FY90 to 404 in FY91, then fell again in FY92 to 378.[20] Because officers cannot be created as quickly as these large changes occur, shortages or surpluses are bound to result. The fact that the GAR does not stay at the new value but returns to near its former value the following year makes the shortage or surplus misleading. For this reason, we decided to smooth these spikes by replacing them with the average of the preceding and following year. Using our previous example of the CH-46 pilots, the GAR value of 404 in FY91 is replaced by 375 (the average of the figures from FY90 and FY92). These formulas are found in appendix C.

Average percentage of the GAR: FY90–FY05

Figures 1 through 3 show the average percentage of requirements for each occupation for Captains to Lieutenant Colonels. The two bold horizontal lines on each figure represent the 85- and 100-percent thresholds; the coloring of the bars represents the group to which each occupation belongs. The data in these figures are arbitrarily broken out by period: FY90–FY00 (colored by occupational group) and FY01–FY05 (denoted with yellow bars).

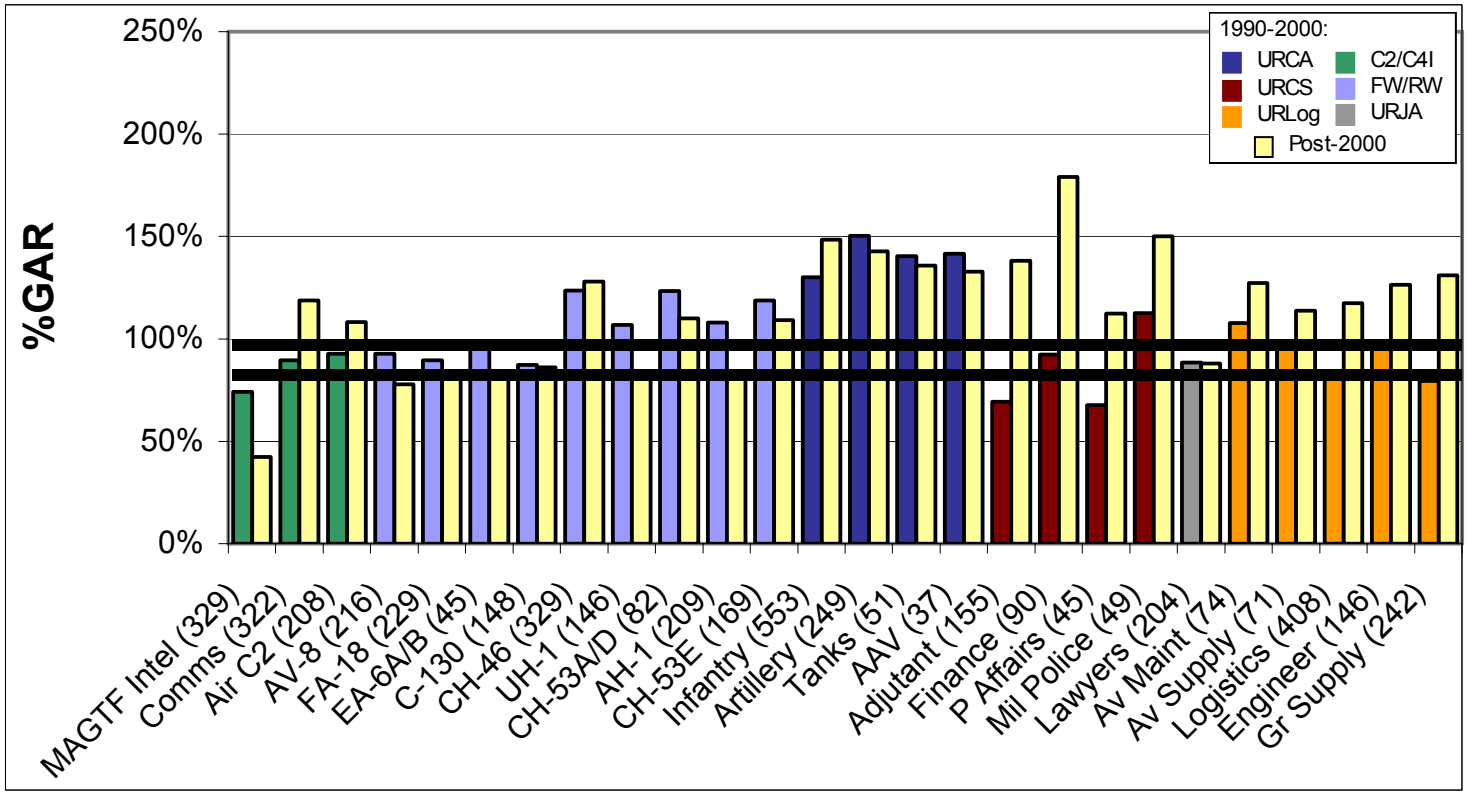
The figures demonstrate some interesting patterns across occupational groups. For Captains, the combat support and logistic groups experienced significant improvements from FY01 to FY05, bringing

19. We will provide our sponsors with all the datasets we have created for this study.

20. These spikes were most common in FY92 and FY00.

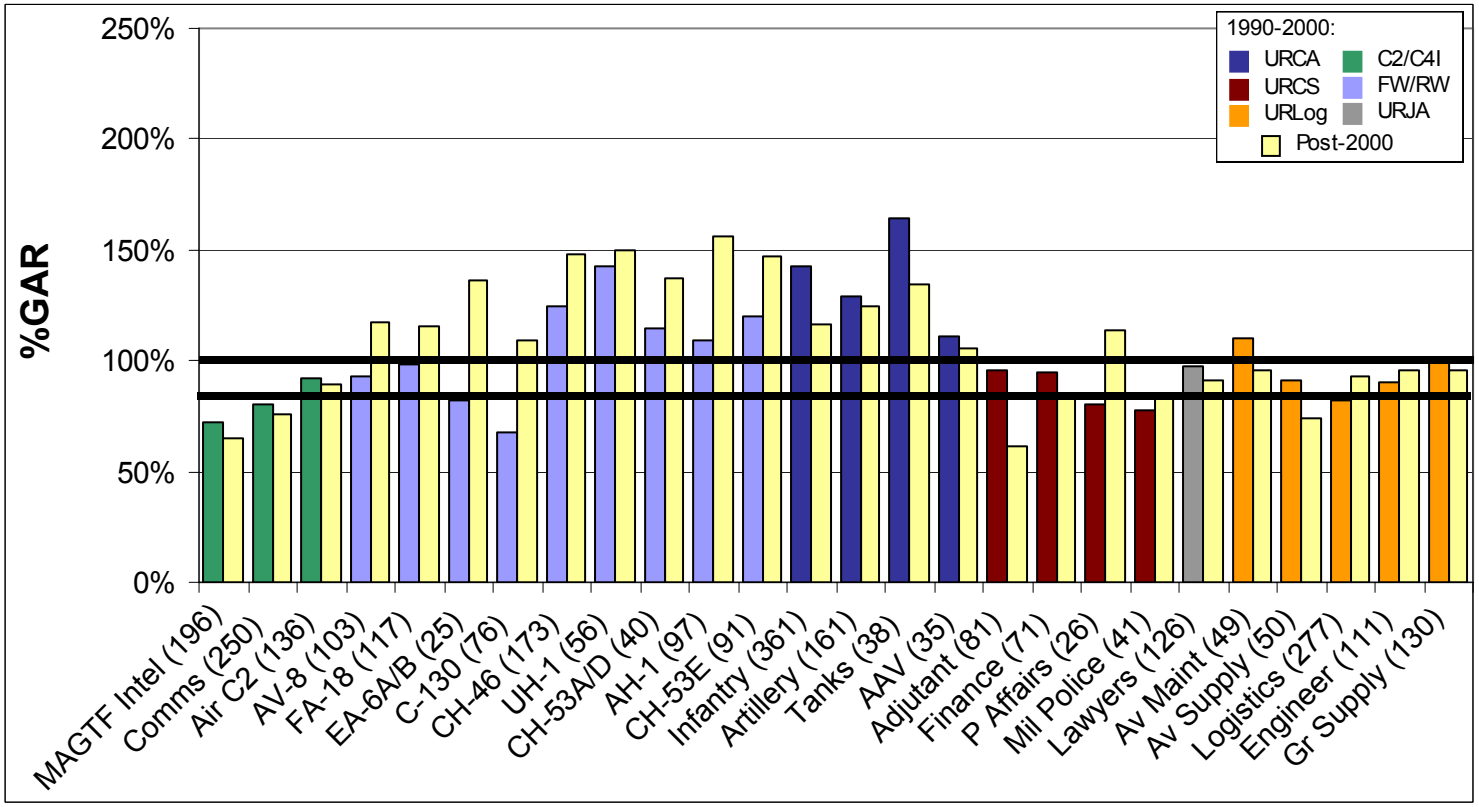
the average percentage GAR in each of the PMOSs in those groups well above 100 percent. All PMOSs in the combat arms group were staffed above 125 percent and showed no significant changes between the two periods (FY90–FY00 and FY01–FY05). The average percentage GAR of all of the fixed-wing and most of the rotary-wing PMOSs fell after FY00, bringing the average percentage GAR of each of the fixed-wing PMOSs, as well as that of the UH-1 and AH-1 PMOSs, below 85 percent. The average percentage GAR of the MAGTF Intel PMOS fell after FY00 to less than 50 percent, the lowest of all Captain PMOSs.

Figure 1. Average percentage of GAR for Captains in the FY90–FY05 period[a]



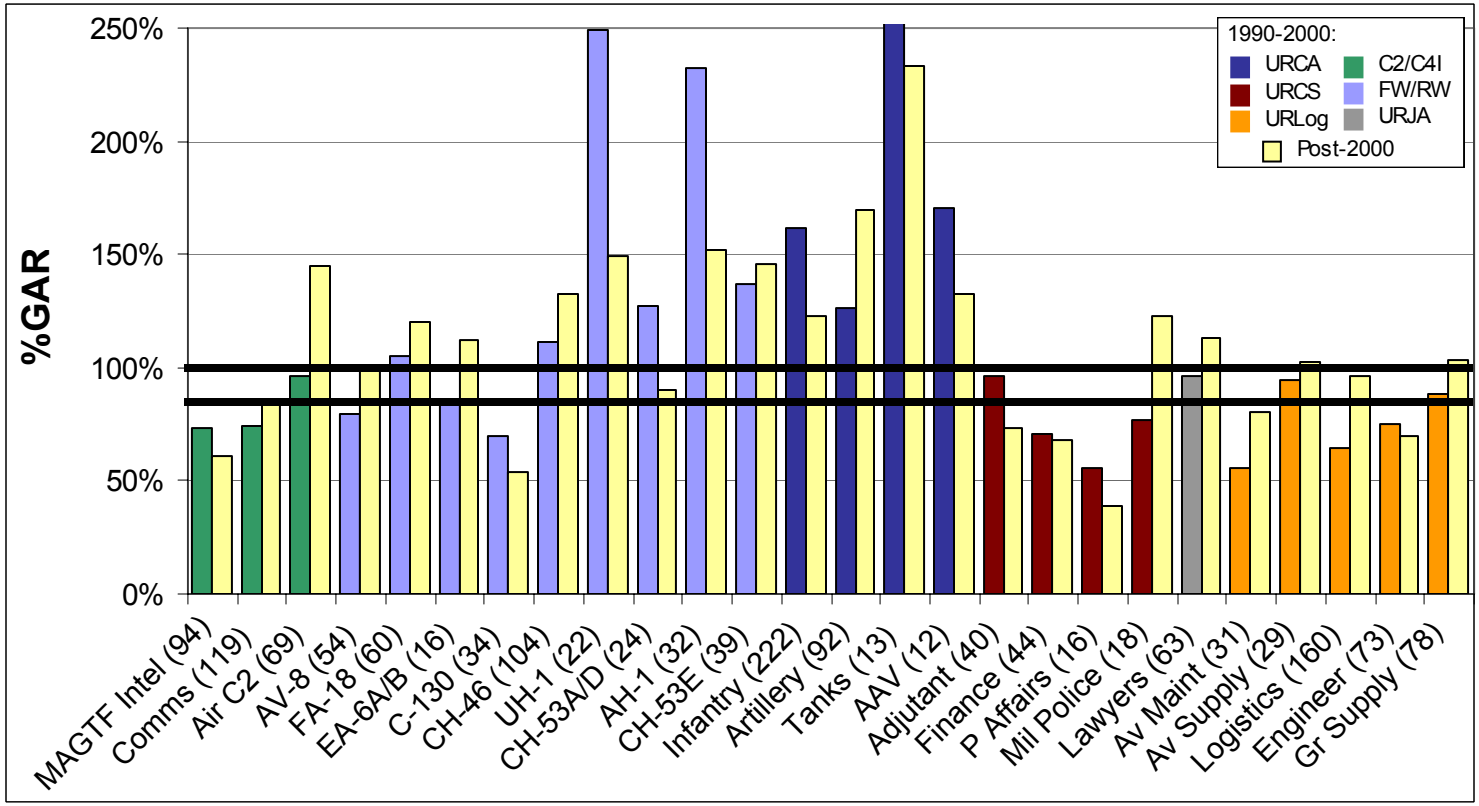
a. Numbers in brackets after PMOS names represent average GAR for PMOS from FY90 to FY05.

Figure 2. Average percentage of GAR for Majors in the FY90–FY05 period[a]



a. Numbers in brackets after PMOS names represent average GAR for PMOS from FY90 to FY05.

Figure 3. Average percentage of GAR for Lieutenant Colonels in the FY90–FY05 period[a]



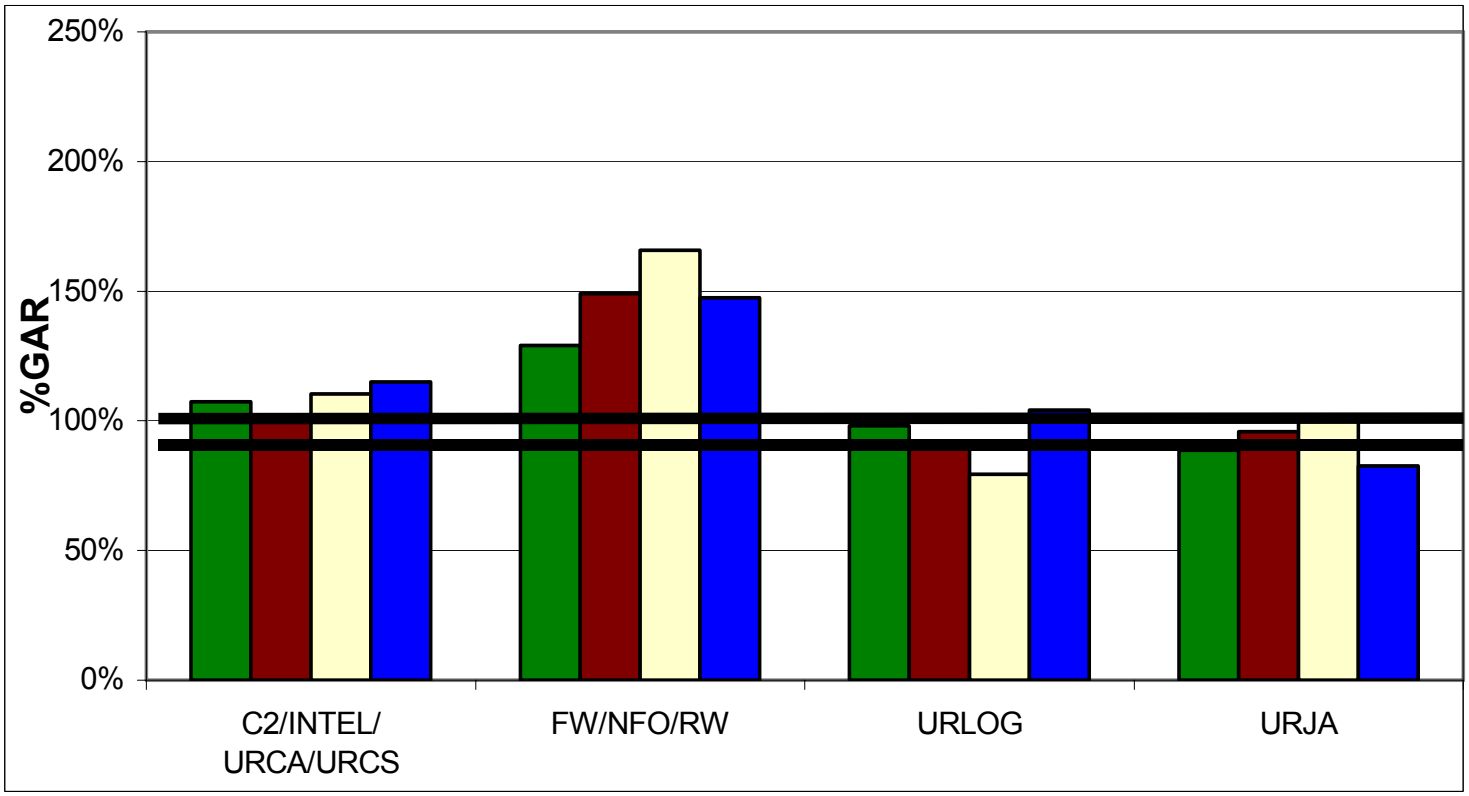
a. Numbers in brackets after PMOS names represent average GAR for PMOS from FY90 to FY05.

For Majors, the changes between the periods before and after FY00 were not significant. The average percentage GAR rose to more than 100 percent after FY00 for each of the fixed- and rotary-wing PMOSs, while this figure fell for each of the C2/C4I PMOSs to below 85 percent. The percentage GAR of each of the combat arms PMOSs also fell after FY00 but remained above 100 percent. Results were mixed for the combat support and logistics PMOSs, but all were poor; the average for only one PMOS out of both groups rose above 100 percent after FY00 (Military Police), while three others fell to below 85 percent (Adjutant, Aviation Supply, and Finance).

In the rank of Lieutenant Colonel, most of the PMOSs experienced a fall after FY00 in the groups of combat support, combat arms, and rotary-wing pilots. The latter two still maintained averages at or above 100 percent (some well above), while all PMOSs in the combat support group (except for Military Police) fell to approximately 85 percent or below. All PMOSs in the C2/C4I and logistics groups rose after FY00, except for the Engineer PMOS, and all averaged at or above 85 percent after FY00, except for MAGTF Intel.

In figure 4, we show the average percentage GAR for Captains through Colonels by the occupational definitions for Colonel PMOSs. Colors are used here to represent grade. The most well-staffed Colonel PMOS in figure 4 is PMOS 9907 (FW/NFO/RW), followed by 9906 (C2/Intel/URCA/URCS), but the pattern for the Captain–Lieutenant Colonel groups led us to question these Colonel results. For instance, the aggregated group of PMOSs that represent 9906 at the Colonel level is manned at or above 100 percent on average for Captains, Majors, and Lieutenant Colonels, yet figures 1 through 3 showed that this aggregated group contained the most poorly staffed individual occupations (such as MAGTF Intel). However, it also includes the most well-staffed occupations—namely, those in the combat arms group—which are pulling the group average up and may be hiding some important shortage problems. Thus, consolidating PMOSs at the Colonel level makes analyses of shortages at this level difficult for the Marine Corps to document and fix.

Figure 4. Average percentage of GAR for Captain-Colonel by Colonel group in the FY90–FY05 period[a]



a. C2/INTEL/URCA/URCS represents the Ground Colonel PMOS (9906), FW/NFO/RW represents the Naval Aviator/Naval Flight Officer PMOS (9907), URLOG represents the Logistician Colonel PMOS (9904), and URJA represents the Colonel Judge Advocate PMOS (9914).

Frequency of GAR shortages and surpluses in FY90–FY05

Figures 5 through 7 show the frequency with which the OB for occupations was below 100 percent (yellow), below 85 percent (red), and above 100 percent (green) of the GAR for Captains through Lieutenant Colonels. The period of analysis equals 16 years, so the bars are 16 units long (minus the number of years in which there was neither a shortage nor a surplus). Dotted horizontal lines enclose PMOSs in their occupational groups. The numbers in parentheses after the PMOS names denote the average GAR requirement for each occupation. We include the number of requirements because the sizes of the different PMOSs vary considerably. It is rare that the onboard figure will exactly equal the GAR, so each PMOS will most likely reflect either a shortage or a surplus in each year.[21]

For a number of the occupations shown for Captains to Lieutenant Colonels, inventory fell below 100 percent for every year of the 16-year study period. These occupations, by rank, are:

- Captain - MAGTF Intel
- Major - MAGTF Intel, Communications, and Military Police
- Lieutenant Colonel - Communications, Engineer, Aviation Maintenance, Public Affairs, and Finance.

In addition, in some PMOSs, inventory has fallen short of requirements every year from FY00 to FY05. These occupations, by rank, are:

- Captain - MAGTF Intel, Lawyer, and AV-8, FA-18, EA-6A/B, UH-1 pilot.
- Major - MAGTF Intel, Communications, Adjutant, Aviation Maintenance, Aviation Supply, and Logistics
- Lieutenant Colonel - MAGTF Intel, Communications, Adjutant, Aviation Maintenance, Aviation Supply, Engineer, Finance, and C-130.

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21. The frequency measurement does not account for the size of the shortage or surplus. We examine shortage sizes in the next subsection.

Figure 5. Frequency of GAR shortages and surpluses for Captains, FY90–FY05

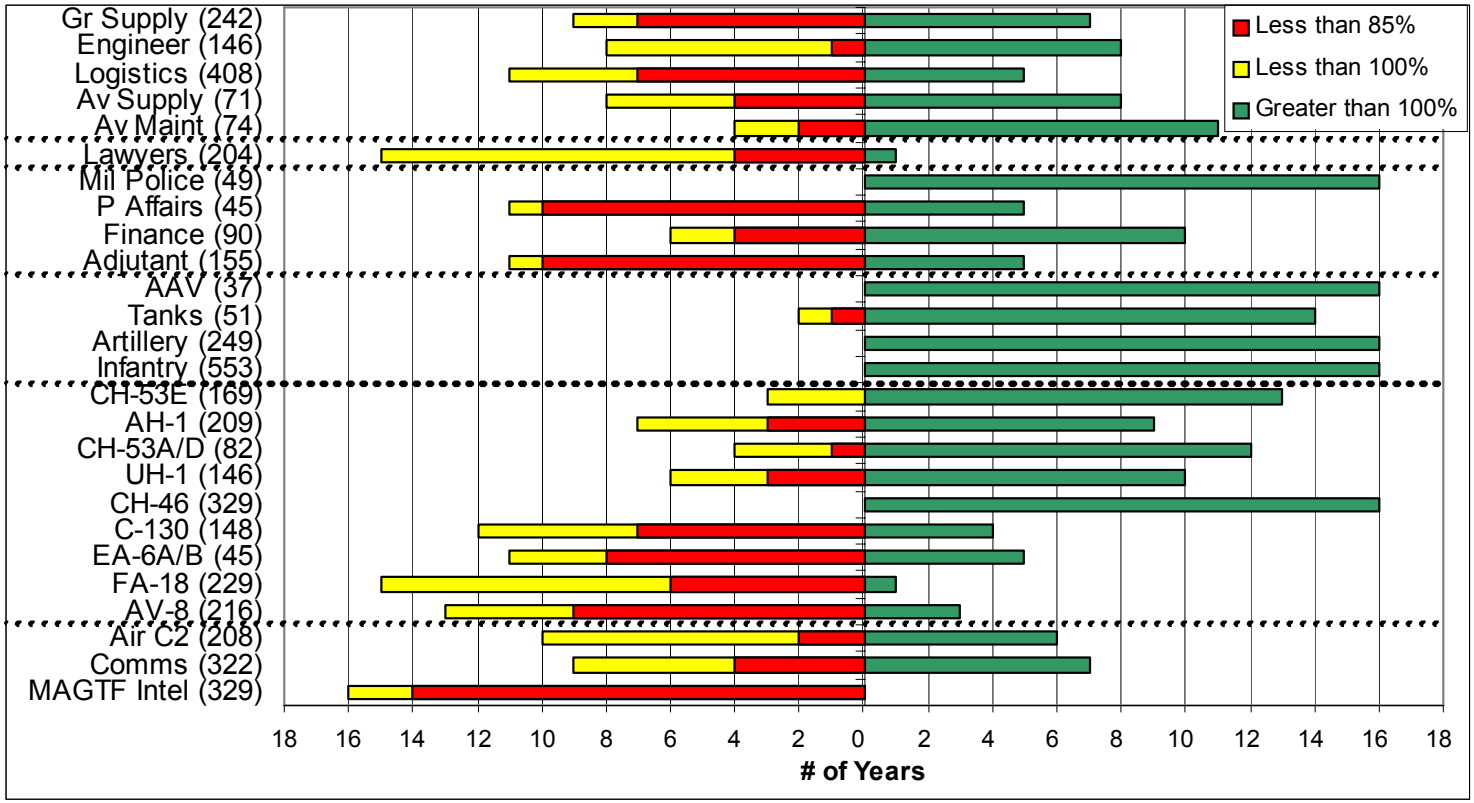


Figure 6. Frequency of GAR shortages and surpluses for Majors, FY90–FY05

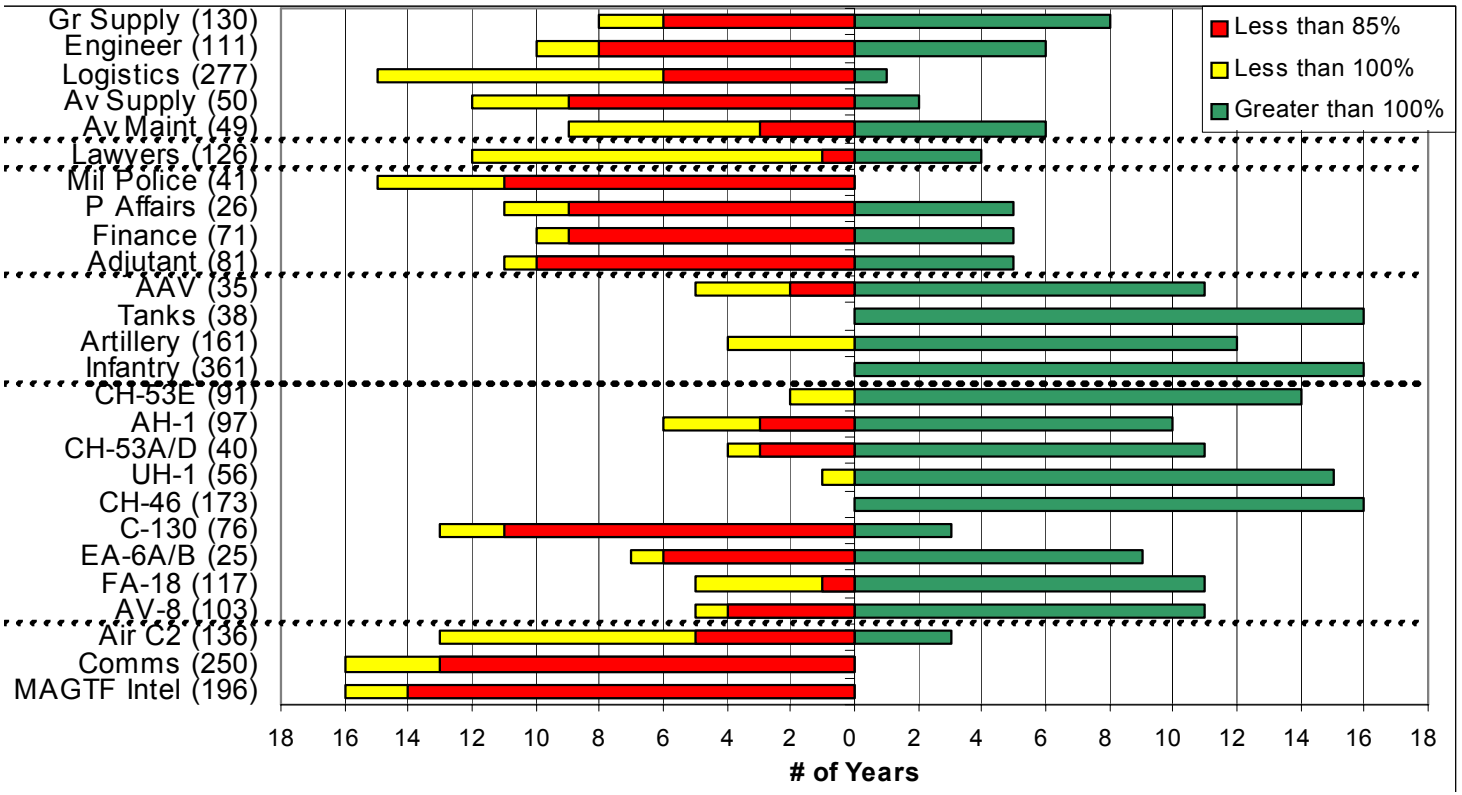
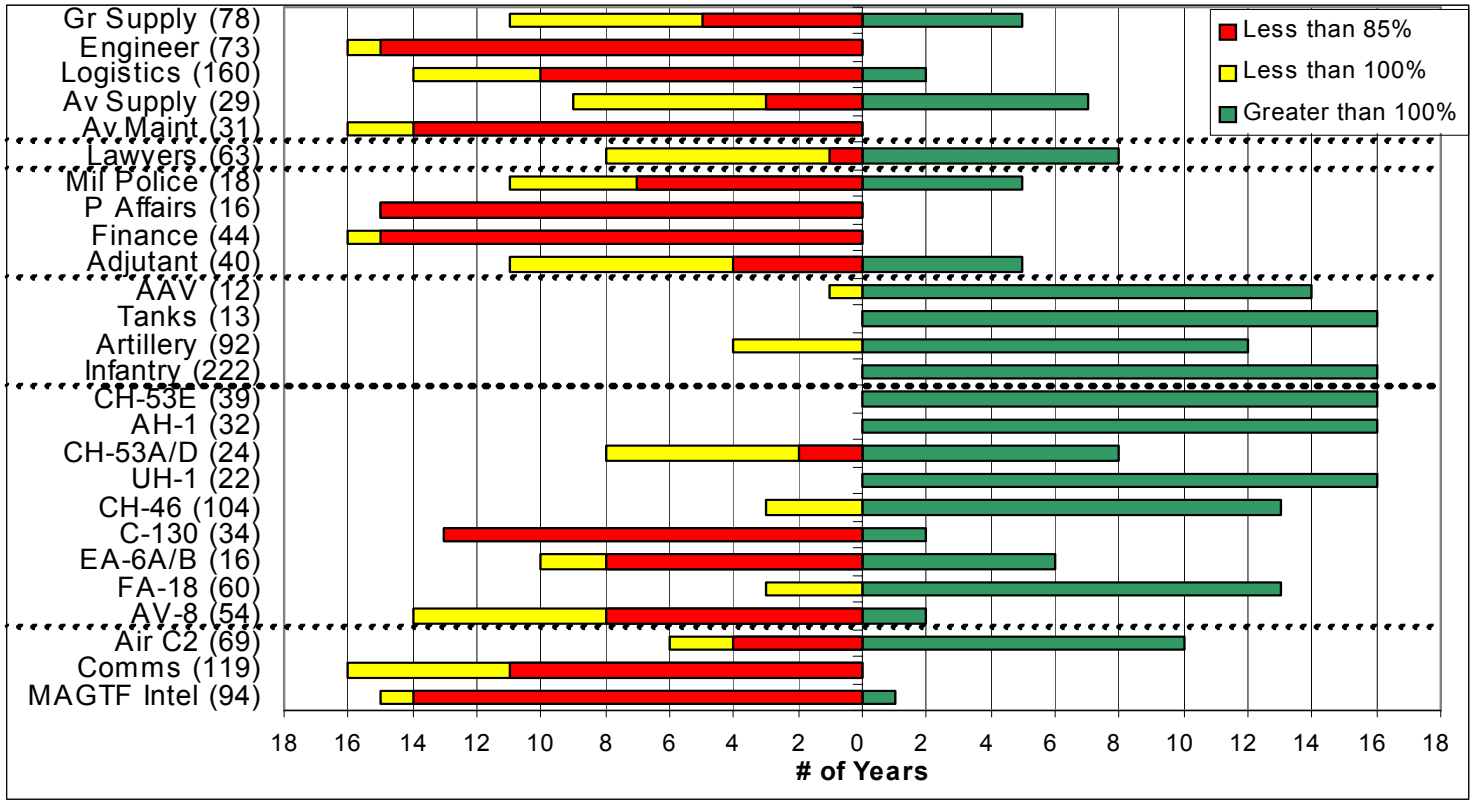


Figure 7. Frequency of GAR shortages and surpluses for Lieutenant Colonels, FY90–FY05



In addition, inventory fell below 85 percent of the GAR for 10 or more years of the study period in the following occupations:

- Captain - MAGTF Intel, Adjutant, and Public Affairs
- Major - MAGTF Intel, Adjutant, Communications, Military Police, and C-130 pilot
- Lieutenant Colonel - MAGTF Intel, Communications, Public Affairs, Engineer, Aviation Maintenance, Finance, Logistics, and C130 pilot.

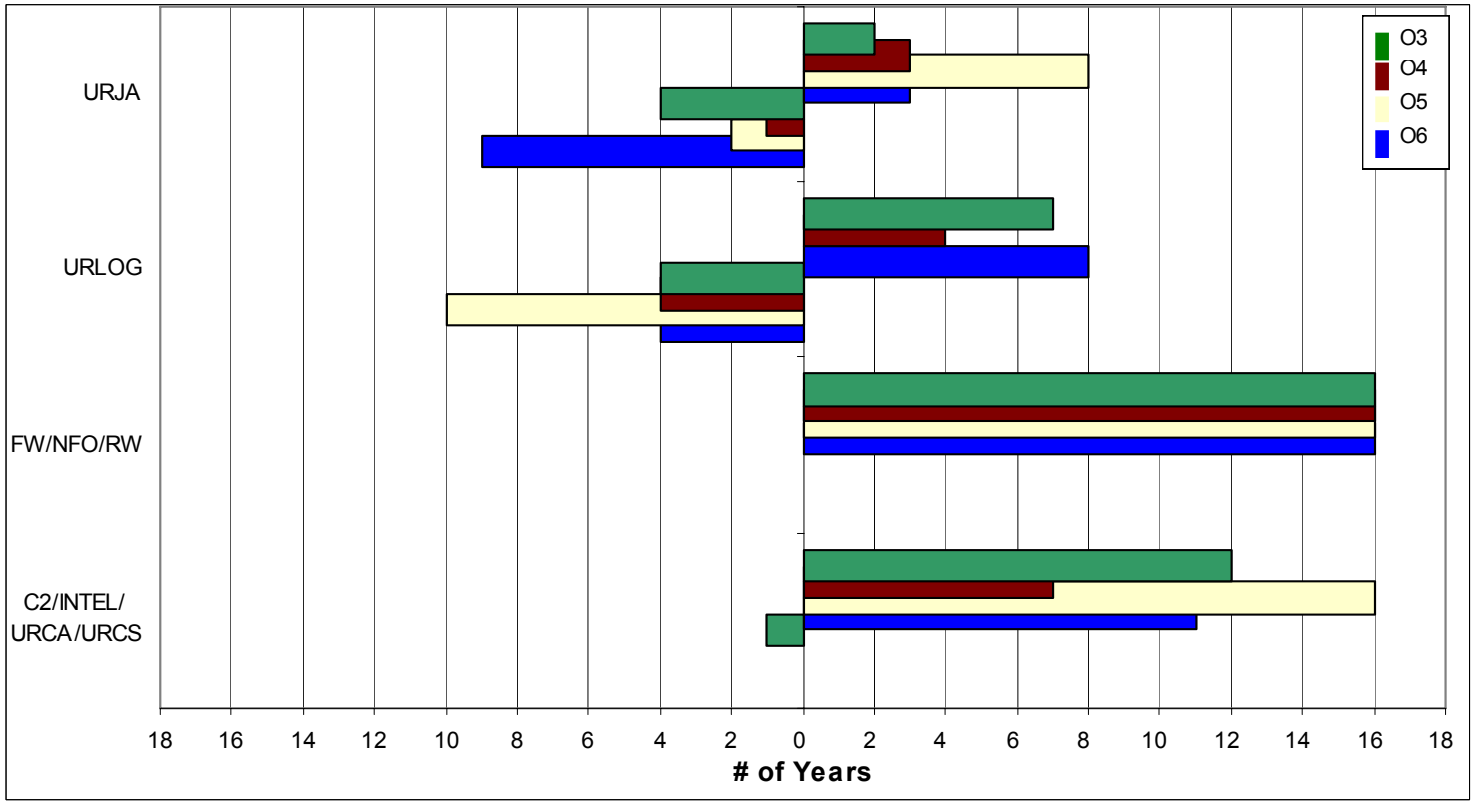
These occupations have the most frequent critical shortages when measured by GAR. Note that MAGTF Intel is at less than 85 percent of the GAR for all grades and for almost all years. Moreover, the number of PMOSs with less than 85 percent of the GAR increases with grade. PMOSs at less than 85 percent of GAR and with relatively large GAR requirements (i.e., larger than the median PMOS requirement in the grade) are MAGTF Intel, Communications, and Logistics; the other occupations listed above have smaller requirements.

Frequent surpluses occurred at all grades in the URCA group (AAV, Tanks, Artillery, and Infantry). In fact, Infantry suffered no shortages in any grade, and Artillery suffered no critical shortages (below 85 percent) in any grade. Surpluses were also much more frequent than shortages for rotary-wing pilots, but not for fixed-wing pilots.

We also wanted to determine the timing of shortages and surpluses for PMOSs that experienced equal (or nearly equal) numbers of both. We found that most PMOSs that had both shortages and surpluses were in surplus mainly in FY90 to FY93 and again from FY00 to the present. This was true for such PMOSs as Ground Supply, Engineer, Aviation Supply for Captains, Finance for Captains, Ground Supply for Majors, and Lawyer for Lieutenant Colonels. In other PMOSs, all of the surpluses occurred in recent years (e.g., in Communications for Captains, EA-6A/B for Majors, and Ground Supply for Lieutenant Colonels). Conversely, the UH-1 and AH-1 onboard populations of Captains have been falling since FY99. Appendix D has the complete time series of GAR and OB data for each PMOS.

Figure 8 illustrates the frequency of shortages for Captains–Colonels by the Colonel occupational groups.

Figure 8. Frequency of GAR shortages and surpluses for Captain–Colonel by Colonel group in the FY90–FY05 period[a]



a. C2/INTEL/URCA/URCS represents the Ground Colonel PMOS (9906), FW/NFO/RW represents the Naval Aviator/Naval Flight Officer PMOS (9907), URLOG represents the Logistician Colonel PMOS (9904), and URJA represents the Colonel Judge Advocate PMOS (9914).

For Colonels, the Naval Aviator / Naval Flight Officer PMOS had more frequent surpluses than any other group; in the Captain–Lieutenant Colonel analysis, the C-130 PMOS was short 12 years for Captain, 13 years for Major, and 13 years for Lieutenant Colonel. So, the results for Captains–Lieutenant Colonels once again led us to question the Colonel results. The aggregated C2 / Intel / URCA / URCS PMOS that represents Ground Colonels on the whole experienced *only one year of shortage* of Captains. Yet, this Colonel PMOS includes individual occupations of Captains that experienced a shortage below 100 percent for every year—and below 85 percent for at least 10 years—between FY90 and FY05. Surpluses in the URCA occupations (Infantry, Artillery, AAV, and Tanks) were large enough to make up for shortages in other occupations, such as MAGTF Intel, ensuring that the aggregated Colonel PMOS as a whole did not suffer a shortage. This provides more evidence that PMOS aggregation at the rank of Colonel hides shortage / surplus issues in individual occupations.

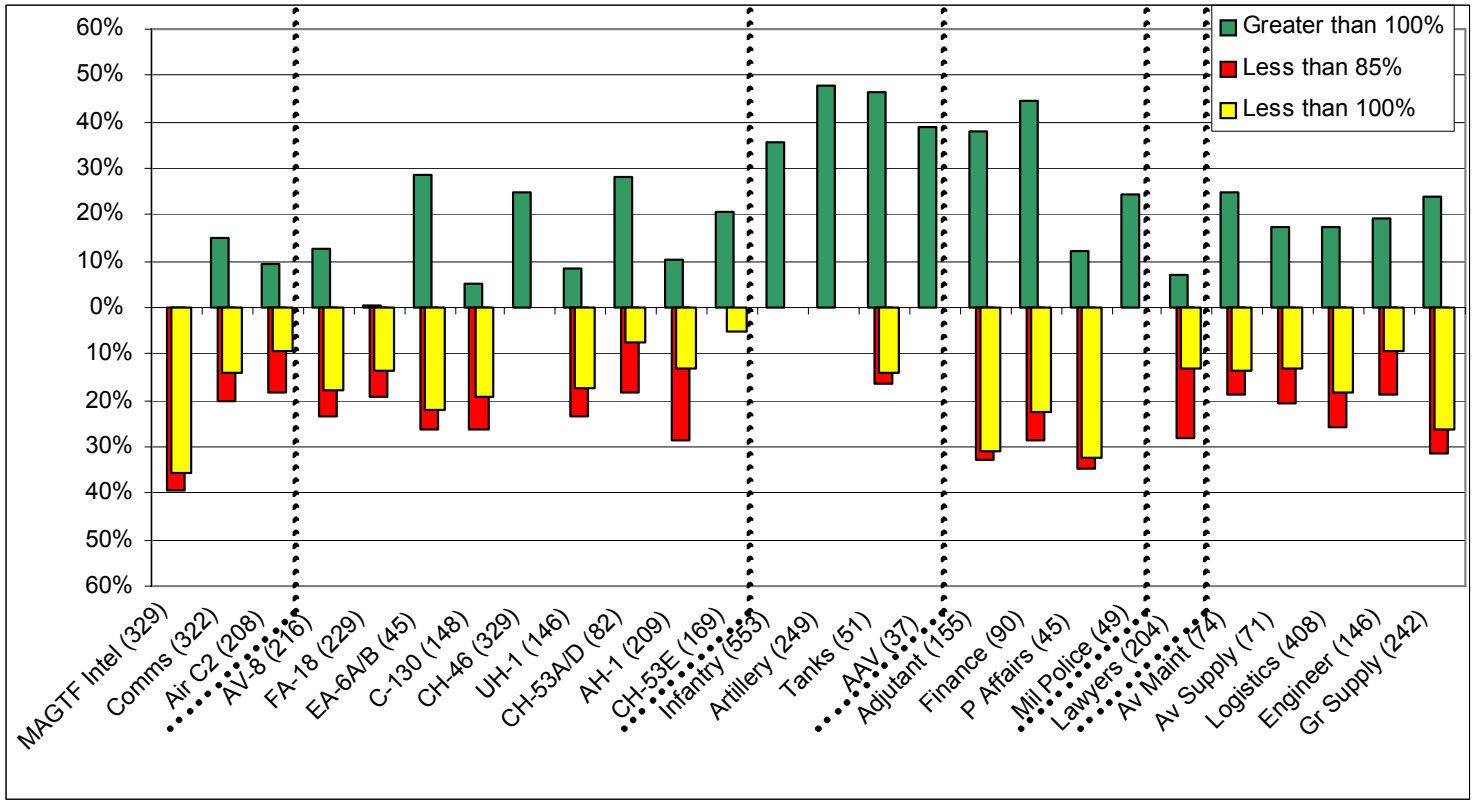
The frequency of PMOS shortages is important but does not tell the whole story. For instance, an occupation may be consistently short, but the size of that shortage may be small. In the next subsection, we examine the average size of the shortages that occur in each PMOS.

Average size of the shortages and surpluses, FY90 to FY05

To understand shortage size, we summed the shortages and divided by the number of years in which a shortage occurred to find the average size of the shortages. We performed this same calculation for surpluses. Figures 9 through 11 demonstrate the results for PMOSs below 85 percent of GAR (red), those PMOSs below 100 percent of GAR (yellow), and surpluses above 100 percent of GAR (green). The dotted vertical lines classify the PMOSs according to their occupation groups, and the average GAR for each occupation is shown in parentheses by each PMOS name to give some idea of population size.

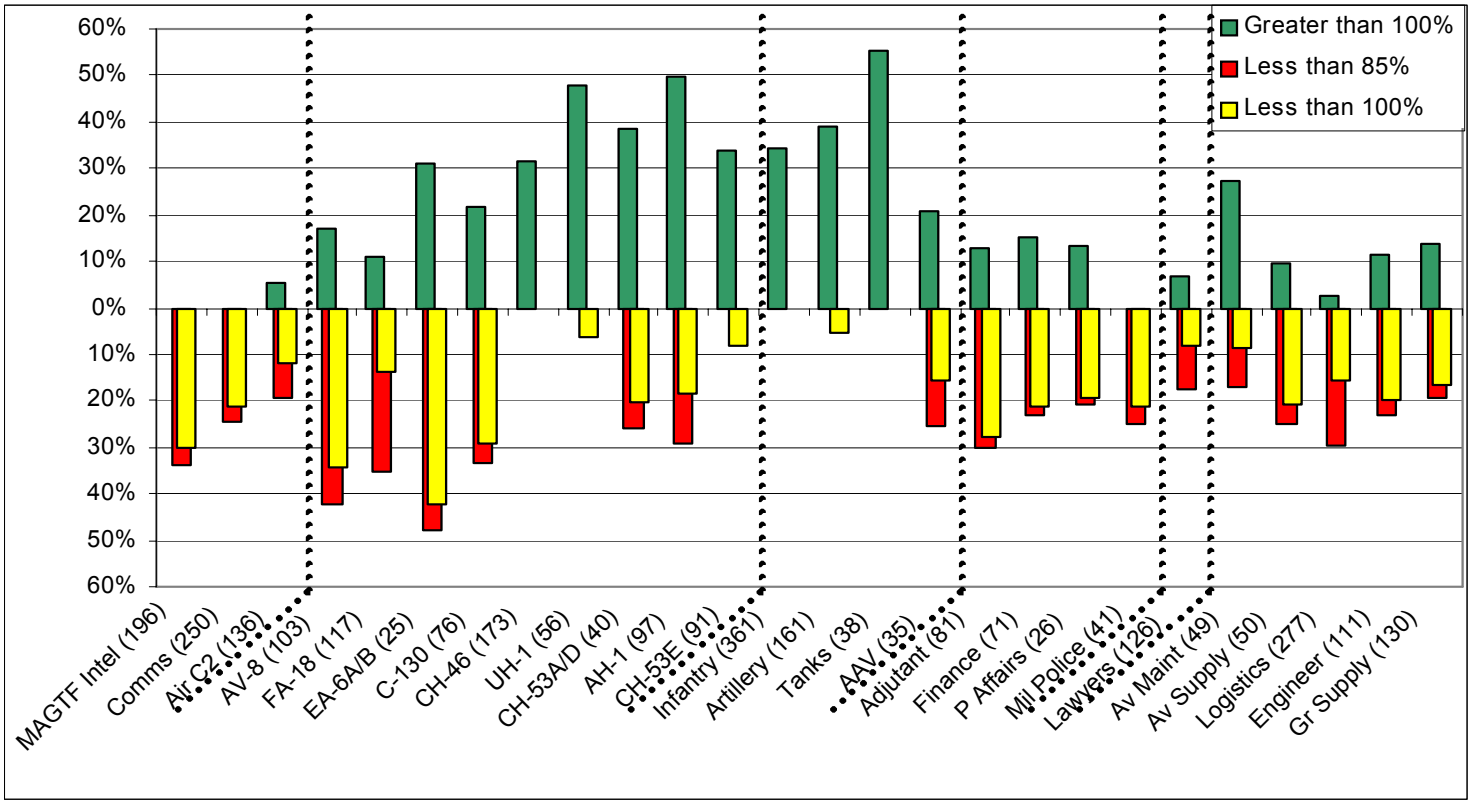
In figures 5 through 7, occupations in the URCA group experienced the most frequent surpluses in all grades. Figures 9 through 11 show that the surpluses in these occupations were not only frequent but large, on average, relative to the other occupations. This was also true for Major and Lieutenant Colonel rotary-wing pilots.

Figure 9. Average GAR shortages and surpluses for Captains, FY90–FY05[a]



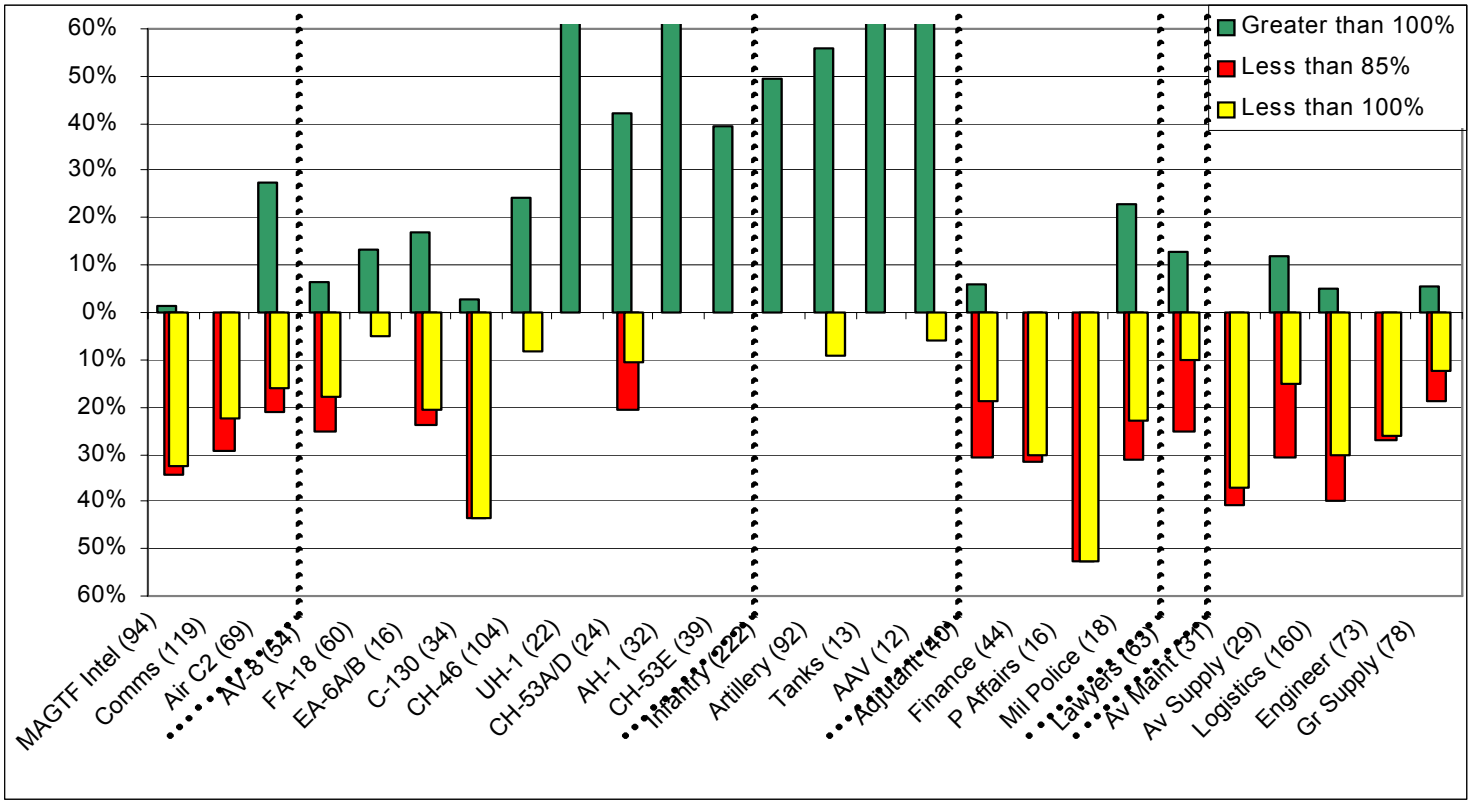
a. Numbers in brackets after PMOS names represent average GAR for PMOS from FY90-FY05

Figure 10. Average GAR shortages and surpluses for Majors, FY90-FY05[a]



a. Numbers in brackets after PMOS names represent average GAR for PMOS from FY90-FY05

Figure 11. Average GAR shortages and surpluses for Lieutenant Colonels, FY90-FY05[a]



a. Numbers in brackets after PMOS names represent average GAR for PMOS from FY90-FY05

Several of the occupations that experienced relatively equal numbers of shortages and surpluses during FY90 to FY05 had roughly equal average-size shortages and surpluses. For example, the Ground Supply PMOS experienced 8 years each of surpluses and shortages in the rank of Major, both of which averaged about 15 percent. In most of the cases where frequencies were equal but averages were not, the average surplus was larger than the average shortage.

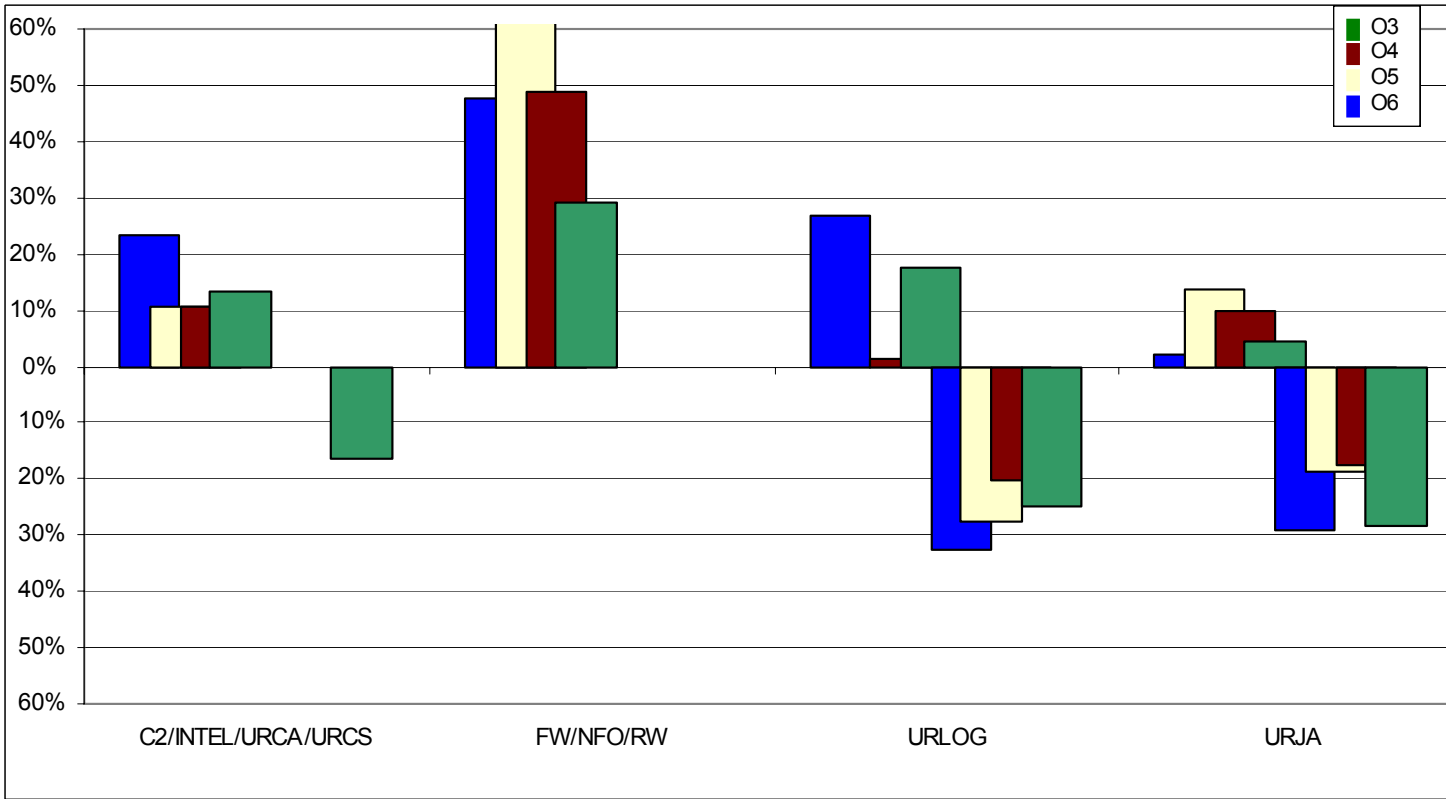
The most notable average shortages occur in MAGTF Intel for Captains, EA-6 and AV-8 pilot for Majors, and C-130, Aviation Maintenace, Public Affairs, and Logistics for Lieutenant Colonels. Each occupation suffered average shortages of 40 or more percent. However, the population sizes of the PMOSs are quite different from each other. For example, a shortage of 40 percent of Lieutenant Colonels in Logistics means that the PMOS is missing about 64 officers, almost equal to the entire Lieutenant Colonel populations of C-130 and Aviation Maintenance combined. In contrast, the average shortage of over 50 percent for Public Affairs Lieutenant Colonels consists of only about 8 officers.

Figure 12 shows the magnitude, on average, of the shortages and surpluses for Captains through Colonels by Colonel group.

Once again, the 9907 Colonels (FW/NFO/RW) seem the most well-staffed, reflecting average surpluses of nearly 50 percent when in surplus. When the 9904 (URLOG) PMOS is short of Colonels, it is on average more than 30 percent short; when it is in surplus, it is over by a little less than that. But, the most noteworthy shortages from the Captain–Lieutenant Colonel PMOS-level figures in this category do not even register on the radar when the data are examined at the aggregated PMOS Colonel level. For example, the Major pilot occupations of AV-8 and EA-6, which were short on average about 50 and 40 percent, respectively, are part of the FW/NFO/RW group for which average shortages are zero. This again shows how much information is lost in the aggregated Colonel PMOS reporting.[22]

22. The Marine Corps still tracks skill shortages for the Colonel promotion board by the basic PMOSs that the officer had as a Lieutenant Colonel.

Figure 12. Average GAR shortages and surpluses for Captains-Colonels by Colonel group, FY90-FY05[a]



a. C2/INTEL/URCA/URCS represents the Ground Colonel PMOS (9906), FW/NFO/RW represents the Naval Aviator/Naval Flight Officer PMOS (9907), URLOG represents the Logistician Colonel PMOS (9904), and URJA represents the Colonel Judge Advocate PMOS (9914).

So far we have examined the frequency of shortages and surpluses and the average size of these gaps when they occur. We have also briefly discussed the timing patterns of shortages. Next, we describe a metric we developed to account for the size and timing of shortages.

GAR shortage index

To more comprehensively measure both the severity of onboard inventory shortages and their current relevance, we developed an index that takes into account the size and timing of shortages. Measuring the average size of shortages (or surpluses) alone does not tell whether the result represents just one year of gaps or several. Likewise, frequent shortages or surpluses may be small in magnitude. Although looking at both measures together provides a better idea of where problems might exist, it doesn't provide any idea of how current these problems are.

Thus, we developed an index to account for the timing of shortages, giving more weight to those shortages that happened in more recent years and less weight to older occurrences. We then summed the weighted shortages to obtain the index, so larger and more current shortages result in a higher index. The mathematical expression for the index is:

> Shortage Index = Sum of (shortage * annual weight), where the weights are 1, 15/16, 14/16...1/16 for FY05, FY04, FY03...FY90.

For example, a shortage of 25 percent would contribute 0.016 (.25*(1/16)) to the total index value if the shortage occurred in FY90, 0.125 (.25*(8/16)) if it occurred in FY97, and 0.234 (.25*(8/16)) if it occurred in FY04.

Figures 13 through 16 illustrate this index for each PMOS that experienced a shortage during the period of FY90 to FY05.

Figure 13. GAR shortage index values for Captains for period FY90–FY05

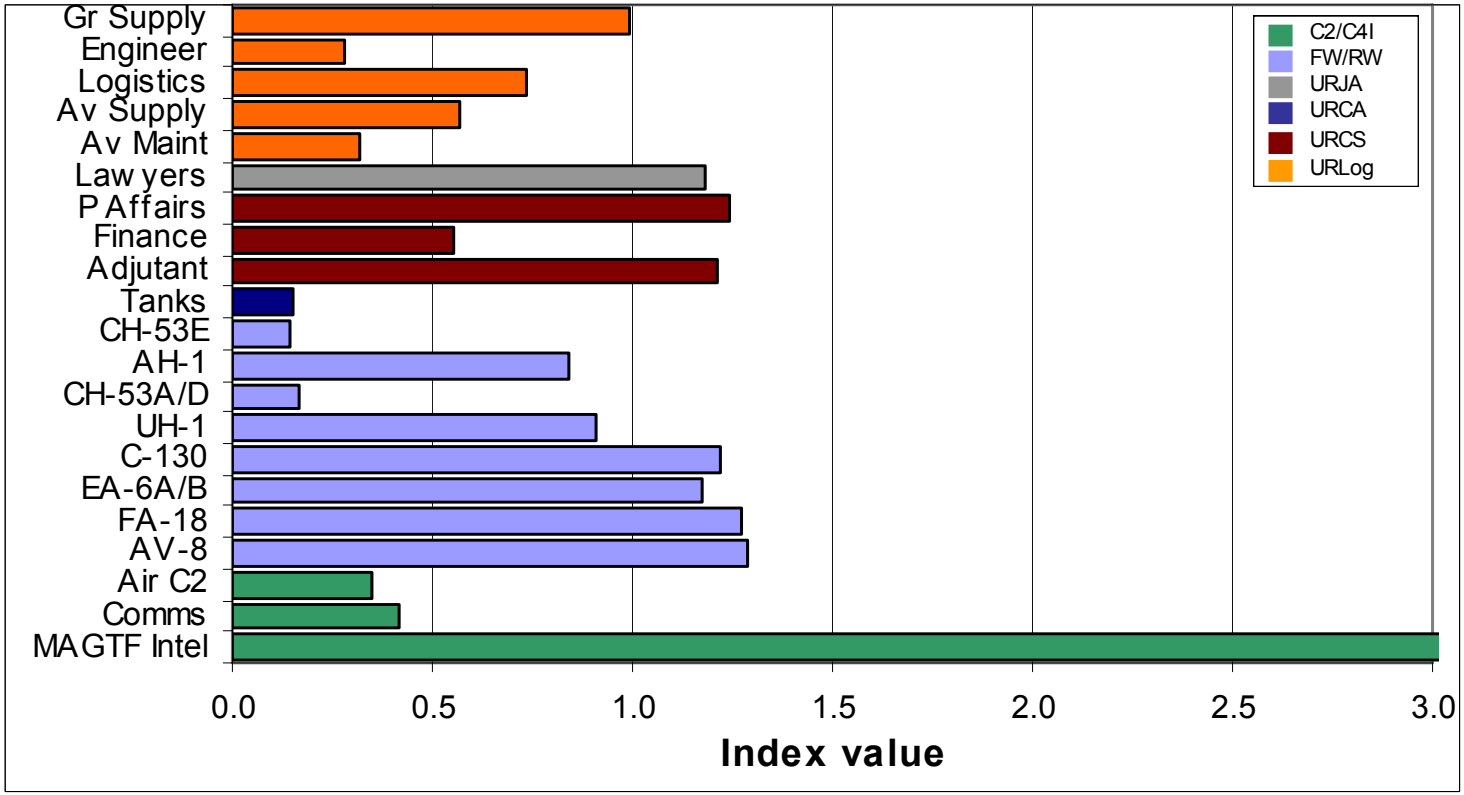


Figure 14. GAR shortage index values for Majors for period FY90–FY05

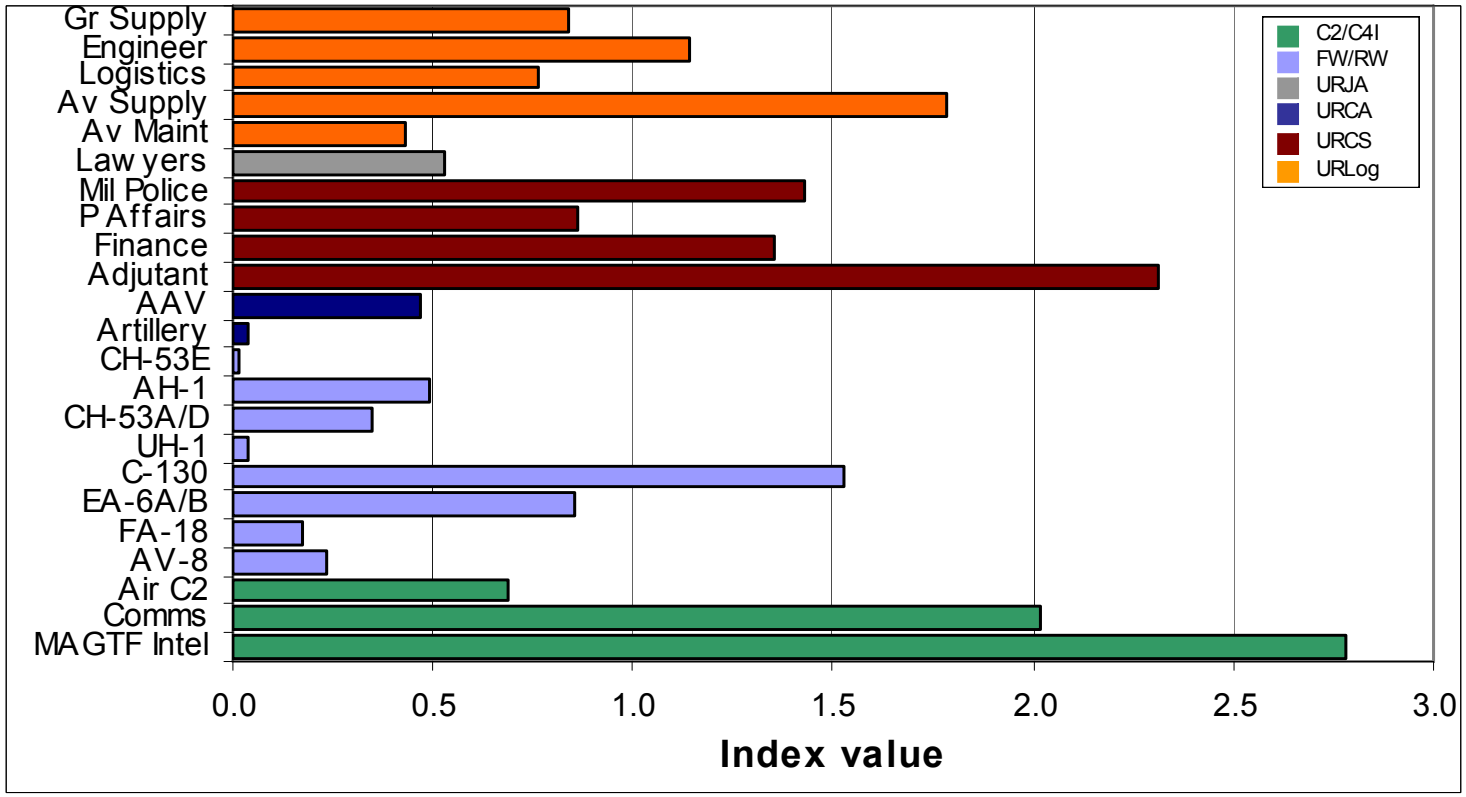


Figure 15. GAR shortage index values for Lieutenant Colonels for period FY90–FY05

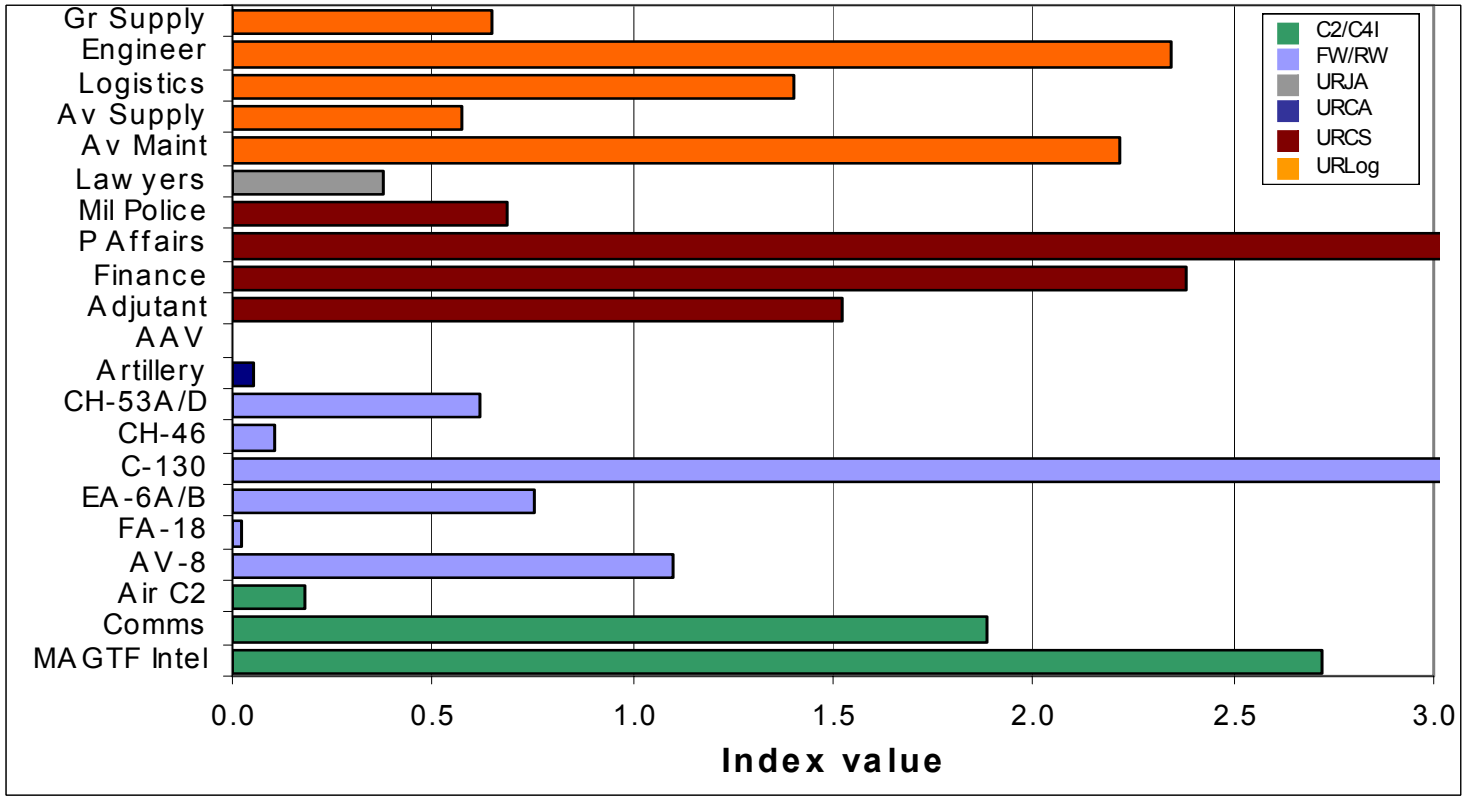
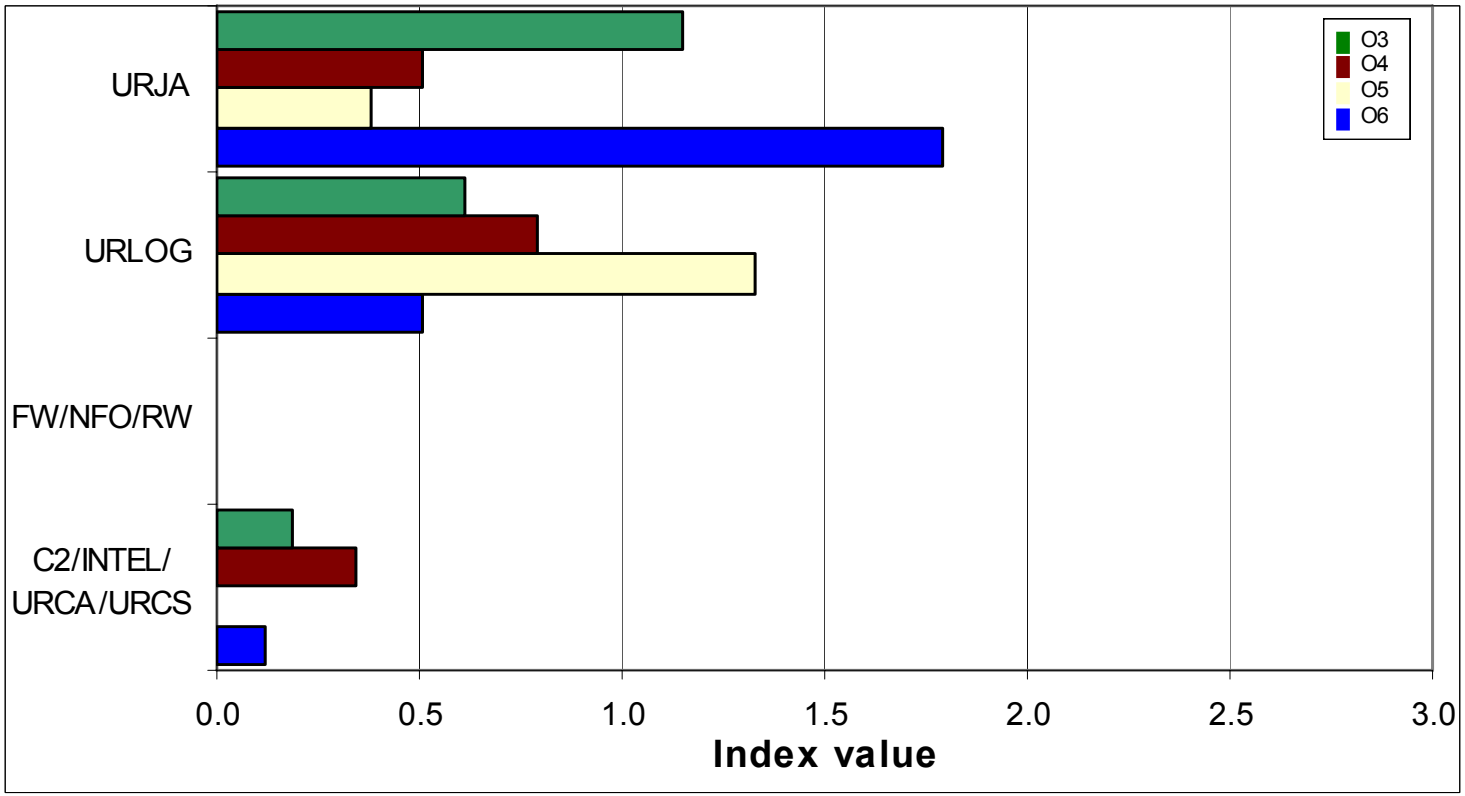


Figure 16. GAR shortage index values for Captains-Colonels by Colonel group for period FY90–FY05[a]



a. C2/INTEL/URCA/URCS represents the Ground Colonel PMOS (9906), FW/NFO/RW represents the Naval Aviator/Naval Flight Officer PMOS (9907), URLOG represents the Logistician Colonel PMOS (9904), and URJA represents the Colonel Judge Advocate PMOS (9914).

As the size of shortages increases, or the shortage becomes more recent, the overall index increases, indicating a greater problem. Thus, this index takes into account not only how severely short a PMOS is on average, but how recent these problems are. When we aggregate the PMOSs into Colonel PMOSs (figure 16), some shortages disappear at this aggregated level. This is true of the pilot group for all grades and the C2/Intel/URCA/URCS group for Lieutenant Colonels. Thus, the index value in figure 16 is zero.[23]

Because this index takes into account both the size and the timing of shortages, it is possible that some PMOSs that have been in surplus in recent years may score higher than others due to the size of the shortages they experienced earlier in the period. We do not disregard PMOSs that fall into this category, however, because these recent years represent a higher than average level of operational tempo. Recall from our earlier discussion of timing and frequency of shortages that those PMOSs that had about as many shortages as surpluses experienced their surpluses primarily during FY90 to FY93 (another period of increased tempo) and again in recent years. Therefore, it is entirely possible that, if the level of operational tempo falls again in the future, the percentage of OB relative to GAR in these PMOSs may also fall. Considering the averages over a longer period (FY90 to FY05) produces a more long-term view of OB over different levels of activity.

In figures 13 through 15, the highest index scores (with a score of 2 or above) appear in the following PMOSs:

- Captain: MAGTF Intel
- Major: MAGTF Intel, Communications, Adjutant
- Lieutenant Colonel: MAGTF Intel, C-130, Public Affairs, Aviation Maintenance, Finance, and Engineer.

In fact, of the occupations that scored 2 or above in the shortage index, all had critical shortages (less than 85 percent of GAR) as recently as FY05. Other PMOSs with current critical shortages but a

23. PMOSs with an index of zero are not visible in figures 13 through 16.

score below 2 also exist, mostly because they have experienced very few and/or small shortages. Table 2 summarizes the PMOSs that experienced critical shortages as recently as FY05.

Table 2. Recent critical shortages relative to GAR

Rank	PMOS	Detail
Captain	AV-8	Critically short since FY00
	C-130	Critically short since FY03
	EA-6A/B	Critically short 5 years since FY00
	FA-18	Critically short 4 years since FY00
	MAGTF Intel	Below 50 percent GAR since FY02
	UH-1 and AH-1	Critically short and falling since FY03
Major	Adjutant	Critically short since FY96
	Air C2	Critically short FY04 and FY05, falling since FY00
	Aviation Supply	Critically short since FY97
	Communications	Critically short since FY94
	Finance	Critically short FY95-FY03, surplus FY04-FY05
	MAGTF Intel	Critically short since FY96
	Military Police	Falling since FY03, critical FY04 and FY05
Lieutenant Colonel	Adjutant	Critically short since FY02
	Aviation Maintenance	Critically short 5 years since FY00
	C-130	Critically short since FY94
	Communications	Critically short 4 years since FY00
	Engineer	Critically short since FY93
	Finance	Critically short since FY99
	MAGTF Intel	Critically short since FY96
	Public Affairs	Critically short since FY91

GAR summary statistics

Figures 17 through 19 show the summary statistics for each occupation in the FY90–FY05 period. Figure 20 shows them by group for all grades.

The red line on the figure represents OB as the average percentage GAR. The vertical black bar is the entire range from the minimum percentage to the maximum percentage of OB relative to requirements for each occupation in the FY90–FY05 period. The vertical

Figure 17. GAR summary statistics for all PMOSs - Captains

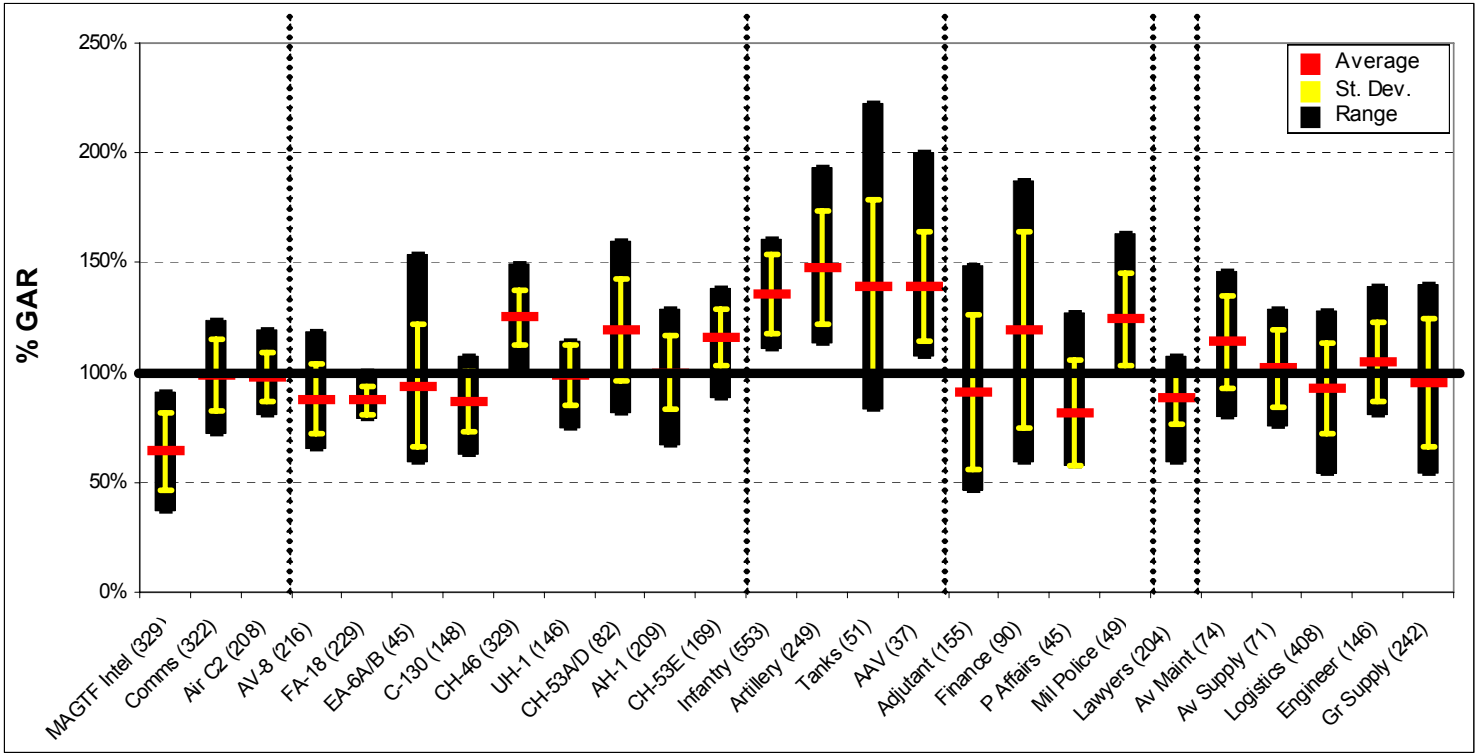


Figure 18. GAR summary statistics for all PMOSs - Majors

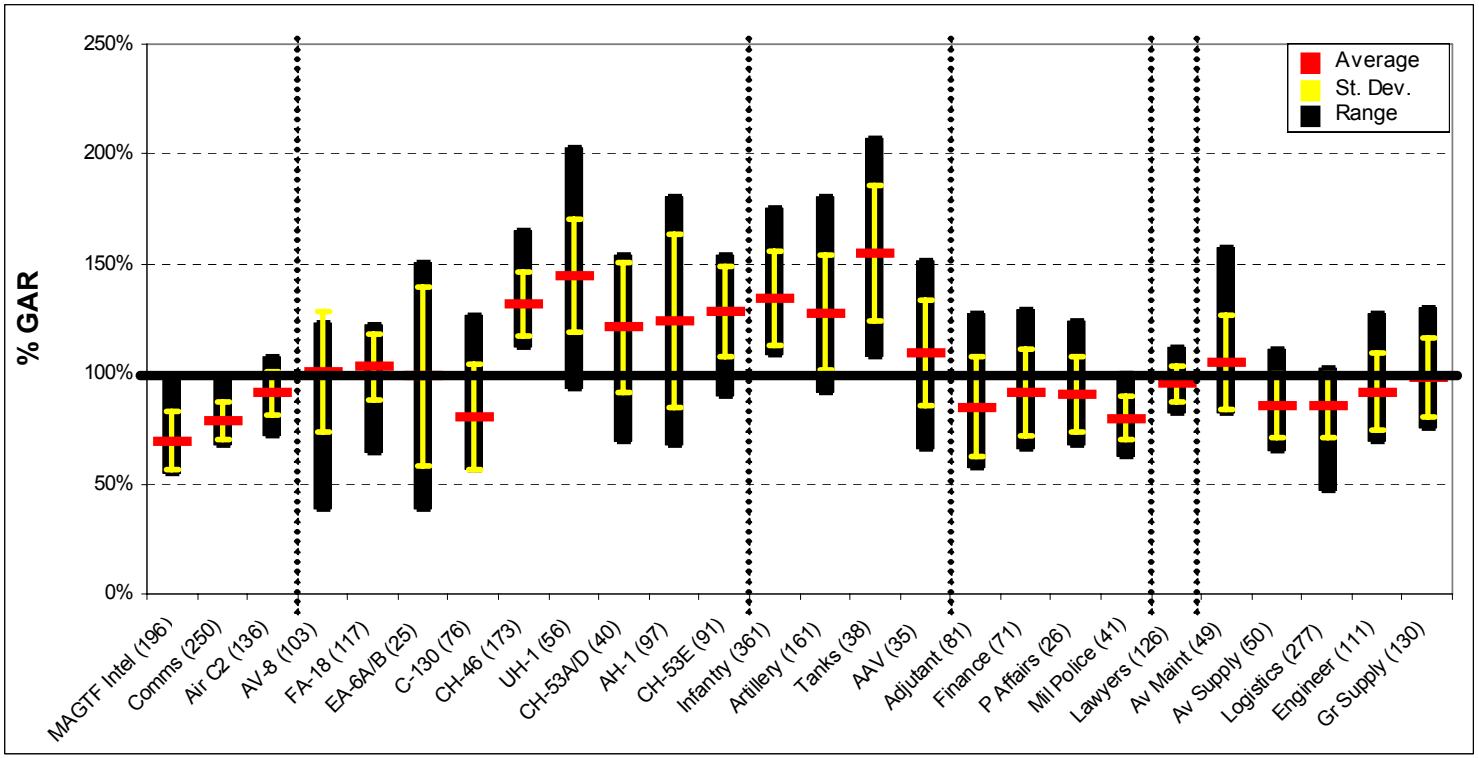


Figure 19. GAR summary statistics for all PMOSs - Lieutenant Colonels

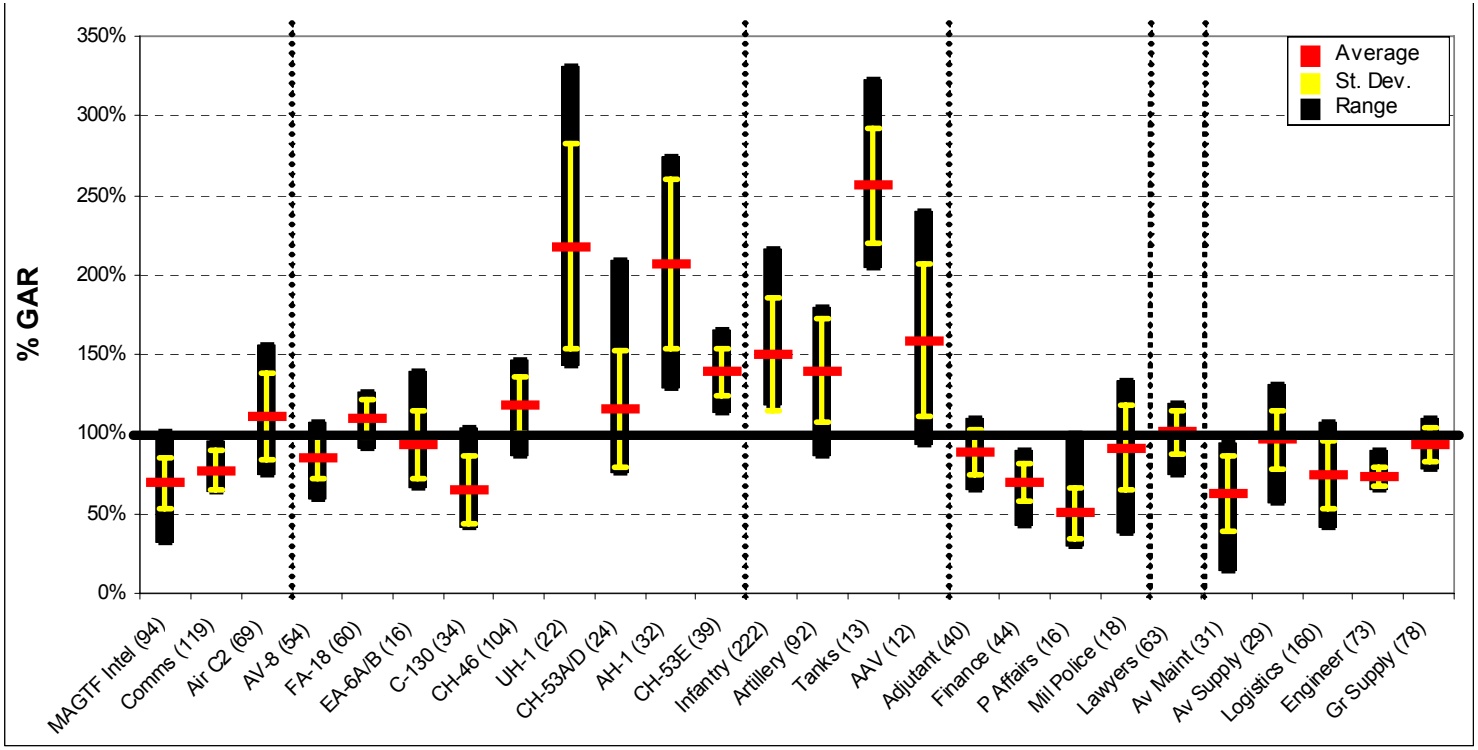
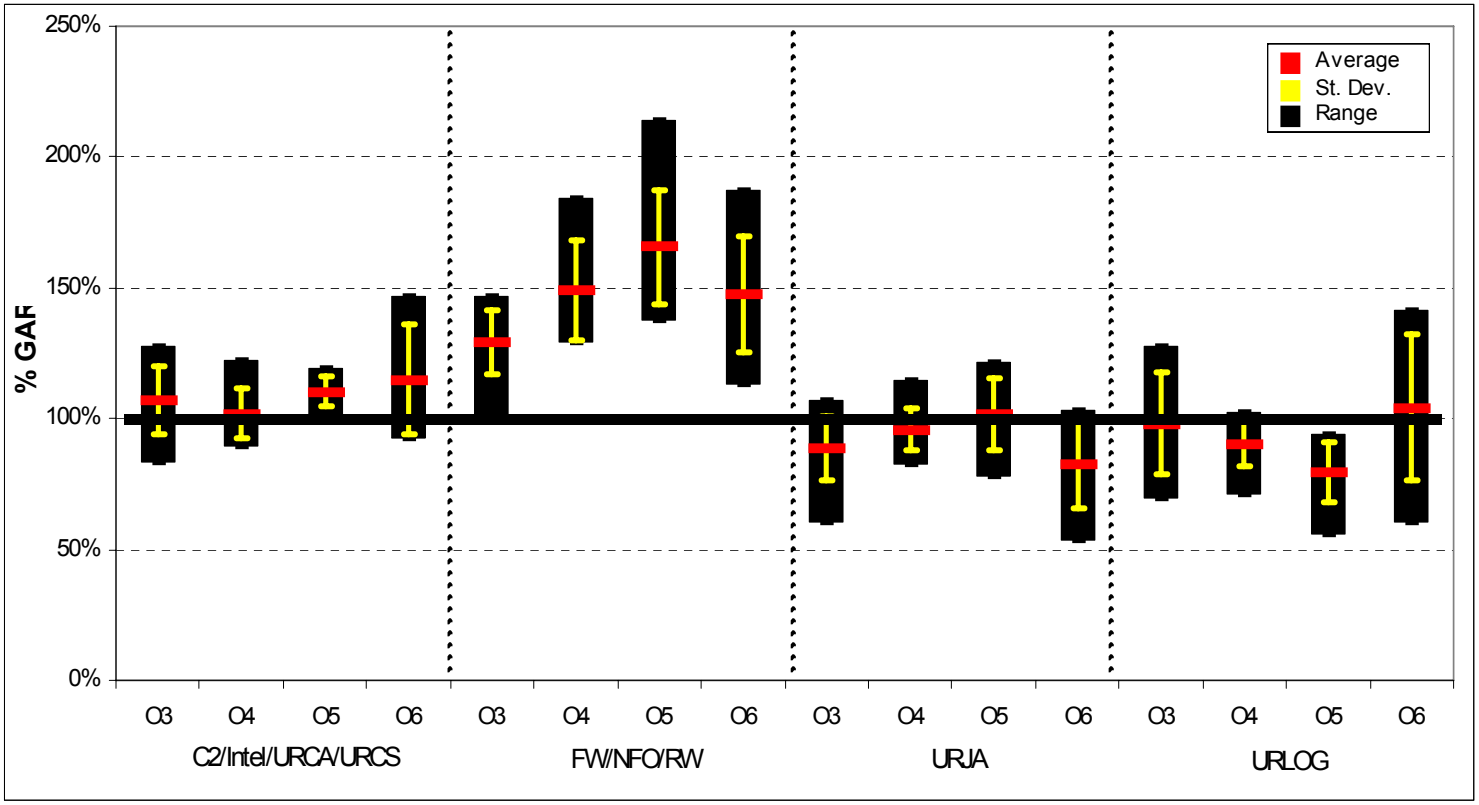


Figure 20. GAR summary statistics for Captains through Colonels by Colonel group[a]



a. C2/INTEL/URCA/URCS represents the Ground Colonel PMOS (9906), FW/NFO/RW represents the Naval Aviator/Naval Flight Officer PMOS (9907), URLOG represents the Logistician Colonel PMOS (9904), and URJA represents the Colonel Judge Advocate PMOS (9914).

yellow line represents the standard deviation about the average. The standard deviation shows where approximately 68 percent (or about 11 years) of the data fall.

These figures clearly confirm the existence of patterns not only across individual PMOSs but also across groups of occupations. For instance, in each rank from Captain to Lieutenant Colonel, the majority of observations (those falling within one standard deviation of the average) occur above the 100-percent threshold for the combat arms and rotary-wing pilot occupation groups, but the majority of observations occur below this threshold for the communications, intelligence, and fixed-wing pilot groups.

The occupational group that appears to have the largest inventory to requirements in figure 20 is the pilot group. However, this group includes the fixed-wing pilots who were short in the previous ranks and are probably also unrepresented in the rank of Colonel.

Several PMOSs repeatedly emerged in this study as being problem areas. By GAR standards, the occupation with the greatest shortage problem overall was MAGTF Intel, which experienced one of the lowest average percentage of requirements, most frequent and largest average shortages, and highest shortage indexes of all the occupations studied.

Public Affairs was frequently noted as one of the most severely short in each category, primarily for Lieutenant Colonels. The C-130 pilot occupation suffered frequent—but not relatively large—shortages of Majors and Lieutenant Colonels, as did the Communications PMOS. Larger average shortages were experienced by Adjutants for Captains, and the shortages in the Finance PMOS worsened in each subsequent grade. Patterns emerged across the Colonel occupation groups as well, with Colonel Judge Advocates (URJA) and Logistician Colonels (URLog)suffering the lowest average percentage of requirements. Neither the Ground Colonel (C2/Intel/URCA/URCS) PMOS nor the Colonel Naval Aviator/Naval Flight Officer (FW/RW/NFO) PMOS show any shortages over the study period. However, these results are probably misleading since both of these groups contain PMOSs that had an average percentage GAR less than 85 percent for each rank from Captain to Lieutenant Colonel.

Assignment shortages: Measuring shortages by A-billet requirements

Measuring shortages by the GAR is only one way to assess where problems lie. Another way is to look at officer onboard inventory relative to the A-billet requirements.

MMOA provided A-billet requirement and onboard data from FY92 to FY05, which it derived from the staffing goal model it uses to project the optimal staffing goal solution each fiscal year for officers in each MOS for Second Lieutenants through Colonels. The data are then adjusted for qualitative reasons for which the model logic does not account, such as career progression. Staffing goals for each fiscal year are based on current inventory, as well as projected attrition, promotions, and other factors. Although the data represent goals and not actual staffing, we have been advised by MMOA that it is very close to the actual manning (assignments) that occurred during each year. Note that the staffing goal model allows every billet to be filled by an officer one rank junior or senior to the billet requirement.

The MMOA data are broken down by MOS and fiscal year, but not by grade. In addition to the A-billet requirements, the output includes:

- Staffing goal in (SG_IN): The number of Marines projected to fill A-billets. These are billets in their own PMOS (i.e., a Captain, Major, or Lieutenant Colonel 0302 filling a Major 0302 billet)
- Staffing goal out (SG_OUT): The number of Marines projected to fill billets outside their PMOS (i.e., a Captain 0302 filling a joint duty billet)
- Total staffing goal (Total SGs): Total inventory of Marines who hold the corresponding PMOS; the sum of SG_OUT and SG_IN.

In a perfect world, each entry in the SG_IN column would equal the corresponding A-billet requirement, indicating that all A-billets in each PMOS will be filled by an officer with the corresponding PMOS. One would expect these A-billets to be filled especially if there were officers also allocated to outside billets, but it may be that officers

assigned outside billets are committed to those billets from a previous year, leaving too few Marines to fill the A-billets in the current year. Further, there are precedence levels associated with each billet, and it is possible for B-billets to be of higher precedence then A-billets, in which case the business rules of the staffing goal model would opt to fill the billet with the higher precedence. Thus, one can have sufficient OB to fill the A-billets, but the number of officers available this year for assignments may be less than the A-billet requirement.

Table 3 summarizes the data received from MMOA. For each PMOS, it shows the A-billet requirement, the SG_IN as a percentage of the A-billet requirement, and the total inventory also as a percentage of the A-billet requirement. This table includes only the PMOSs used for the GAR analysis. Note that our GAR analysis combines the MAGTF Intel and Signals Intel occupations because these were combined on the MOS Status Reports as of FY98, but the MMOA data retain these as separate PMOSs.

When the total PMOS inventory is less than the A-billet requirement for that PMOS, it is not possible to fill all of the A-billets even if all officers are assigned to A-billets, and officers are permitted to fill positions above or below their own grade. This is a shortage, and we have colored these shortages in table 3 in yellow. In the data received from MMOA, shortages of this type did occur mostly before FY00, in the following PMOSs:

- Adjutant
- MAGTF Intel (and Signals Intel)
- Communications
- Ground Supply
- Logistics
- Public Affairs
- Aviation Supply
- Air C2
- C-130.

Although inventory usually exceeds the A-billet requirement (except for the instances highlighted in yellow in table 3), there have been persistent shortages in A-billet fill. The fact that the A-billets are manned below 100 percent, despite a total officer inventory in that PMOS greater than the A-billet requirement, does not necessarily indicate an inadequate number of officers in that PMOS. More often, this can be attributed to business rules that govern the assignment process. For example, officers who are already committed to B-billets from a prior year cannot be pulled to fill shortfalls in A-billets. In table 3, we have used green to show years in which A-billet fill was less than 95 percent.

Since FY00, total inventory in a PMOS was less than the A-billet requirement three times—all in the MAGTF Intel/Signal Intel PMOSs. Recall that MAGTF Intel was highlighted as having current shortage issues in all grades in the GAR analysis.

As table 3 shows, A-billets are rarely filled at 100 percent of the requirement. In fact, it happened only seven times over all PMOSs during FY92 through FY05. Because business rules allow one grade up or down, we highlighted shortages in the table when staffing was less than 95 percent of the A-billet requirement. We can also examine the average level to which the A-billets were manned, similar to the Average Percent GAR analysis performed earlier. Figure 21 illustrates the average level of manning over the period of FY92 to FY05, as a percentage of the A-billet requirement. The PMOSs are listed along the x-axis. Each bar represents the average total officer inventory in that PMOS: the blue section of the bar represents the average proportion of total officer inventory assigned to billets in that PMOS, and the yellow section represents the average proportion of total officer inventory assigned to outside billets. A bold horizontal line is used to highlight the 100-percent level.

Table 3. Summary of A-billet requirement (Req.) data FY92-FY05

PMOS	MOS		FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05
Adjutant	0180	Req.	296	290	316	306	300	288	275	270	273	275	278	294	304	295
		SG_IN / Req.	76.35	75.86	80.06	88.56	80.00	83.33	87.27	95.19	93.77	98.18	96.04	97.96	98.03	98.31
		Total / Req.	91.55	92.76	93.04	102.61	95.33	100.69	101.45	108.15	103.66	112.36	123.74	121.43	119.74	128.14
MAGTF Intel	0202	Req.	354	358	369	344	331	339	330	368	378	436	439	442	459	489
		SG_IN / Req.	73.45	75.70	85.09	87.21	85.50	88.79	86.67	87.50	78.57	78.44	92.48	95.70	96.95	94.07
		Total / Req.	79.10	84.92	95.12	100.29	119.64	109.73	109.09	107.34	93.39	85.09	108.88	114.03	115.90	114.11
Infantry	0302	Req.	1307	1218	1160	1074	1027	1057	1020	1058	1051	1167	1159	1221	1265	1316
		SG_IN / Req.	99.46	97.62	96.29	93.30	97.27	96.88	99.02	95.56	96.96	95.12	97.33	97.46	97.71	96.43
		Total / Req.	161.97	159.85	162.41	166.39	172.44	170.86	172.25	160.59	162.42	150.73	146.59	140.21	142.21	138.60
Logistics	0402	Req.	683	640	622	614	592	606	589	652	799	813	780	809	850	944
		SG_IN / Req.	80.38	78.44	86.66	86.32	85.98	89.77	93.21	91.10	96.75	97.17	98.08	99.01	97.41	93.54
		Total / Req.	97.51	96.09	106.91	107.17	104.05	111.72	115.45	121.01	125.66	126.45	135.13	133.87	129.41	122.03
Communications	0602	Req.	172	156	163	148	143	153	572	605	610	618	592	620	652	640
		SG_IN / Req.	88.37	98.72	87.12	96.62	95.10	94.12	81.47	94.71	92.62	90.13	98.65	99.52	99.23	99.06
		Total / Req.	88.37	100.00	87.73	98.65	101.40	96.73	112.41	114.21	108.69	103.72	119.43	125.81	121.32	122.81
Artillery	0802	Req.	478	479	507	491	462	491	457	482	448	448	450	457	488	526
		SG_IN / Req.	99.16	97.70	94.28	86.56	105.63	96.13	96.94	93.57	95.31	98.88	98.67	97.81	98.98	92.97
		Total / Req.	200.00	187.27	159.57	151.12	174.03	152.34	154.27	144.81	156.47	162.95	156.00	161.71	149.80	139.54
Engineer	1302	Req.	329	316	317	295	265	278	288	295	285	276	272	282	292	312
		SG_IN / Req.	98.18	91.77	85.80	73.90	84.15	87.41	83.68	92.54	89.47	100.00	97.79	96.45	98.97	96.47
		Total / Req.	134.95	133.54	128.71	118.98	126.04	117.27	114.24	123.73	123.86	137.68	137.50	134.40	129.45	129.17
Tanks	1802	Req.	101	103	89	97	86	95	97	96	95	89	85	84	92	90
		SG_IN / Req.	96.04	99.03	91.01	87.63	97.67	93.68	97.94	92.71	95.79	106.74	96.47	98.81	97.83	97.78
		Total / Req.	198.02	215.53	208.99	180.41	202.33	194.74	177.32	175.00	178.95	169.66	170.59	180.95	165.22	175.56
AAV	1803	Req.	88	77	74	79	73	75	70	79	69	71	71	72	73	82
		SG_IN / Req.	97.73	88.31	85.14	62.03	87.67	88.00	95.71	88.61	92.75	94.37	100.00	97.22	95.89	93.90
		Total / Req.	157.95	167.53	174.32	149.37	171.23	174.67	175.71	154.43	172.46	149.30	159.15	151.39	156.16	150.00
Signals Intel	2602	Req.	173	176	175	169	26	28	28	28	28	27	27	28	28	30

Table 3. Summary of A-billet requirement (Req.) data FY92-FY05 (continued)

PMOS	MOS		FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05
		SG_IN / Req.	99.42	95.45	90.86	89.35	92.31	96.43	96.43	96.43	100.00	100.00	96.30	92.86	100.00	93.33
		Total / Req.	119.08	118.75	113.14	109.47	134.62	121.43	107.14	103.57	107.14	107.41	100.00	96.43	103.57	100.00
Ground Supply	3002	Req.	529	505	505	486	483	480	462	462	448	444	444	447	449	445
		SG_IN / Req.	92.82	86.73	80.59	87.65	82.19	92.71	95.24	95.45	96.65	96.62	97.07	95.30	93.76	95.51
		Total / Req.	112.85	104.75	102.57	100.82	98.34	103.54	106.49	109.09	110.94	112.61	125.00	124.38	124.50	121.57
Finance	3404	Req.	223	218	217	212	210	196	185	187	198	193	176	176	184	166
		SG_IN / Req.	91.48	84.86	80.65	73.58	82.86	91.84	95.68	89.84	94.95	94.30	97.73	98.86	100.54	100.00
		Total / Req.	125.11	111.01	105.07	108.49	102.38	116.84	127.57	120.86	120.20	118.13	134.09	135.80	135.33	151.20
Public Affairs	4302	Req.	62	64	61	60	87	85	86	85	86	86	85	89	87	86
		SG_IN / Req.	93.55	75.00	80.33	86.67	82.76	96.47	91.86	94.12	98.84	98.84	95.29	97.75	98.85	98.84
		Total / Req.	104.84	85.94	103.28	106.67	90.80	107.06	102.33	120.00	110.47	111.63	114.12	119.10	116.09	134.88
Military Police	5803	Req.	302	293	290	283	272	272	267	270	267	242	267	278	281	284
		SG_IN / Req.	92.05	96.25	87.93	97.53	93.01	90.44	98.13	91.85	95.13	95.87	99.63	98.92	98.93	97.89
		Total / Req.	113.58	115.02	111.38	108.83	126.10	127.57	119.85	118.89	121.72	123.14	124.72	125.90	124.56	128.87
Lawyers	4402	Req.	119	113	114	113	108	112	110	111	118	117	112	123	130	132
		SG_IN / Req.	99.16	93.81	87.72	74.34	87.96	89.29	104.55	92.79	96.61	94.02	99.11	98.37	96.15	97.73
		Total / Req.	121.01	115.04	118.42	107.96	116.67	118.75	126.36	121.62	121.19	127.35	133.04	120.33	113.08	117.42
Aviation Maint	6002	Req.	133	134	124	122	126	133	133	138	166	172	175	174	175	181
		SG_IN / Req.	86.47	85.07	79.84	79.51	89.68	90.23	84.21	98.55	93.37	98.84	97.14	97.13	96.57	95.03
		Total / Req.	146.62	138.81	140.32	131.97	138.89	133.83	132.33	135.51	118.07	121.51	124.57	129.89	130.86	126.52
Aviation Supply	6602	Req.	104	118	120	118	121	117	114	116	132	144	133	138	140	141
		SG_IN / Req.	95.19	83.90	81.67	77.12	84.30	87.18	92.98	96.55	94.70	95.83	93.23	96.38	85.71	92.91
		Total / Req.	96.15	127.12	113.33	118.64	118.18	123.08	134.21	124.14	116.67	120.14	117.29	125.36	112.86	118.44
Air C2	7202	Req.	34	36	34	115	107	103	97	100	100	106	102	105	112	122
		SG_IN / Req.	91.18	86.11	94.12	81.74	83.18	78.64	92.78	85.00	95.00	93.40	92.16	85.71	86.61	90.16
		Total / Req.	94.12	88.89	97.06	128.70	137.38	154.37	183.51	165.00	178.00	173.58	183.33	176.19	158.93	147.54
AV-8	7509	Req.	286	250	260	230	219	232	227	200	195	214	212	211	211	190
		SG_IN / Req.	97.90	98.80	86.54	101.30	94.98	92.67	91.63	89.50	96.41	92.99	92.92	98.10	97.63	98.42

Table 3. Summary of A-billet requirement (Req.) data FY92-FY05 (continued)

PMOS	MOS		FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05
		Total / Req.	121.33	138.40	137.69	163.91	157.53	131.03	118.94	155.00	150.77	137.38	144.81	163.51	164.45	178.95
FA-18	7523	Req.	281	253	232	328	311	306	297	302	296	312	312	320	323	316
		SG_IN / Req.	91.46	95.26	92.24	93.29	93.89	95.42	93.60	93.71	96.96	97.76	96.15	96.88	95.98	97.15
		Total / Req.	146.62	157.71	147.84	136.59	147.27	133.33	134.34	142.05	138.85	133.01	141.99	150.94	147.99	162.66
EA-6A/B	7543	Req.	33	38	37	32	34	33	33	33	32	36	37	37	37	37
		SG_IN / Req.	93.94	86.84	91.89	87.50	91.18	90.91	96.97	100.00	96.88	102.78	100.00	100.00	100.00	89.19
		Total / Req.	133.33	100.00	172.97	218.75	214.71	227.27	160.61	193.94	150.00	119.44	140.54	164.86	186.49	178.38
C-130	7557	Req.	156	116	122	116	112	111	110	104	108	119	113	121	121	119
		SG_IN / Req.	97.44	96.55	67.21	72.41	58.04	68.47	83.64	99.04	80.56	98.32	92.92	92.56	87.60	90.76
		Total / Req.	133.97	162.93	87.70	100.86	90.18	98.20	115.45	140.38	116.67	120.17	122.12	122.31	133.88	129.41
CH-46	7562	Req.	530	524	489	475	441	456	451	468	406	352	406	406	460	455
		SG_IN / Req.	96.42	95.99	97.34	94.74	95.01	86.18	98.89	92.09	96.55	95.74	94.58	98.28	96.30	95.82
		Total / Req.	150.57	144.66	152.15	153.89	153.06	145.61	162.75	151.07	171.92	197.44	182.02	190.64	166.74	165.93
UH-1	7563	Req.	196	195	145	145	157	164	162	168	150	166	164	168	168	170
		SG_IN / Req.	97.96	99.49	98.62	96.55	96.82	87.20	97.53	100.00	98.00	94.58	84.76	97.62	97.02	96.47
		Total / Req.	164.29	148.21	188.97	192.41	169.43	146.34	155.56	146.43	160.00	144.58	134.15	145.24	140.48	158.24
CH-53A/D	7564	Req.	124	111	110	115	102	96	98	103	100	101	100	100	91	95
		SG_IN / Req.	95.97	90.09	86.36	80.87	86.27	78.13	81.63	92.23	80.00	91.09	76.00	86.00	79.12	52.63
		Total / Req.	195.97	171.17	132.73	111.30	120.59	127.08	142.86	149.51	141.00	134.65	125.00	129.00	143.96	114.74
AH-1	7565	Req.	191	199	279	279	236	242	235	240	246	291	292	300	300	295
		SG_IN / Req.	96.86	97.49	91.76	81.72	94.07	85.95	98.30	95.42	97.97	91.75	87.33	99.33	99.33	97.63
		Total / Req.	174.35	161.31	125.09	114.70	141.53	127.27	157.87	152.92	156.91	147.08	136.99	143.67	150.67	153.56
CH-53E	7566	Req.	195	241	238	238	209	235	229	220	221	251	245	252	254	250
		SG_IN / Req.	97.95	96.27	98.74	94.96	99.52	89.36	101.75	99.55	97.74	98.01	98.37	100.00	98.03	95.60
		Total / Req.	150.26	136.93	145.38	140.34	157.42	129.79	159.39	164.09	167.87	152.59	168.16	162.30	170.08	178.40

Figure 21. Average percentage of A-billets manned in the FY92–FY05 period

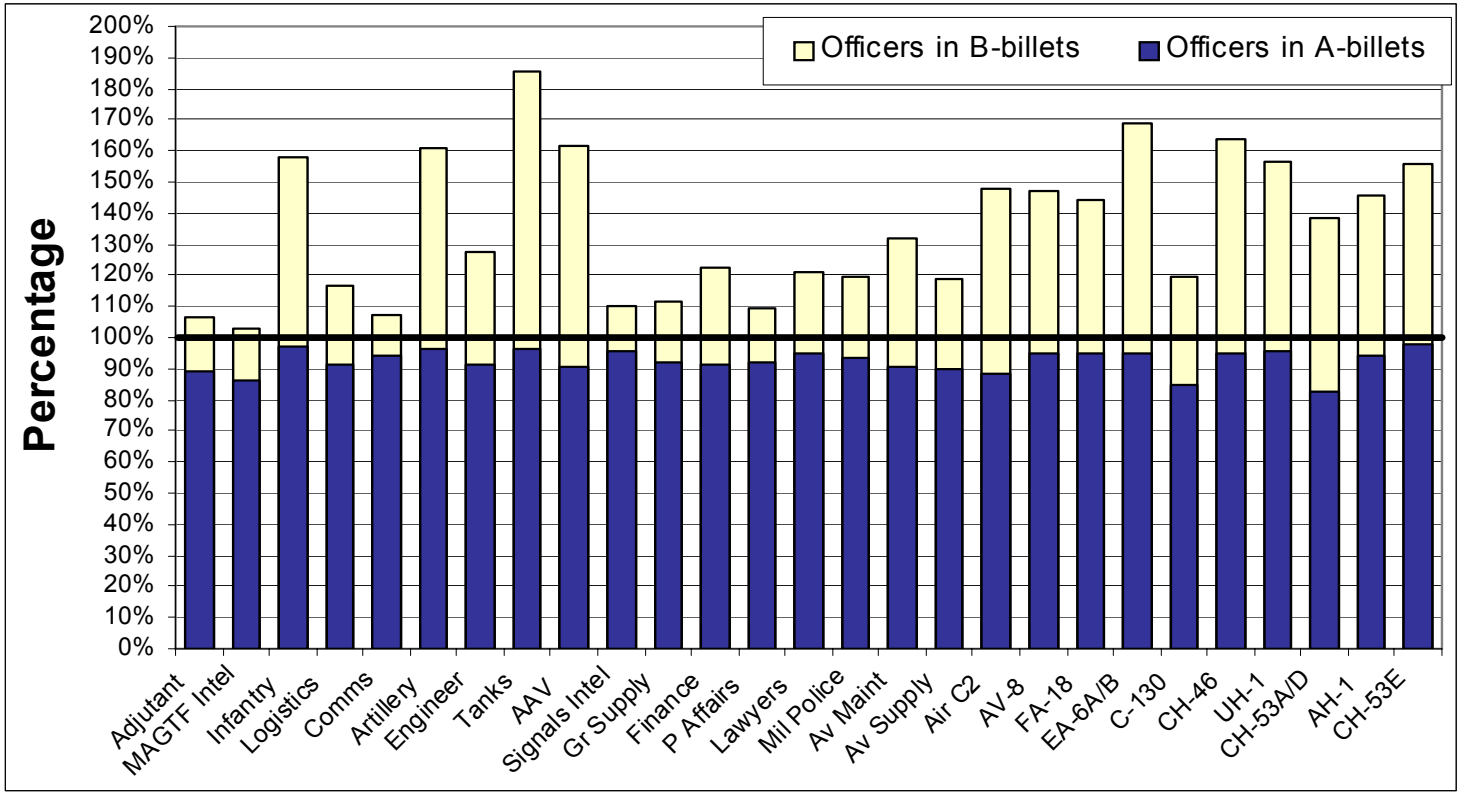


Figure 21 illustrates that average officer inventory was not below 100 percent of the A-billet requirement for any MOS. However, three PMOSs stand out as having especially low average A-billet fills: MAGTF Intel (86 percent), C-130 (85 percent), and CH-53A/D (83 percent). All three of these PMOSs had an average total inventory of greater than 100 percent of the A-billet requirement; in fact, the total inventory of officers for the PMOS CH-53A/D was significantly higher, at 139 percent of the A-billet requirement.

If we used the same critical threshold level of 85 percent, discussed in the GAR analysis, we identify the following PMOSs where the A-billets were manned at 85 percent or less since FY00, with the frequency noted in parentheses:

- MAGTF Intel (2)
- C-130 (1)
- UH-1 (1)
- CH-53A/D (4).

The two critical shortages in MAGTF Intel happened in the same years that total inventory in the PMOS was less than 100 percent of the A-billet requirement. So even if all of the officers in that PMOS were assigned to the A-billets—and none to B-billets—the A-billets would still be manned less than 100 percent. However, the other critical shortages happened in spite of total inventories in excess of the A-billet requirement. This means that the A-billets could have been manned at 100 percent if fewer officers in the corresponding PMOS were committed to B-billets.

Comparison of results of A-billet and GAR analyses

From the FY92–FY05 A-billet data, on average 30 percent of officer inventory was assigned to billets outside their own PMOS in those years. There were 12 officer PMOSs with below-average proportions of officers in B-billets. Of these 12 PMOSs, 7 scored a two or higher on our shortage index in the GAR analysis. Table 4 summarizes these results.

Table 4. Summary of PMOSs with lower than average assignment to outside billets[a] and a GAR shortage index[b] at 2 or above

PMOS	Percentage of inventory assigned to billets outside own PMOS	Rank in which GAR shortage index was 2 or greater
Adjutant	16.2	Major
MAGTF Intel	15.5	Captain, Major, Lieutenant Colonel
Logistics	21.6	N/A
Communications	12.4	Major
Engineer	28.7	Lieutenant Colonel
Ground Supply	17.0	N/A
Finance	25.1	Lieutenant Colonel
Public Affairs	15.2	Lieutenant Colonel
Lawyers	20.9	N/A
Military Police	21.9	N/A
Aviation Supply	24.1	N/A
C-130	28.9	Lieutenant Colonel

a. Calculated for the period of FY92 to FY05.
b. Calculated for the period of FY90 to FY05.

This finding shows that (a) more officers are being assigned outside billets when there are surpluses in their own PMOS, and/or (b) officers in PMOSs that are critically short do not receive as many career-broadening opportunities as officers in healthier PMOSs do. A closer examination of the types of outside billets available to officers would shed more light on this, but that is beyond the scope of this study.

Against this backdrop, we turn to differences in promotion rates by PMOS.

Differences in promotion rates by PMOS

The officer management system is a complex process involving numerous subprocesses that span the careers of officers. Promotion is only one of these subprocesses. Accessions, PMOS assignments at The Basic School (TBS), career assignments, command selection policies, professional military education (PME) assignments and policies, voluntary attrition, and retention incentives all affect which officers remain in the Marine Corps and move up the ladder through promotions. It is important to keep these subprocesses in mind as we look at the promotion subprocess, and to ensure that any conclusions drawn from this analysis take account of all the subprocesses.

Box plots

There are marked differences in promotion rates across PMOSs. Figures 22 through 24 present box plots of the in-zone promotion rates by grade and PMOS for FY93 through FY06. The box plots are interpreted as follows: the red line indicates the median point, the lower boundary of the box indicates the 25th percentile, the upper boundary of the box indicates the 75th percentile, and the upper and lower lines indicate the 90th and 10th percentiles, respectively. The median is the point at which half of the PMOSs have higher promotion rates and half have lower promotion rates. The 90th percentile is the promotion rate for which 90 percent of all the PMOSs have lower (or the same) promotion rates and 10 percent of all the PMOSs have higher (or the same) promotion rates.

Captain promotion rates by PMOS

Starting in FY99, the promotion board for Captains was directed to promote "all fully qualified." Because of this policy, any distribution in promotion rates across the PMOSs is mainly historical. This policy took a few years to be fully implemented; starting in FY01, however, the promotion rates converged to almost 100 percent. Until that time, most of the PMOSs had promotion rates between 80 percent

and 100 percent.[24] Even after this convergence in FY01, there are several times in which the promotion rate fell below 90 percent for at least one of the PMOSs. But, in each of these cases, there were fewer than 10 Marines eligible in-zone. The PMOSs for which the promotion rate fell below 90 percent after FY00 are as follows:

- FY01 - PMOS 0202 (MAGTF Intelligence Officer) promoted at 67 percent. Three Marines were eligible in-zone.
- FY04 - PMOS 4401 (Student Judge Advocate) promoted at 88 percent. Eight Marines were eligible in-zone.
- FY05 - PMOS 9901 (Basic Officer) promoted at 0 percent. One Marine was eligible in-zone.
- FY06 - PMOS 0204 (Human Source Intelligence Officer) promoted at 80 percent. Five Marines were eligible in-zone.

Major promotion rates by PMOS

From FY95 to FY06, there has been a general trend upward in PMOS promotion rates for promotion to Major (see figure 22). Starting in FY01, 75 percent of the PMOSs had over an 80-percent promotion rate for promotion to Major.[25] But the following PMOSs had promotion rates persistently below the first quartile (the 25th percentile) for FY01 to FY06:[26]

- PMOS 4302 (Public Affairs Officer) in FY03–FY06
- PMOS 7564 (Pilot CH-53 A/D Qualified) in FY01–FY06
- PMOS 7556 (KC-130 Co-pilot) in FY02–FY04 and FY06
- PMOS 7557 (Pilot KC-30 Aircraft Commander) in FY04–FY06

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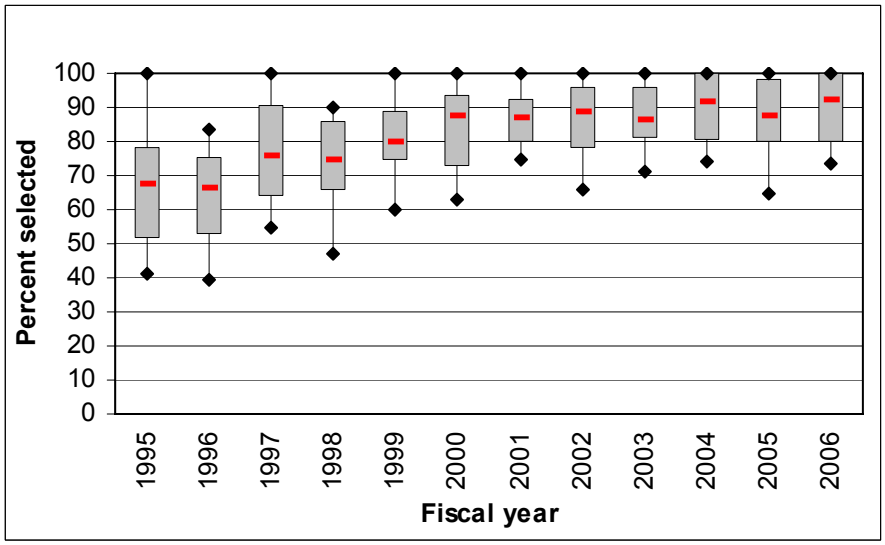
24. A median promotion rate of 100 percent means that at least half of all the PMOSs selected 100 percent of the in-zone Captains.
25. We focus on the period of FY01 to FY06 because it is the most recent. Our regression analysis, discussed in the next section, focuses on the entire time period.
26. We define "persistently" as occurring for at least 3 of the 6 years from FY01 to FY06.

- PMOS 7562 (Pilot HMM CH-46 Qualified) in FY01, FY03, and FY04
- PMOS 7523 (Pilot VMFA F/A-18 Qualified) in FY01, FY02, and FY04
- PMOS 7588 (Qualified EA-6B Electronic Warfare Officer) in FY01, FY02, and FY05
- PMOS 7563 (Pilot UH-1 Qualified) in FY02, FY04, and FY05.

Conversely, PMOS 0206 (Signals Intelligence Officer) had promotion rates persistently above the third quartile (75th percentile) after FY01. It had a promotion rate above the third quartile in FY02, FY03, and FY05. There were instances of PMOSs having a zero promotion rate but, in each case, there were fewer than three Marines in-zone.

Figure 22. Distribution of all PMOS promotion rates to Major (FY95–FY06)[a]

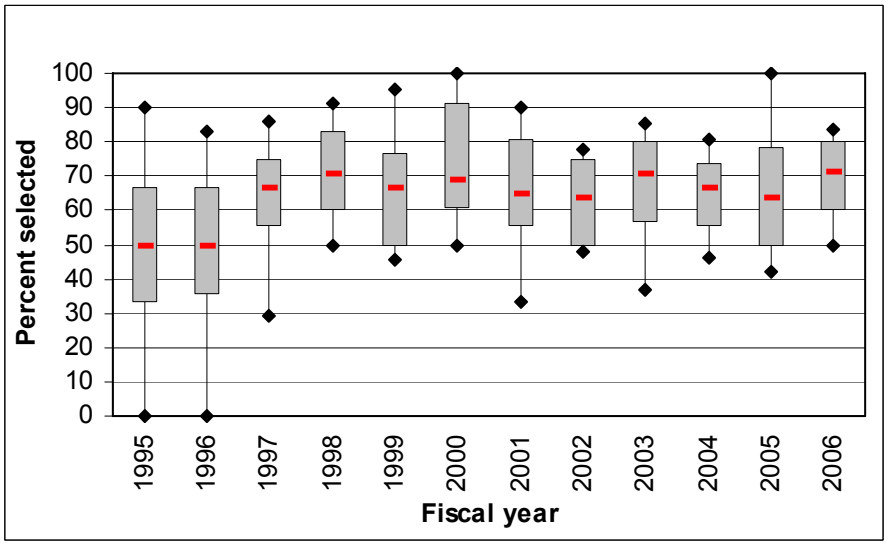


a. The promotion opportunity to Major was 70% for FY95-FY96, 80% for FY97-FY98, 85% for FY99-FY00, and 90% for FY01-FY06.

Lieutenant Colonel promotion rates by PMOS

The median promotion rate to Lieutenant Colonel has hovered between 60 and approximately 70 percent since FY97 (see figure 23). There are about 30 PMOSs in each year (ranging from 29 to 36). Therefore, the reason the 10th percentile is equal to zero in FY95 and FY96 is that there were 4 or more PMOSs with zero promotion rates in those years. In subsequent years, there were fewer than 3 PMOSs with zero promotion rates. From FY97 to FY99, there were 2 PMOSs each year with zero promotion rates. From FY01 to FY03, 1 PMOS each year had a zero promotion rate. In FY00 and from FY04 to FY06, no PMOSs had zero promotion rates. In each instance of a zero promotion rate, there were fewer than 4 Marines in-zone, and, in most instances, there were only 1 or 2 Marines in-zone.

Figure 23. Distribution of all PMOS promotion rates to Lieutenant Colonel (FY95–FY06)[a]



a. The promotion opportunity to Lieutenant Colonel was 60% for FY95-FY96 and 70% for FY97-FY06.

There were PMOSs with promotion rates persistently (i.e., in 3 of the 6 years) below the first quartile (25th percentile) from FY01 to FY06. PMOSs that persistently had promotion rates below the first quartile after FY01 follow:

- PMOS 0180 (Adjutant) in FY01–FY04
- PMOS 0202 (MAGTF Intelligence Officer) in FY01–FY02 and FY04
- PMOS 4302 (Public Affairs Officer) in FY01–FY03.

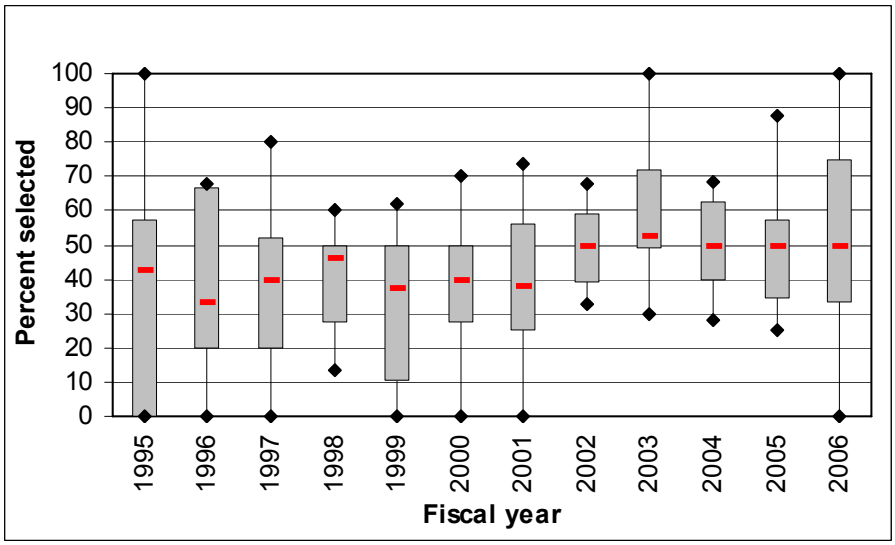
There were also PMOSs that had promotion rates persistently above the third quartile (75th percentile) after FY01:

- PMOS 7523 (Pilot VMFA F/A-18 Qualified) in FY02–FY04
- PMOS 3404 (Financial Management Officer) in FY01 and FY04–FY06
- PMOS 7543 (Pilot VMAQ/EA-6B Qualified) in FY01 and FY03–FY06.

Colonel promotion rates by PMOS

The median promotion rate to Colonel has settled around 50 percent since FY02 (see figure 24). To understand the differences in the distribution of the promotion rate across time, it is useful to keep in mind that there were approximately 30 PMOSs with officers in-zone for promotion to Colonel each year. To see how having a few more PMOSs with a zero promotion rate affects the distribution, one can compare the years FY95 to FY96. In FY95, 33 PMOSs were listed in the promotion statistics, and 9 had zero promotion rates. Therefore, more than 25 percent of the PMOSs had a zero promotion rate. In FY96, however, 29 PMOSs were listed in the promotion statistics, and 7 had zero promotion rates. Therefore, less than 25 percent of the PMOSs had a zero promotion rate and the 25th percentile is above zero. If there had been an additional PMOS with a zero promotion rate in FY96, the 25th percentile in this year would have also been equal to zero. In each instance of a zero promotion rate, there were 6 or fewer Marines in-zone. In most instances, there were 4 or fewer Marines in-zone.

Figure 24. Distribution of all PMOS promotion rates to Colonel (FY95–FY06)[a]



a. The promotion opportunity to Colonel was 45% for FY95-FY00, 50% for FY01-FY02, 60% in FY03, 54% in FY04, and 52% for FY05-FY06.

There were PMOSs with promotion rates persistently[27] below the first quartile (25th percentile) since FY01:

- PMOS 0180 (Adjutant) in FY02, FY04, and FY06
- PMOS 5803 (Military Police Officer) in FY04–FY06
- PMOS 7564 (Pilot CH-53 A/D Qualified) in FY01–FY02 and FY04–FY05
- PMOS 7588 (Qualified EA-6B Electronic Warfare Officer) in FY02–FY04.

PMOSs with promotion rates consistently above the third quartile (75th percentile) since FY01 follow:

- PMOS 1803 (AAV Officer) in FY03–FY06

27. Again, we define *persistently* as occurring in 3 out of the 6 years.

- PMOS 7523 (Pilot VMFA F/A-18 Qualified) in FY01–FY03
- PMOS 7565 (Pilot HMA AH-1 Qualified) in FY03–FY04 and FY06.

Logistic regressions for promotion rates

Figures 22 through 24 illustrate the dispersion of promotion rates between the PMOSs, but they cannot identify whether Marines in any particular PMOS are consistently promoted at rates higher or lower than Marines in other PMOSs. To see if systematic differences in the promotion probability exist between PMOSs, we performed a logistic regression using the in-zone population. The dependent variable was set equal to 1 if the Marine was promoted and 0 if not promoted.[28] Independent variables were indicator variables for each PMOS and each fiscal year. We included fiscal year indicator variables to control for anything specific about the fiscal year.

Because promotion rates converged to 100 percent after FY00, we do not include Captain in our analysis.

We calculated marginal effects as the difference in probability of promotion between Marines in a particular PMOS and the average Marine. A marginal effect that is not statistically significant indicates that the rates of promotion were not differentiable. The PMOSs in table 5 had marginal effects that were not statistically significant for Major, Lieutenant Colonel, or Colonel.

Table 6 displays the statistically significant marginal effects for the PMOSs from these regressions. To reiterate, the marginal effects are interpreted as the difference in the probability of promotion between Marines in a particular PMOS and the average Marine. Specifically:

28. Because the dependent variable is 0 or 1, one cannot estimate a linear regression. Using a linear regression would erroneously predict probabilities less than 0 and greater than 1 for some combinations of values for the independent variables. A *logistic* regression avoids this error.

- A statistically significant *negative* marginal effect indicates that Marines in that PMOS were promoted at a lower rate than the average Marine.
- A statistically significant *positive* marginal effect indicates that Marines in that PMOS were promoted at a higher rate than the average Marine.

Table 5. PMOSs with not statistically significant marginal effects

PMOS	Title	PMOS	Title
0202	MAGTF Intelligence Officer	6002	Aircraft Maintenance Officer
0207	Air Intelligence Officer[a]	7507	FRS Basic AV-8B Pilot[a]
0602	Communications Officer	7511	Pilot VMA (AW) A-6E Qualified
1802	Tank Officer	7521	FRS Basic F/A-18 Pilot[a]
1803	AAV Officer	7524	FRS Basic F/A-18D WSO[a]
3404	Financial Management Officer	7565	Pilot HMA AH-1 Qualified
3502	Motor Transport Officer	7574	Qualified Supporting Arms Coordinator[b]
4401	Student Judge Advocate[a]	7585	Qualified RF-4B Airborne Reconnaissance Officer
4402	Judge Advocate	7599	Flight Student (TBS)[a]

a. Marginal effects are calculated only for Major as there were no officers in-zone for Lieutenant Colonel or Colonel, or all officers in Lieutenant Colonel and Colonel were promoted, or no officer in Lieutenant Colonel or Colonel was promoted.
b. Marginal effects are calculated only for Major and Lieutenant Colonel as there were no officers in-zone for Colonel, or all officers in Colonel were promoted, or no officer in Colonel was promoted.

For example, for promotion to Major, 0302s' selection rate was 8 percentage points higher than average (see table 6). This PMOS also had higher than average promotion rates to Lieutenant Colonel and Colonel.

Only PMOS 0180 (Adjutant) had promotion rates lower than those for the average Marine for Major, Lieutenant Colonel, and Colonel. The number of PMOSs with promotion rates lower than those for the average Marine decreases as the grade increases.

Table 6. Statistically significant marginal effects from logistic regression of PMOS and FY indicators on probability of promotion[a] [b]

PMOS	Title	FY95 to FY06[c] Major	Lieutenant Colonel	Colonel
0180	Adjutant	-0.07**	-0.11**	-0.12*
0302	Infantry Officer	0.08***	0.03*	0.07***
0402	Logistics Officer	0.07***	-0.04*	Not stat. sig.
0802	Field Artillery Officer	0.05***	Not stat. sig.	Not stat. sig.
1302	Combat Engineer Officer	0.05**	Not stat. sig.	Not stat. sig.
3002	Ground Supply Officer	Not stat. sig.	Not stat. sig.	-0.09*
4302	Public Affairs Officer	-0.13**	Not stat. sig.	Not stat. sig.
5803	Military Police Officer	Not stat. sig.	Not stat. sig.	-0.18**
6602	Aviation Supply Officer	0.07**	Not stat. sig.	Not stat. sig.
72xx	Air Control/Air Support/Antiair	0.04**	0.05*	-0.12***
7509	Pilot VMA-AV-8B Qualified	-0.08***	See footnote b	Not stat. sig.
7523	Pilot VMFA F/A-18 /Qualified	Not stat. sig.	0.13***	0.18***
7525	Qualified F/A-18D WSO	Not stat. sig.	0.08**	Not stat. sig.
7532	Pilot VMM, V-22 Qualified	See footnote b	0.28***	See footnote b
7543	Pilot VMAQ/EA-6B Qualified	Not stat. sig.	0.31***	Not stat. sig.
7556	KC-130 Co-Pilot	-0.31***	Not stat. sig.	See footnote b
7557	Pilot KC-130 Aircraft Commander	-0.12***	Not stat. sig.	Not stat. sig.
7562	Pilot HMM CH-46 Qualified	-0.05***	Not stat. sig.	Not stat. sig.
7563	Pilot UH-1 Qualified	-0.09***	Not stat. sig.	Not stat. sig.
7564	Pilot CH-53 A/D Qualified	-0.13***	Not stat. sig.	Not stat. sig.
7566	Pilot HMH CH-53E Qualified	-0.05**	Not stat. sig.	Not stat. sig.
7576	Pilot VMO	-0.21*	-0.47***	Not stat. sig.
7583	Qualified A-6E Bombardier/Navigator	Not stat. sig.	-0.29**	-0.25***
7587	F-4S Radar Intercept Officer	See footnote b	-0.36**	-0.29**
7588	Qualified EA-6B Electronic Warfare Officer	-0.07**	Not stat. sig.	-0.13*
	Fiscal year indicators	Yes	Yes	Yes
	Number of observations	8,605	5,422	2,522

a. The marginal effects are relative to the probability of promotion for the average Marine.
b. The entry for a PMOS is blank if there were no officers in-zone for that PMOS, or all officers in that PMOS were promoted, or no officer in that PMOS was promoted.
c. Asterisks indicate the level of statistical significance. Three asterisks indicate significance at the 1-percent level, two indicate significance at the 5-percent level, and one indicates significance at the 10-percent level.

Possible quality differences

Of course, differences in promotion rates do not necessarily indicate that there are inherent biases in promotion policies. For instance, there could be systematic differences in promotion rates across PMOSs if there were systematic differences in the quality of Marines across PMOSs. One way this could arise would be if higher quality Marines were systematically assigned to different PMOSs than lower quality Marines.

With the exception of aviator contracts, Marines are assigned PMOSs at The Basic School. There is an effort to give most officers one of their top PMOS choices and to level quality of Marines across PMOSs. To do that, each TBS class is divided into thirds. The top of the top third picks their PMOS first, then the top of the middle third picks their PMOS, then the top of the bottom third picks their PMOS, and so on. This is an effort to ensure that officers from each third are assigned to each PMOS.

Although it is extremely difficult to measure quality, we proxy for it by using overall TBS class standing (top third, middle third, or bottom third). We examined the distribution of Marines ranked in the top and bottom third across PMOSs who were in-zone for promotion to Captain in FY99, FY00, and FY01. (These were the only 3 years in which we had TBS class rank for the vast majority of Marines in-zone. For FY99, we had class rankings on 1,545 out of the 1,675 Marines in-zone. For FY00, we had class rankings on 1,193 out of 1,327 Marines in-zone. And, for FY01, we had information on 1,027 out of 1,223 Marines in-zone. In contrast, we only had class rank data on 403 out of 1,278 Marines in-zone in FY98 and on 941 out of 1,379 Marines in-zone in FY02.[29,30])

29. We do not have TBS class rank for all Marines in-zone. We assume that the data we do have are representative of the in-zone population.

30. The average "percent top third" across the PMOSs is indeed equal to one-third. The average "percent bottom third" across the PMOSs is equal to 34.2 percent.

Figure 25 presents these results. To indicate the size of a PMOS, we have also included the total number of Marines in-zone for all three years (indicated by the number above the square and measured on the axis on the right-hand side of the figure). Only PMOSs with more than five Marines in-zone were included[31] and pilot occupations were aggregated together.

There are substantial differences in quality across PMOSs. Three PMOSs had more than 50 percent of their in-zone population in the lower third of their TBS class. These are:

- 0180 - Adjutant
- 3002 - Ground Supply Officer
- 3502 - Motor Transport Officer.

There is some support for the contention that these "quality" differences are related to low promotion rates because both 0180 and 3002 have promotion rates lower than average for at least one grade (see table 6).

An additional six PMOSs had more than 40 percent of their in-zone population in the lower third of their TBS class. These are:

- 0602 - Communications Officer
- 1803 - AAV Officer
- 3404 - Financial Management Officer
- 4302 - Public Affairs Officer
- 6602 - Aviation Supply Officer
- 72xx - Air Control / Air Support / Antiair.

Conversely, several PMOSs had an in-zone population drawn heavily from the top third of the TBS class. Those with more than 40 percent of their in-zone population in the top third are:

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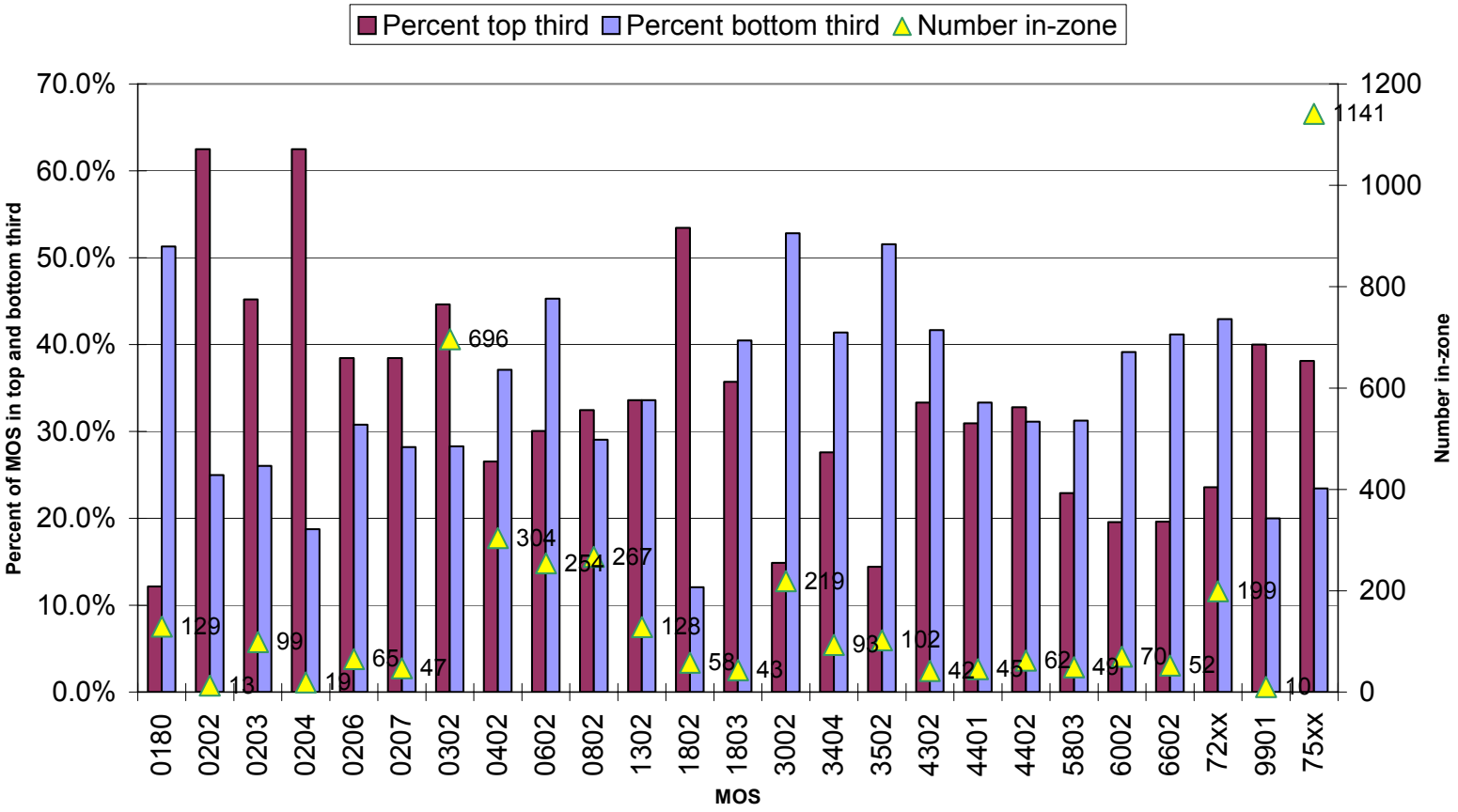
31. PMOSs with five Marines or fewer in-zone were excluded due to the small sample size. These PMOSs are 0101, 0201, 0401, 1301, 3001, 3401, 3402, 4301, and 6601.

Figure 25. "Quality" differences in Captain in-zone population for FY99, FY00, and FY01



- 0202 - MAGTF Intelligence Office
- 0204 - Human Source Intelligence Officer
- 1802 - Tank Officer
- 0203 - Ground Intelligence Officer
- 0302 - Infantry Officer.

Two questions arise from this analysis.

What drives the difference in TBS class standing between PMOSs?

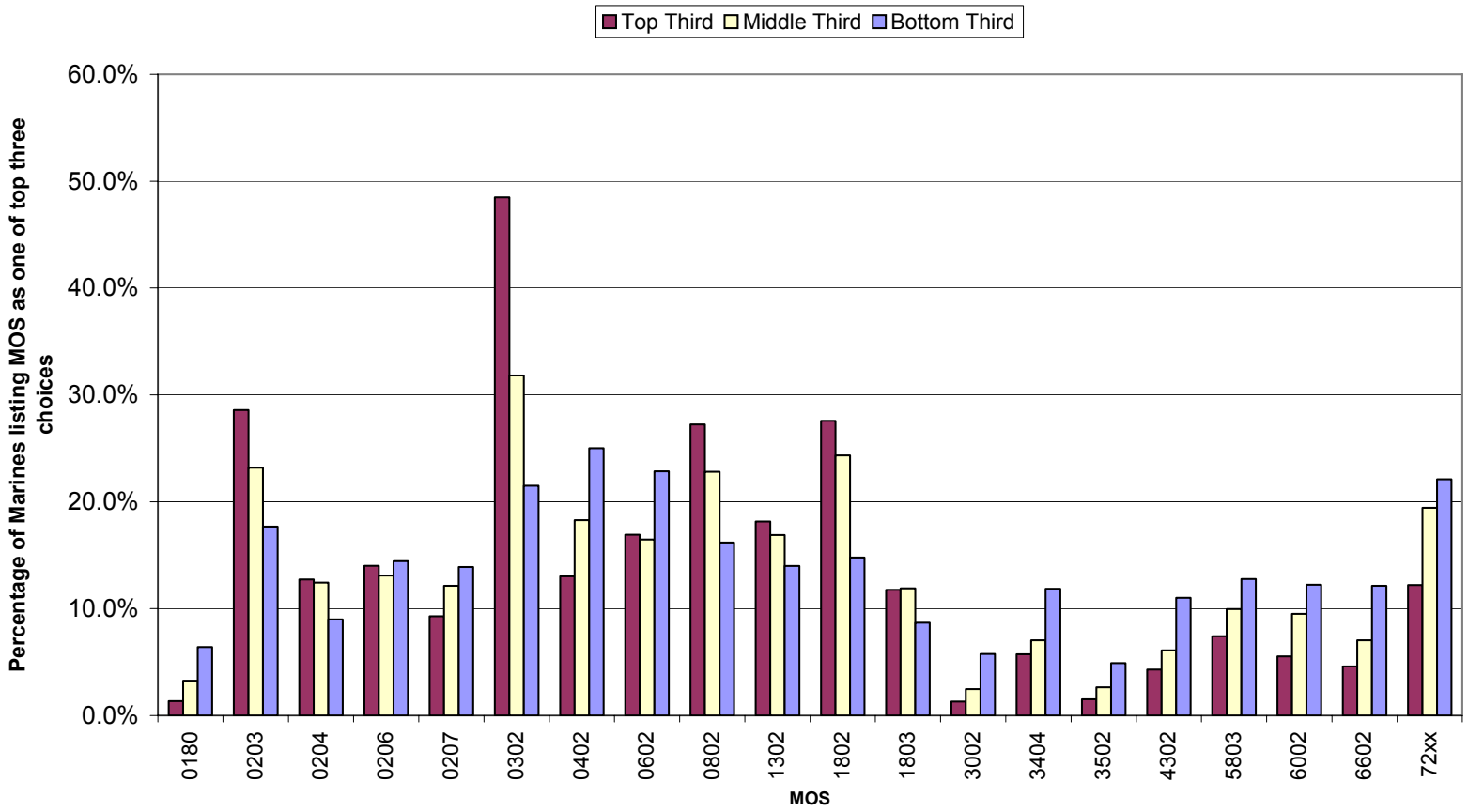
We used data on PMOS preferences (first three choices) to look at whether there are significant PMOS preference differences between Marines in the top third and Marines in the bottom third of their TBS class (see figure 26).[32] The figure lists the percentage of Marines in each third of their TBS class who chose the PMOS as one of their top three PMOS choices. For example, 48.5 percent of Marines in the top third of their TBS class chose PMOS 0302 (Infantry Officer) as one of their top three choices, while 21.5 percent of Marines in the bottom third of their TBS class chose this same PMOS as one of their top three choices.

Our general finding is that Marines in the top third of their TBS class chose different PMOSs than Marines in the bottom third of their class. Every PMOS with more than 40 percent of its in-zone population ranking in the top third of their TBS class[33] was chosen with greater frequency by the officers in the top third of their TBS class than they were chosen by officers in the bottom third of their TBS class. This is especially striking for Infantry Officer (0302), Ground Intelligence Officer (0203), and Tank Officer (1802). Similarly, with the exception of AAV Officers (1803), all the PMOSs that had 40 percent or more of their in-zone population in the bottom

32. To make figure 26 comparable to figure 25, we include only those PMOSs that appear in figure 25. In this case, we disaggregate the pilot occupations (75xx).

33. Recall that these PMOSs are 0202, 0203, 0204, 0302, and 1802. PMOS 0202 is not included in figure 26 because it cannot be filled by officers straight out of TBS.

Figure 26. Percentage of Marines in each third of TBS class listing PMOS as one of top three choices (FY94-FY99)[a]



a. These results should be interpreted cautiously as Marines that are under contract (such as those in 4402, 7580, 7599) may list back-up occupations.

third of their TBS class[34] were chosen with greater frequency by the officers in the TBS bottom third. Note that, on average, 50 percent of Marines are assigned to one of their first three PMOS choices. Thus, PMOS choice does not seem to be independent of TBS standing.

Do these differences in TBS class standing drive the difference in promotion probability?

To determine if the differences in promotion probability are driven entirely by these differences in TBS class standing, we performed another logistic regression on the probability of promotion. In this specification, we included a variable indicating whether the Marine was in the top third of his or her TBS class and a variable indicating whether the Marine was in the bottom third of his or her TBS class in addition to the variables indicating PMOS and FY. We had information on class ranks only for Captain and Major promotions for FY00 through FY06. Since promotion to Captain is largely automatic, we performed the logistic regression only for promotion to Major.

We again calculated the marginal effects as the difference between the probability of promotion for a Marine in a particular PMOS and for the average Marine. The PMOSs that had marginal effects that were not statistically significant follow:

- 0180 Adjutant
- 0207 Air Intelligence Officer
- 0602 Communications Officer
- 1302 Combat Engineer Officer
- 1802 Tank Officer
- 1803 AAV Officer
- 3002 Ground Supply Officer
- 3404 Financial Management Officer

34. Recall that these PMOSs are 0180, 0602, 1803, 3002, 3404, 3502, 4302, 6602, and 72xx.

- 4302 Public Affairs Officer
- 4401 Student Judge Advocate
- 6002 Aircraft Maintenace Officer
- 6602 Aviation Supply Officer
- 72xx Air Control/Air Support/Antiair
- 7521 FRS Basic F/A-18 Pilot
- 7525 Qualified F/A-18D WSO
- 7556 KC-130 Co-Pilot
- 7562 Pilot HMM CH-46 Qualified
- 7563 Pilot UH-1 Qualified
- 7565 Pilot HMA AH-1 Qualified
- 7566 Pilot HMH CH-53E Qualified
- 7588 Qualified EA-6B Electronic Warfare Officer.

Table 7 presents the statistically significant marginal effects. For PMOSs, we present the marginal effect as the difference in the probability of promotion for a Marine in a particular PMOS and for the average Marine. For TBS class standing, we present the marginal effect on the probability of promotion from the middle third of the class to either the top third or the bottom third of the class.

As would be expected, there are differences in the probability of promotion due to TBS class ranking. Marines in the top third of their TBS class are 7 percentage points more likely to be promoted to Major than Marines in the middle third of their TBS class. Marines in the bottom third of their TBS class are 5 percentage points less likely to be promoted to Major than Marines in the middle third of their TBS class (see table 7).

Even holding constant the TBS class standing of the Marine, there are differences in promotion rates between PMOSs. With the exception of pilot occupations, however, these differences are all positive. In other words, Marines in the following occupations are more likely to

be promoted to Major than the average Marine with the same TBS class rank:

- PMOS 0202 - MAGTF Intelligence Officer
- PMOS 0302 - Infantry Officer
- PMOS 0402 - Logistics Officer
- PMOS 4402 - Judge Advocate
- PMOS 5803 - Military Police Officer.

Table 7. Statistically significant marginal effects from logistic regression of probability of promotion to Major on indicator variables for PMOS, FY, and TBS class standing[a]

Independent variables	Marginal effects[b]
Top third of TBS class	0.07***
Bottom third of TBS class	-0.05**
0202 - MAGTF Intelligence Officer	0.06*
0302 - Infantry Officer	0.08***
0402 - Logistics Officer	0.09***
4402 - Judge Advocate	0.08***
5803 - Military Police Officer	0.09*
7509 - Pilot VMA-AV-8B Qualified	-0.08*
7523 - Pilot VMFA F/A-18 /Qualified	-0.09**
7557 - Pilot KC-130 Aircraft Commander	-0.25***
7564 - Pilot CH-53 A/D Qualified	-0.20**
Number of observations	1,526
Fiscal year indicators	Yes

a. The marginal effects for top third of TBS class and bottom third of TBS class are relative to the middle third of TBS class. The marginal effects of PMOSs are relative to the probability of promotion for the average Marine.
b. Asterisks indicate the level of statistical significance. Three asterisks indicate significance at the 1-percent level, two indicate significance at the 5-percent level, and one indicates significance at the 10-percent level.

There are pilot occupations in which a Marine in that occupation is less likely to be promoted to Major than the average Marine with the same TBS class rank. These are:

- PMOS 7509 - Pilot VMA-AV-8B Qualified

- PMOS 7523 - Pilot VMFA F/A-18/Qualified
- PMOS 7557 - Pilot KC-130 Aircraft Commander
- PMOS 7564 - Pilot CH-53 A/D Qualified.

At this point, it is useful to compare the results from this logistic regression that includes TBS class ranking and the logistic regression reported in table 6 that did not include TBS class ranking.

Adjutants (PMOS 0180) and Public Affairs Officers (PMOS 4302) were less likely to be promoted than the average Marine (see table 6) but were as likely to be promoted as the average Marine *with the same TBS class ranking*. These results suggest that differences in promotion rates between Marines in these PMOSs and the average Marine are being driven by differences in quality between Marines in these PMOSs and the average Marine. Recall that Marines in both of these PMOSs were more likely to be ranked in the lower third of their TBS class than ranked in the top third of their TBS class, at least for the Captain in-zone population in FY99 through FY01 (see figure 25).

Both Infantry Officers (PMOS 0302) and Logistics Officers (PMOS 0402) had positive marginal effects regardless of whether TBS class ranking was included in the logistic regression. This suggests that officers in these PMOSs are not only promoted at a higher rate than the average Marine with the same TBS class standing but are promoted at a higher rate than the average Marine in general.

The promotion rates for MAFTF Intelligence Officers (0202), Judge Advocates (4402), and Military Police Officers (5803) are indistinguishable from the promotion rate for the average Marine but are greater than the promotion rate for the average Marine with the same TBS class ranking.

Precepts

What PMOSs are identified as skill shortages in the precepts?

One way the USMC addresses shortages in PMOSs is by including a list of "critically short" PMOSs in the precepts to the promotion board. The USMC measures "critically short" PMOSs using the GAR requirements. We created an electronic file of those PMOSs included in the precepts from paper copies of the promotion board precepts for FY97 through FY06. Table 8 lists the PMOSs included in the precepts by year and rank for Captains through Lieutenant Colonels. In some years, PMOSs for these ranks were combined in the precepts (such as 3502 and 0402) and, in some years, the entire occupational field was included in the precepts (such as 02xx). In the table, we report the PMOSs as they appeared in the precepts (for instance, if the precepts included "0202," it appears as "0202"; if the precepts included "02xx," it appears as "02xx").

The occupations that are most often in the precepts across the Captain to Lieutenant Colonel ranks are:

- 0180 - Adjutant
- 02xx/0202 - Intelligence Officer
- 0602 - Communications Officer
- 1302 - Combat Engineer Officer.

Adjutants had lower probabilities of promotion to Major, Lieutenant Colonel, and Colonel than the average Marine, while Combat Engineer Officers had a higher probability of promotion to Major than the average Marine (see earlier results in table 6). Holding TBS class ranking constant, MAGTF Intelligence Officers had a higher probability of promotion to Major than the average Marine (see earlier results in table 7).

Table 8. PMOSs listed in Captain through Lieutenant Colonel Precepts: FY97 to FY06[a,b]

		Captain				Major				Lieutenant Colonel			
PMOS	Title	Avg. no. reqd.	Avg. no. short	Avg. % short	Years in precepts	Avg. no. reqd.	Avg. no. short	Avg. % short	Years in precepts	Avg. no. reqd.	Avg. no. short	Avg. % short	Years in precepts
0180	Adjutant	169.0	73.0	42.3%	3	88.2	32.7	36.9%	6	42.8	13.5	31.7%	4
02xx	Intelligence	Not in precepts				235.0	81.5	34.7%	2	107.0	48.5	45.3%	2
0202	MAGTF Intel Officer	287.0	109.3	36.8%	3	228.8	90.1	39.2%	8	105.4	31.4	29.5%	8
0402[c]	Logistics Officer	327.5	122.0	37.3%	2	237.0	42.0	17.7%	1	163.5	75.0	45.9%	2
3502[c]	Motor Transport Officer	131.0	32.0	24.4%	1	Not in precepts				Not in precepts			
0602	Communications Off.	373.5	123.0	32.9%	2	257.2	67.6	26.2%	10	122.0	35.4	28.8%	9
1302	Combat Engineer Off.	160.0	40.0	25.0%	1	118.2	32.5	27.5%	6	76.0	20.8	27.4%	9
18xx	Tank and AAV Officer	93.0	39.0	41.9%	1	86.0	32.0	37.2%	1	Not in precepts			
3002	Ground Supply Off.	264.3	121.7	45.4%	3	142.3	28.3	19.9%	3	57.0	0.0	0.0%	1
3402	Finance Officer	86.0	25.0	29.1%	1	Not in precepts				Not in precepts			
3404	Financial Mgmt. Off.	109.0	45.0	41.2%	2	76.2	20.0	26.6%	6	46.0	14.6	31.2%	7
4302	Public Affairs Off.	53.0	24.3	45.9%	3	26.3	8.0	30.6%	4	18.6	10.0	53.1%	10
4402	Judge Advocate	Not in precepts				Not in precepts				62.0	13.0	21.0%	1
5803	Military Police Off.	53.0	9.0	17.0%	1	41.5	9.0	21.6%	2	19.0	5.0	26.3%	1
6002	Aircraft Maint. Off.	73.0	12.0	16.4%	1	67.0	21.0	31.3%	2	35.7	9.7	27.4%	6

Table 8. PMOSs listed in Captain through Lieutenant Colonel Precepts: FY97 to FY06[a,b] (continued)

PMOS	Title	Captain				Major				Lieutenant Colonel			
		Avg. no. reqd.	Avg. no. short	Avg. % short	Years in precepts	Avg. no. reqd.	Avg. no. short	Avg. % short	Years in precepts	Avg. no. reqd.	Avg. no. short	Avg. % short	Years in precepts
6602	Aviation Supply Off.	75.5	17.0	22.5%	2	58.0	16.8	28.8%	6	31.0	7.0	22.6%	1
72xx	Air Control/ Air Support/ Antiair	153.5	46.5	29.8%	2	135.3	38.0	28.1%	4	Not in precepts			
7509	Pilot VMA-AV-8B Qualified	Not in precepts				Not in precepts				65.8	24.8	37.7%	4
7523	Pilot VMFA F/A-18 / Qualified	310.0	93.0	30.0%	1	173.0	42.0	24.3%	1	Not in precepts			
7525	Qualified F/A-18D WSO	90.0	22.0	24.4%	1	Not in precepts				Not in precepts			
7543	Pilot VMAQ EA-6B Qual.	Not in precepts				22.7	9.0	39.2%	3	16.8	7.8	45.6%	10
7557	Pilot KC-130 Aircraft Cdr.	Not in precepts				84.3	28.0	32.1%	4	39.0	20.0	50.5%	10
7564[d]	Pilot CH-53 A/D Qual.	See footnote d				50.0	17.0	34.0%	2	27.0	5.0	18.6%	2
7566[d]	Pilot HMH CH-53E Qualified	See footnote d				Not in precepts				Not in precepts			
7565	Pilot HMA AH-1 Qual.	Not in precepts				130.0	44.0	33.8%	2	Not in precepts			

a. Average shortages are calculated only over the years in which a shortage existed.
b. Precepts for promotion to Captain only appeared from FY97 to FY99.
c. PMOS 3502 and PMOS 0402 were combined in the precepts for Captain in FY99. The number required was 419, the number short was 75, and the percent short was 17.9%.
d. PMOS 7564 and PMOS 7566 were combined in the precepts for Captain in FY99. The number required was 483, the number short was 235, and the percent short was 48.7%.

Shortages in pilot occupations can be quite large (one shortage for 7564/7566 exceeds 200 officers) but are short-lived with the exception of 7543 and 7557 pilots, which had shortages for Majors in every year.

Colonels had the most persistent shortages in Financial Management Officer, Judge Advocate, and Colonel, Logistician (see table 9). The occupations that feed into Colonel, Logistician are Logistics Officer, Engineer Officer, Ground Supply Officer, Aircraft Maintenance Officer, and Aviation Supply Officer.[35]

Table 9. PMOSs Listed in Colonel Precepts (FY97 to FY06)[a]

PMOS	PMOS Name	Average number required	Average number short	Average percentage short	Years in precepts
0180	Adjutant	13.0	4.0	30.8%	1
0202	MAGTF Intelligence Officer	NA	NA	NA	2
0602[b]	Communications Officer	22.0	4.0	18.2%	3
3404	Financial Management Officer	13.5	4.8	34.8%	6
4302	Public Affairs Officer	3.0	1.5	50.0%	3
4402	Judge Advocate	36.0	8.3	22.6%	5
9904	Colonel, Logistician	126.3	44.0	34.8%	4
9906	Colonel, Ground	NA	NA	NA	1
9914	Colonel, Judge Advocate	33.0	14.0	42.4%	1

a. Average shortages are calculated only over the years in which a shortage existed.
b. For 0602, only 1 year had information on the number short.

Do skill shortage precepts affect selection rates?

Many aspects of the precepts give guidance to the promotion board president and its members. The primary selection board criterion in the precept is the "best and most fully qualified," but, frequently, there is also precept guidance pertaining to the needs of the Marine Corps due to critical skill shortages in some PMOSs.

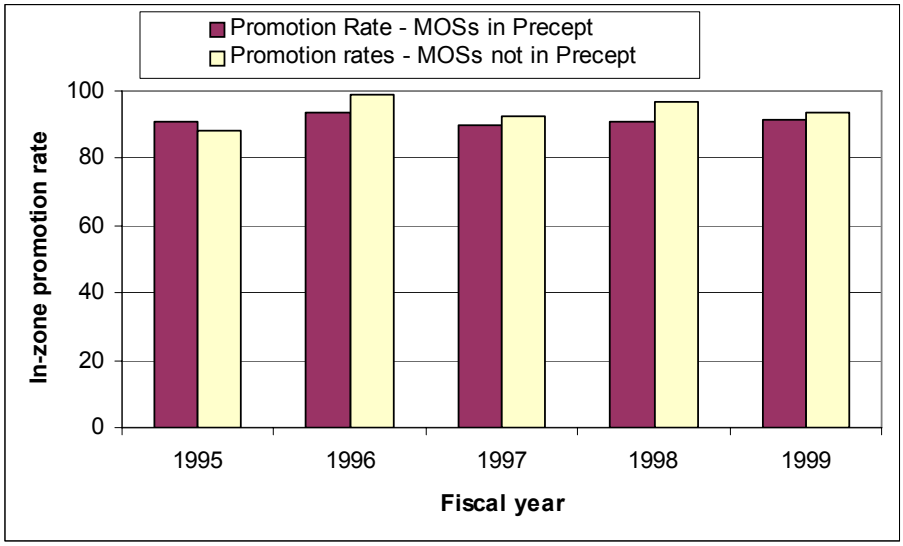
35. The PMOSs for these occupations are 0402, 1302, 3002, 6002, and 6602, respectively.

We examined the data to determine whether being listed in a precept[36] affects promotions in a PMOS. Specifically, we compared promotion rates, by grade and by fiscal year, for PMOSs listed in the precepts versus those not listed in the precepts.

Promotion rates to Captain

Promotion rates to Captain, for both PMOSs included in the skill shortage precepts and PMOSs not included in the precepts, are shown in figure 27. For 4 out of 5 years, the promotion rates are lower for PMOSs included in the precepts. Only in FY95 were the Marines in the precepted PMOSs promoted at a slightly higher rate than those in the nonprecepted PMOSs. However, the differences are small. After FY99, the Captain promotion boards were instructed to promote all fully qualified, so there was no longer a need for critical skill shortage guidance in the Captain precepts.

Figure 27. Captain in-zone promotion rates by precept status and FY

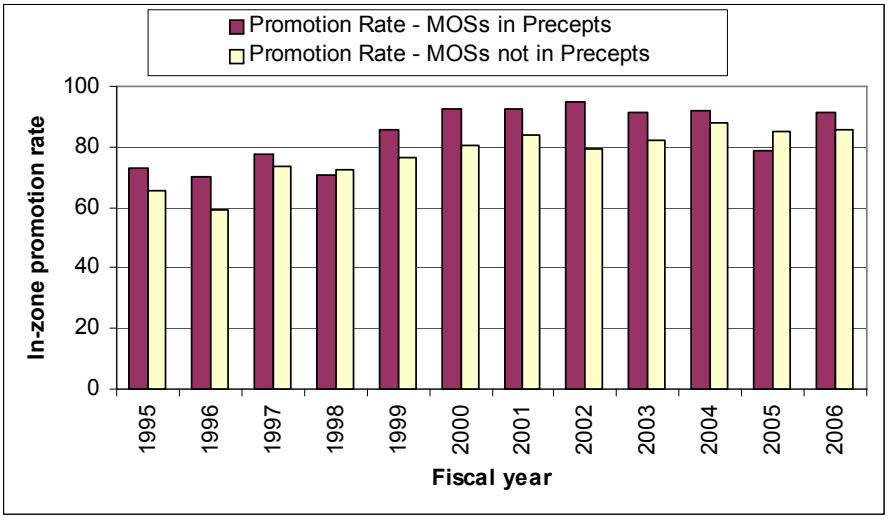


36. We refer to PMOSs that appear in the skill shortage guidance in the precepts as being "in the precepts."

Promotion rates to Major

In contrast, Marines in PMOSs included in the precepts were promoted at a higher rate to Major for most years (see figure 28). For 7 out of the 8 last fiscal years, Marines in precepted PMOSs were promoted at a higher rate than those in nonprecepted PMOSs. From FY99 to FY03, the difference in promotion rates is quite large: PMOSs included in the precepts had promotion rates from 8.5 percent to 15.5 percent higher than PMOSs not included in the precepts. In FY04, the gap between the two groups narrowed; in FY05, the precepted PMOSs were promoted at a slightly lower rate. In FY06, the gap between the two groups was only slightly larger than in FY04.

Figure 28. Major in-zone promotion rates by precept status and FY

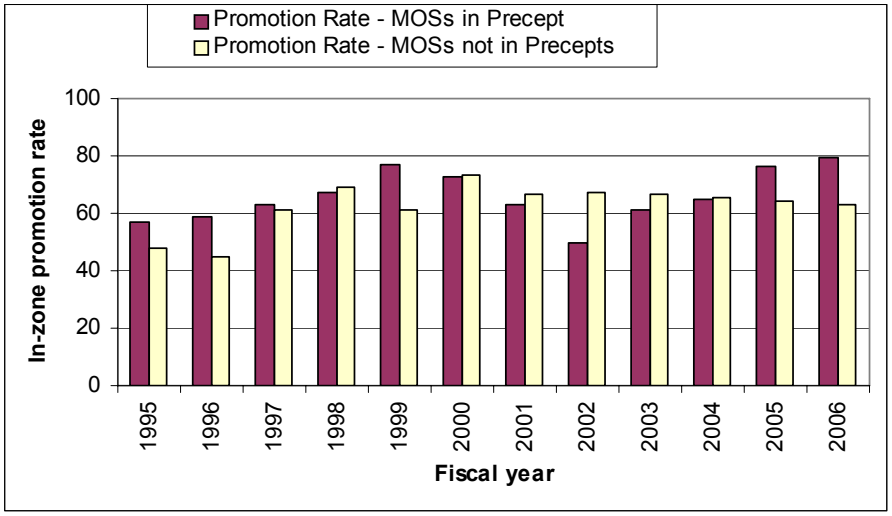


Promotion rates to Lieutenant Colonel

Figure 29 shows that the difference in the Lieutenant Colonel promotion rates between precepted and nonprecepted PMOSs followed a different path than the difference in the Major promotion rates. From FY00 to FY03, while Major promotion rates were higher for precepted PMOSs, Lieutenant Colonel promotion rates were lower for precepted PMOSs. Similar to the Major promotion rate, there was a

closing of the gap between the two groups in FY04. For FY05 and FY06, the gap between the two types of PMOSs approximated the FY99 levels, and the precepted PMOSs again had higher promotion rates.

Figure 29. Lieutenant Colonel in-zone promotion rates by precept status and FY



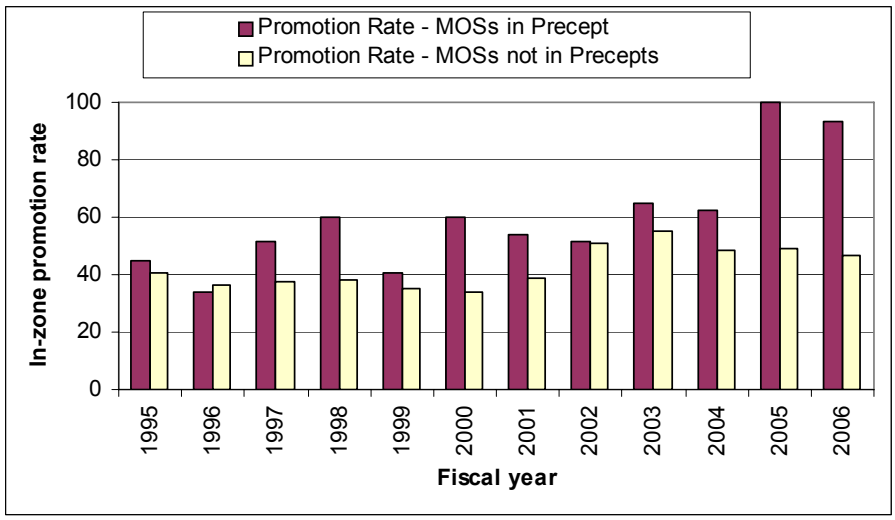
Promotion rates to Colonel

The most striking difference in promotion rates between PMOSs both included and not included in the precepts is for promotion to Colonel. Figure 30 illustrates that the promotion rate for precepted PMOSs has been consistently higher than the promotion rate for nonprecepted PMOSs. Similar to Lieutenant Colonel promotion rates, the gap between the two groups is quite large in FY05 and FY06 with approximately a 50-percent difference.

In summary, when precepts are applied to the Captain board, PMOSs listed in the skill shortage guidance in the precepts had lower promotion rates for Captain. The promotion rates for PMOSs included in the skill shortage guidance in the precepts for Major and Colonel are generally higher than the promotion rates for PMOSs not included

in the skill shortage guidance in the precepts. While the results are more mixed for promotions to Lieutenant Colonel, there is a recent trend for precepted PMOSs to be promoted at a higher rate than nonprecepted ones.

Figure 30. Colonel in-zone promotion rates by precept status and FY



Looking deeper into promotion rates

Simply comparing promotion rates by precept status is not sufficient to determine how effectively the precept system addresses skill shortages. As demonstrated earlier, there are real differences in promotion rates across PMOSs. As such, listing a PMOS on a precept may improve that PMOS's promotion rate even though it remains below the promotion rate of the nonprecepted PMOSs. For example, the PMOS 0180 (Adjutant) is listed in the FY04 Lieutenant Colonel precepts. In FY03, the promotion rate for this PMOS was 16.7 percent compared with a promotion rate of 66.7 percent for nonprecepted PMOSs in this grade. In FY04, the promotion rate for this PMOS was 42.9 percent compared with a promotion rate of 65.5 percent for nonprecepted PMOSs in this grade.

If we simply compared the promotion rates for 0180 (Adjutants) in FY04 (the year it appeared in the precepts) with those of nonprecepted PMOSs, we would conclude that PMOSs listed in the precepts have lower promotion rates (i.e., that the skill shortage guidance in the precepts appears to not have had an impact on selection rates). But, if we compare the promotion rate of Adjutants in the year the PMOS was not included in the precepts with their promotion rates when the PMOS was included in the precepts, we would be more likely to believe that the skill shortage guidance in the precepts does have an impact on selection rates. Therefore, figures 27 through 30 are not sufficient to determine what effect the skill shortage guidance in the precept had on the selection rate for those specific PMOSs.

Because the average promotion rate varies from year to year, it is still not sufficient to simply compare the promotion rate of a PMOS when it appears in a precept with its promotion rate when it is not in the precept. It is possible that the 0180 promotion rate increased because of a general upward trend in all promotion rates, so two complete time series should be compared. The first time series would be the promotion rate when the PMOS is precepted; the other would be the promotion rate when the PMOS is not precepted. Of course, we never actually have these two time series to compare. We only see one promotion rate each year—either the rate if the PMOS is precepted or the rate if the PMOS is not precepted. Isolating the effect of a precept on the probability of being promoted holding fiscal year and PMOS constant requires the use of regression techniques.

Table 10 lists the marginal effects from a logistic regression in which being promoted is the dependent variable.[37] We used two different specifications in this table. The first reports the effects of being included in the precepts, holding only the fiscal year constant. This specification corresponds to what was reported in figures 27 through 30. One can interpret this number as the difference in the probability of promotion for a Marine in a PMOS included in the precepts and the probability of being promoted for a Marine in a PMOS not included in the precepts. Thus, a positive coefficient indicates that

37. A logistic regression was necessary because the value of being promoted takes on only two values: 1 if promoted and 0 if not promoted.

Marines in precepted PMOSs are more likely to be promoted than Marines in nonprecepted PMOSs.

Table 10. Marginal effects of logistic regression (dependent variable is probability of promotion for in-zone population)[a]: FY95-FY06

	Captain		Major		Lieutenant Colonel		Colonel	
Independent variables	Spec. (1)	Spec. (2)	Spec. (1)	Spec. (2)	Spec. (1)	Spec. (2)	Spec. (1)	Spec. (2)
Currently in precept	-0.05***	0.00	0.03**	0.04**	-0.01	0.06**	0.06*	0.11***
Fiscal year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PMOS indicators	No	Yes	No	Yes	No	Yes	No	Yes
Number of observations[b]	6,499	5,805	8,661	8,605	5,427	5,422	2,532	2,522

a. Asterisks indicate the level of statistical significance. Three asterisks indicate significance at the 1-percent level, two indicate significance at the 5-percent level, and one indicates significance at the 10-percent level.
b. The number of observations decreases when we include an indicator for PMOS because Marines in PMOSs that only appear once in the precepts had to be dropped for statistical reasons.

To determine whether being listed in a precept affects the promotion rate for a particular PMOS in a particular year, we also included an indicator variable for each PMOS. This second specification is also reported in table 10. One can interpret this number as the difference in the probability of being promoted for a Marine in a PMOS included in the precepts and the probability of being promoted for a Marine in the same PMOS had it not been included in the precepts. Thus, a positive coefficient indicates that including a PMOS in the precepts increases the probability of promotion for Marines in that PMOS relative to what the promotion rate would have been had the PMOS not been included in the precepts.

In summary, specification (1) shows the marginal effects from the logistic regression of the probability of promotion for the in-zone population on indicator variables for precept status and indicator variables for fiscal year. Specification (2) shows the marginal effects from the logistic regression of the probability of promotion for the in-zone population on indicator variables for precept status, indicator variables for fiscal year, and indicator variables for PMOS.

The results *without PMOS indicators* roughly support the findings illustrated in figures 27 through 30. Marines in precepted PMOSs are less likely to get promoted to Captain, more likely to get promoted to Major, as likely to get promoted to Lieutenant Colonel, and more likely to get promoted to Colonel than Marines in nonprecepted PMOSs.

The results *change once PMOS indicator variables are included*. Including a PMOS in the precept does not significantly change the probability of promotion from what it would have been had it not been precepted for promotion to Captain, but it does significantly increase the probability of promotion for the other grades. *Compared with a Marine in a PMOS that is not listed in the precepts, a Marine in a PMOS that is listed in the precepts has a probability of promotion that is:*

- 4 percentage points higher for promotion to Major
- 6 percentage points higher for promotion to Lieutenant Colonel
- 11 percentage points higher for promotion to Colonel.

In other words, our estimates suggest that including a PMOS in the skill shortage guidance in the precepts for grades Major through Colonel effectively increases the probability of promotion in that PMOS.

Increasing the probability of promotion for Marines in a PMOS does not mean that Marines in that PMOS are then promoted at the same rate as the average Marine. It simply means that Marines in a precepted PMOS are promoted at a rate higher than they would have been had that PMOS not been included in the precepts. We used our logistic results to calculate the difference between the promotion rate for the average Marine and the promotion rate for each precepted PMOS when it was included in the precepts. Table 11 reports the differences that are statistically significant.

For the most part, when there is a statistically significant difference between the promotion rate for a PMOS appearing in the precepts and the promotion rate for the average Marine, that difference is positive. That difference is negative for only three PMOSs for Majors:

- PMOS 4302 - Public Affairs Officer
- PMOS 7557 - Pilot KC-130 Aircraft Commander
- PMOS 7564 - Pilot CH-53 A/D Qualified.

Thus, even when these three PMOSs were included in the precepts, they had a lower promotion rate to Major than that for the average Marine.

Table 11. Statistically significant marginal effects from logistic regression of probability of promotion on indicator variables for PMOS, FY, and precept status, FY95-FY06[a]

PMOS	PMOS title	Major[b]	Lieutenant Colonel[b]	Colonel[b]
0402	Logistics Officer	0.09***	Not stat. sig.	Not stat. sig.
1302	Combat Engineer Officer	0.06***	Not stat. sig.	Not stat. sig.
1802	Tank Officer	0.07***	Not included in precepts	Not included in precepts
3002	Ground Supply Officer	Not stat. sig.	0.08**	Not stat. sig.
4302	Public Affairs Officer	-0.10*	Not stat. sig.	Not stat. sig.
4402	Judge Advocate	Not included in precepts	0.09***	Not stat. sig.
5803	Military Police Officer	0.06*	Not stat. sig.	Not included in precepts
6002	Aircraft Maintenance Officer	0.06*	Not stat. sig.	Not stat. sig.
6602	Aviation Supply Officer	0.09***	Not stat. sig.	0.15**
72xx	Air Control/Air Support/Antiair	0.06***	0.10***	Not included in precepts
7509	Pilot VMA-AV-8B Qualified	Not included in precepts	0.07*	Not included in precepts
7543	Pilot VMAQ/EA-6B Qualified	Not stat. sig.	0.31***	Not included in precepts
7557	Pilot KC-130 Aircraft Comm.	-0.10***	Not stat. sig.	Not included in precepts
7564	Pilot CH-53 A/D Qualified	-0.09**	Not stat. sig.	Not included in precepts

a. Note that these results include an additional two years of data compared with table 8. For FY95-FY96, we had data on whether or not a PMOS was included in the precepts, but we did not have data on the number required or the number short. Thus, FY95-FY96 was added for this analysis.
b. Asterisks indicate the level of statistical significance. Three asterisks indicate significance at the 1-percent level, two indicate significance at the 5-percent level, and one indicates significance at the 10-percent level.

Pool of eligible officers

While our analysis shows that including a PMOS in the skill shortage guidance in the precepts does appear to increase the selection rates to Major, Lieutenant Colonel, and Colonel for that PMOS, the precept system has limited effectiveness because such precepts can only address shortages in a current rank. *That is, the skill-shortage precepts do not address the pool of eligible officers.* For example, listing a PMOS on the Colonel precepts may mean that there is a greater chance of a Lieutenant Colonel Marine in that PMOS being promoted, but it does nothing to change the number of the officers in that Lieutenant Colonel pool.

The pool of officers eligible for promotion to any grade is affected by separations in lower grades. Moreover, separations can be classified as either separations possibly related to promotion policies or separations independent of promotion policies. We classify a Marine's separation as possibly related to promotion policy if that separation occurred after that Marine was passed over at least once for promotion to the next grade. We classify a Marine's separation as independent of promotion policy if that separation occurred without that Marine being passed over for promotion to the next grade. Most of the separations we classify here as possibly related to promotion policy are voluntary separations.[38] We classify these separations as "related to promotion policy" because many Marines believe that being passed over once means that their Marine Corps career has effectively ended.

Note that our measure of separations related to promotion policy is an upper bound on the true number of separations related to promotion policy. At least some of the separations that occur after being passed over at least once will not be related to promotion policies. This would be true for an officer with low job satisfaction who also has a noncompetitive record. In that case, the officer may have planned to separate before the promotion board because of his or her low job

38. Some of the separations will be involuntary because the Marine was passed over twice in the previous grade, but most separations are from Marines passed over only once in the previous grade.

satisfaction and may not have been promoted due to his or her noncompetitive record. Therefore, even though the separation is correlated with promotion policies, it was not caused by promotion policies. Unfortunately, the available data do not allow us to differentiate between separations that are correlated with promotion policies and separations that are actually caused by promotion policies.

With our electronic files of all in-zone Marines for promotions to all grades from FY95 to FY06, we determined whether Marines were passed over for promotion. We excluded data from the promotion boards in FY05 and FY06 because our data on separations only extend to FY06, and we wanted to capture separations that occurred up to 2 years after being passed over. For each grade, table 12 shows the number of separations and the number of Marines who separated after they were passed over at least once for promotion to the next higher grade. The table shows the number of separations for those eligible and not eligible for retirement.[39] For example, there were 5,508 separations at the rank of Captain in this time period. Of those, 933 separated after being passed over at least once for promotion to Major. Thus, 16.9 percent of the separations at the rank of Captain were from Marines passed over at least once for selection to Major.

In interpreting the number of Marines who separated before retirement eligibility, it is important to remember that we are looking over a period of 12 years. There were 712 separations as a Major in this time period, which averaged about 60 Majors each year.

Only a small number of Marines not eligible for retirement seem to be separating for reasons related to their promotion histories. In contrast, retirement-eligible Marines are much more likely to separate after being passed over at least once. Seventy percent of the retirement-eligible Marines who leave the Service as Majors were passed over at least once for promotion to Lieutenant Colonel; 40 percent of the retirement-eligible Marines who leave the Service as Lieutenant Colonels were passed over at least once for promotion to Colonel.

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39. We classified a Marine as retirement eligible if he or she had 19 or more years of service at his or her separation date.

Table 12. Relationship between final separations and being passed over for promotion at least once for officers not eligible and eligible for retirement, FY95–FY04[a,b]

Separation rank	No. of separations	Next rank	No. of separations after being passed over at least once for next rank	Percentage of total separations after being passed over at least once for next rank
Not retirement eligible				
First Lieutenant	3,247	Captain	218	6.7%
Captain	5,508	Major	933	16.9%
Major	712	Lieutenant Colonel	23	3.2%
Lieutenant Colonel	13	Colonel	0	0.0%
Retirement eligible				
Major	1,876	Lieutenant Colonel	1,313	70.0%
Lieutenant Colonel	2,141	Colonel	861	40.2%

a. For First Lieutenants, we included data only from FY95 through FY00 due to the convergence of the promotion rate to Captain to almost 100% starting in FY01.

b. We classified a Marine as separating as retirement eligible if he/she had 19 or more years of service as of his/her separation date as indicated by the Marine's personnel file record. The retirement section in MM calculates retirement eligibility at the time of retirement and finds many inaccuracies in the personnel file record. Thus, our measure of retirement eligibility is imprecise.

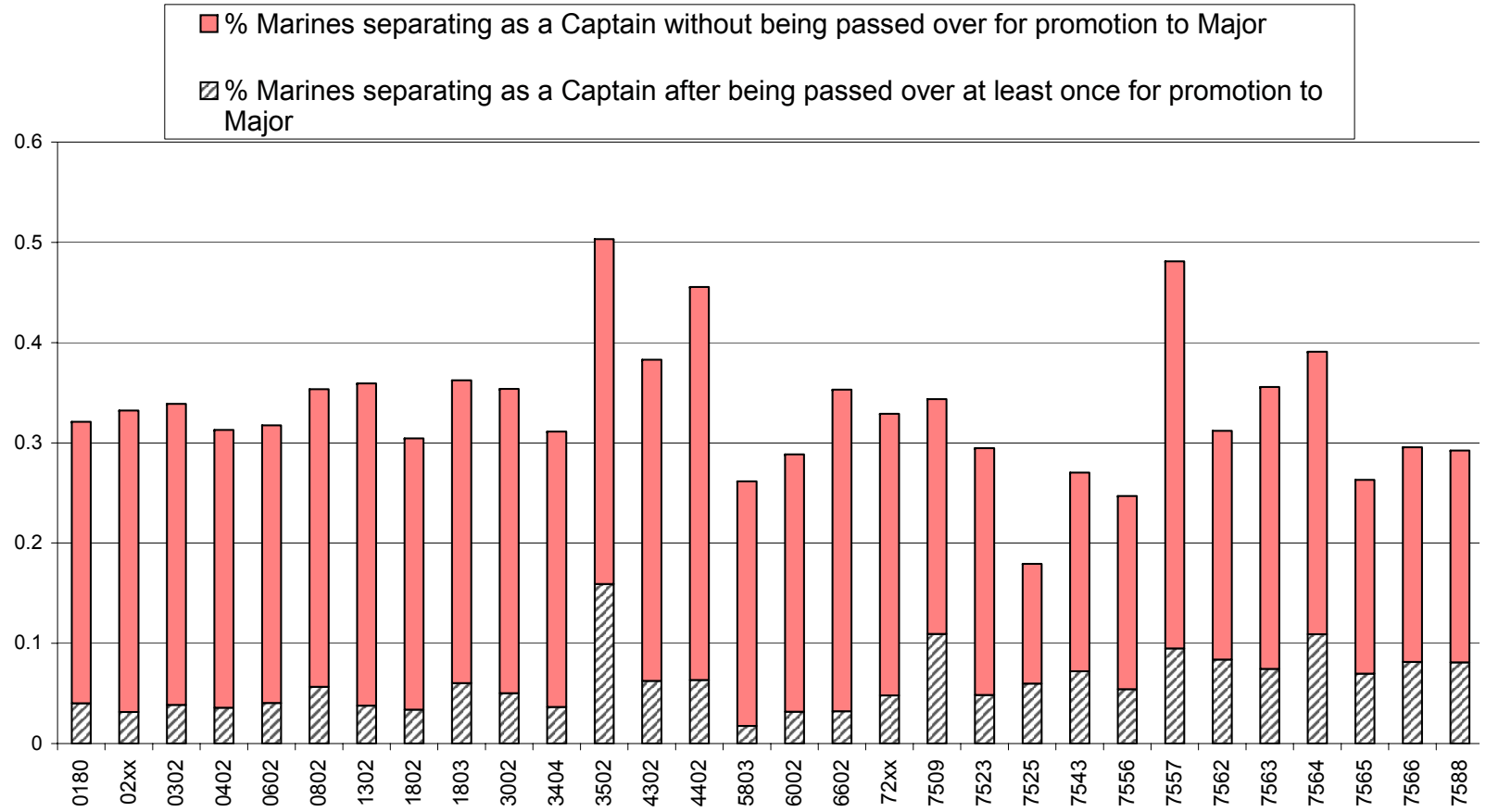
We examine separations for non-retirement-eligible Captains and for retirement-eligible Majors in more detail in figures 31 and 32, graphing by PMOS the percentage of Marines separating as non-retirement-eligible Captains and retirement-eligible Majors. This is further broken down into the percentage of Marines separating without being passed over to the next grade and the percentage of Marines separating after being passed over to the next grade.[40]

Separation as a non-retirement-eligible Captain

Promotion policies have the largest influence on separations as a Captain for pilots (see figure 31). The average percent of separations due to promotion policies is 13 percent for non-pilot occupations and is

40. The denominator for these percentages is the total number of Marines appearing in each PMOS for the appropriate grade over the span of our dataset. Due to the large number of PMOSs, for separations as a Captain we exclude any PMOS that had fewer than 30 Marines separating, and for separations as a Major we exclude any PMOS that had fewer than 20 Marines separating.

Figure 31. Separations of Captains, by PMOS (FY95–FY04)



26 percent for pilot occupations. Non-pilot PMOSs that had a particularly high percent of separations occurring after being passed over at least once were:

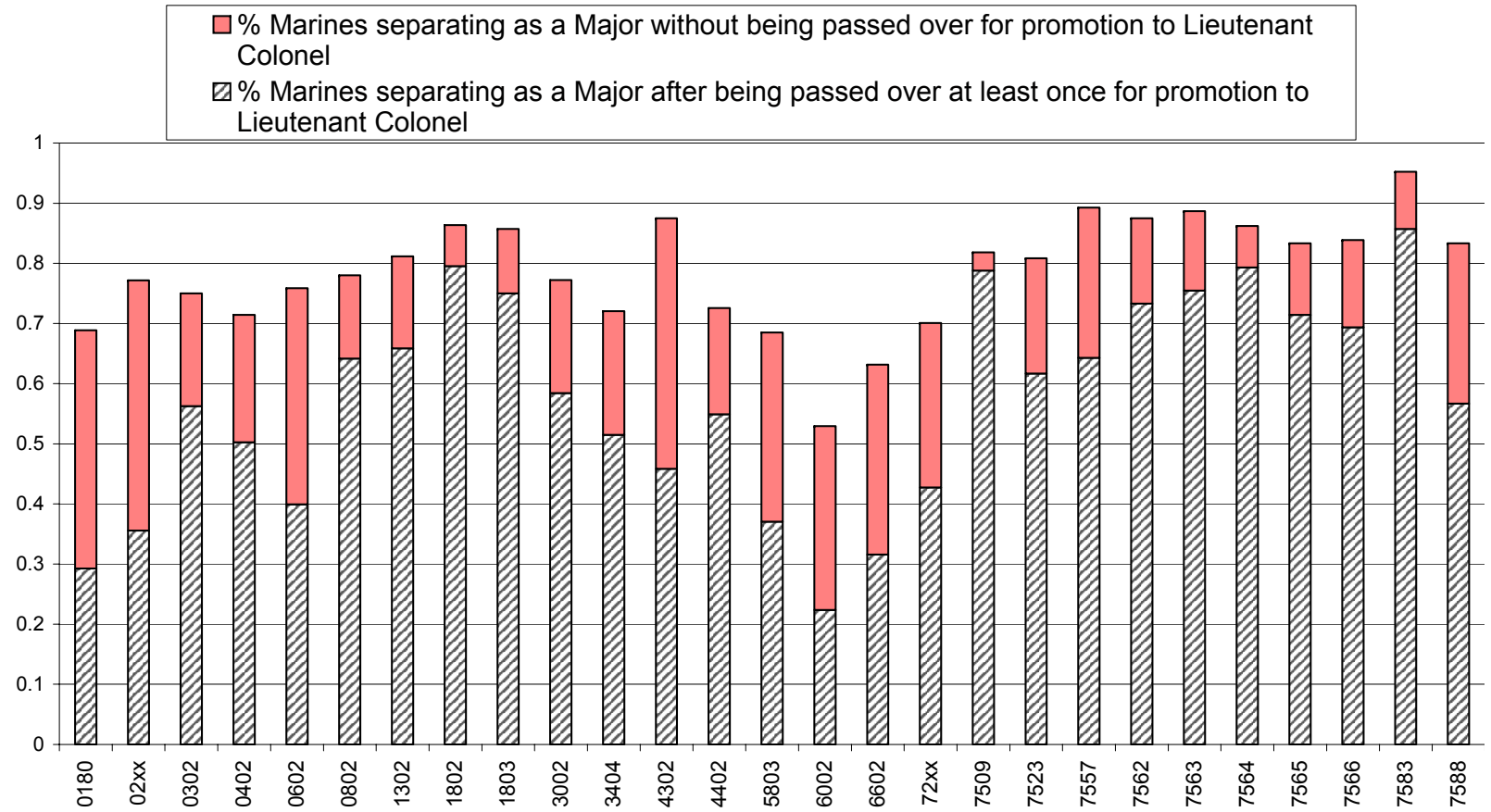
- PMOS 0802 (Field Artillery Officer): 16 percent of those separating as a Captain were passed over at least once to Major
- PMOS 1803 (AAV Officer): 17 percent of those separating as a Captain were passed over at least once to Major
- PMOS 3502 (Motor Transport Officer): 32 percent of those separating as a Captain were passed over at least once to Major.
- PMOS 4302 (Public Affairs Officer): 16 percent of those separating as a Captain were passed over at least once to Major.

Separation as a retirement-eligible Major

For retirement-eligible Majors, promotion policies have a larger influence on separations for pilot occupations (83 percent) compared to non-pilot occupation (66 percent). Non-pilot PMOSs with higher than average percent of Major separations after being passed over at least once to Lieutenant Colonel were (see figure 32):

- PMOS 0302 (Infantry Officer): 75 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.
- PMOS 0402 (Logistics Officer): 70 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.
- PMOS 0802 (Field Artillery Officer): 82 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.
- PMOS 1302 (Combat Engineer Officer): 81 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.
- PMOS 1802 (Tank Officer): 92 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.
- PMOS 1803 (AAV Officer) 88 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.

Figure 32. Separations as retirement-eligible Majors, by PMOS (FY95–FY04)



- PMOS 3002 (Ground Supply Officer) 76 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.
- PMOS 3404 (Financial Management Officer): 71 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.
- PMOS 4402 (Judge Advocate) 76 percent of those separating as a Major were passed over at least once to Lieutenant Colonel.

Measuring shortages and surpluses

Are percentages sufficient statistics?

Because of wide variance in the size of PMOS populations, CNA proposed 5 years ago that the Marine Corps modify shortage definitions to reflect *both* the percentage fill and the number of Marines that a particular PMOS was over or under (see Quester, 2002). A definition that reflects only percentage fill suggests that Marines in small PMOSs are *much more valuable* than Marines in large PMOSs. Since every billet in the GAR is a requirement, this made little sense to us.

An example helps to illustrate why we believed this change was necessary. In FY05, critical shortages for Lieutenant Colonels (OB less than 85 percent of GAR) would have been as follows:

- 3 Public Affairs officers (4302s)
- 6 Aviation Maintenance officers (6002s)
- 7 Finance officers (3404s)
- 17 MAGTF Intelligence officers (0202s)
- 41 Infantry officers (0302s).

A shortage of 17 MAGTF Intelligence officers or 41 Infantry officers seems more critical than a shortage of 3 Public Affairs officers.

Five years ago, our proposal did not gain much traction among Marine Corps officers and analysts. We believe, however, that if a large PMOS, such as infantry officers, ever were to fall below 90 percent of the GAR, the proposal might be reconsidered.

Current initiatives

In calculations of officer shortages and surpluses, MP uses the GAR as the requirement. Some have argued, however, that the GAR was designed not for determining real-time shortages but for planning

future requirements. An MPP initiative is under way to change the denominator used in the calculation of shortages and surpluses for officers. Instead of using the GAR, it proposes measuring officer OB shortages and surpluses by PMOS and grade relative only to the A-billets, the B-billets mapped directly to that PMOS and grade, and the P2T2 specifically for that PMOS and grade.[41] The MPP proposal for measuring officer shortages would exclude all fair-shared B-billets but would include all other requirements currently in the GAR.

This proposed change would reduce the size of the denominator in the calculations. Determining what is the appropriate critical shortage percentage for this new measure will be an important issue as the discussions continue.

High-demand/low-density PMOSs

For many years, the Marine Corps identified PMOSs as high demand/low density. However, the global war on terrorism (GWOT) complicated the issue: for GWOT, infantry PMOSs (the 03 occupational field) are high demand, but most of them are not low density in terms of numbers of Marines. This has led some to suggest that it would be better to drop the low-density part of the definition and just identify them as high-demand MOSs. If the idea is to identify occupations in particularly high demand because of GWOT, however, it is not clear that measuring them as a fixed percentage of the GAR is really appropriate either. These concerns led to a Memorandum of Understanding (MOU) dated 19 October 2004:

> An HDMOS is defined as one where the inventory, by grade and MOS, does not meet the GWOT GAR. GWOT GAR is calculated via the following: A-Billets + MOS directly mapped B-billets + P2T2 + Individual Augmentation (IA) Requirements (for that grade and MOS). Inventory is defined as only those Marines in an active duty component status. Reservists on active duty (AR, SMCR, IMA, or IRR) do not count as valid inventory.

41. This change would be used only for measuring officer surpluses and shortages. Since enlisted personnel are promoted by PMOS, using the GAR is not a problem for defining enlisted shortages and surpluses.

We suspect that one problem with the GWOT GAR has been in defining IA requirements.[42]

Additional considerations

When shortages are measured as a percentage of the GAR, the underlying argument is that all Marine Corps officers should have roughly equal chances of taking assignments outside their PMOS. This is because the B-billets not mapped directly to a particular PMOS are fair-shared among all the PMOSs and included in the GAR. Some PMOSs will be short under the GAR definition simply because the OB are insufficient to cover the fair-shared B-billets.

However, we argue that not all PMOSs may be equally competitive or appropriate for B-billets that are not specified by PMOS—for example, judge advocates. In addition, if the billets in a PMOS are primarily deployed billets, the Marine Corps officers in that PMOS may need more B-billets to provide some type of rotation from heavy deployment. Thus, if the billets in a PMOS are primarily deployed billets, the Marine Corps officers in the PMOS may require more than a "fair-shared" number of them for rotational purposes.[43] In short, fair-sharing the B-billets not assigned to particular PMOSs may not be appropriate *either* for planning purposes *or* for measuring shortages.

How important it is for Marine Corps officers in all PMOSs to have opportunities for billets outside their PMOS is in some sense an issue more appropriate for Marine Corps leadership than for analysis. Although we have not yet seen any indication that officers with high deployment tempo are more likely to separate (see Quester, 2006), if the war continues, we may want to ensure that PMOSs with high deployment tempo can rotate periodically to B-billets in CONUS.

Finally, we believe that the MPP proposal to measure officer shortages should be adjusted to account for rotational B-billets for PMOSs that

42. An additional problem may be frequently changing IA requirements.

43. We assume fair-sharing B-billets means that they are assigned in proportion to the number of PMOS billets.

have high operational tempo. Because we expect the GWOT to continue, we think that it will be important to ensure sufficient numbers of officers in heavily deploying PMOSs so that officers in these PMOSs do not have to spend their entire careers in the operating forces. In short, we believe it is worthwhile to revisit the fair-sharing of B-billets in the GAR.

Thus, we believe that we need to build a rotation base of B-billets for heavily deploying PMOSs.[44] By grade and PMOS, the MPP proposal defines the requirement by grade as the PMOS billets, the B-billets mapped directly to the PMOS, and the P2T2 specifically for that PMOS and grade. We would add extra unmapped B-billet requirements to those PMOSs with heavy deployment time.

Deployment tempo

We looked at deployed days, as of December 2005, for all unrestricted officers.[45] For each PMOS, we tabulated average deployed days and the distribution of deployed days (the number of deployed days that put officers in the 10^{th}, 25^{th}, 50^{th}, 75^{th}, and 90^{th} percentiles for their PMOS). For Captain–Lieutenant Colonels, the most heavily deployed PMOSs were CH-53 pilots, EA-6B pilots and electronic warfare officers, UH-1 pilots, HMA AH-1 pilots, and Infantry officers. For Captains, another very heavily deployed PMOS was AV-8B pilots.

MAGTF Intelligence analysis

Over the years analyzed in this study, the number of short PMOSs has been reduced. However, the A-billet view of shortages (which MM supports) and the GAR view of shortages (which MP supports) have sometimes differed considerably, particularly with regard to MAGTF Intelligence officers (0202).

Because MAGTF Intelligence officers have been found to be consistently short in the GAR analysis, we will look more closely at this

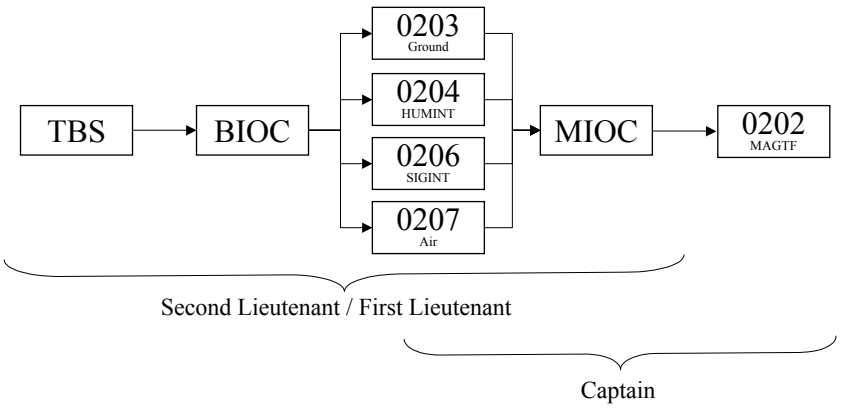
44. If we continue to measure shortages using the GAR as the requirement, we believe that, rather than fair-share the B-billets, the B-billets should be distributed to reflect the deployment tempo of the PMOSs.

45. Appendix E tabulates deployed time by PMOS.

PMOS. In FY05, the GAR inventory of Captains, Majors, and Lieutenant Colonels who are MAGTF Intelligence officers is short of the requirement by 317 Marines—staffed at only 52 percent. The A-billet numbers for 2005 paint an entirely different picture, with the A-billets filled at 94 percent and total inventory at 114 percent of the A-billet requirement.

We learned from the Intelligence Occupational Field Sponsor that there is a different flow through the MOSs in this OCCFIELD than in other fields. Following TBS, officers selected to be Intelligence officers go through a Basic Intelligence Officer Course (BIOC), after which they are assigned PMOSs of 0203, 0204, 0206, or 0207. These officers are typically Second Lieutenants and First Lieutenants. Intelligence officers then have the option of entering the MAGTF Intelligence Officer Course (MIOC) and obtaining the 0202 PMOS. Officers typically do this as Captains, though some Lieutenants also complete the course. Those officers who do not take the course are supposed to be assigned PMOS 0202 upon promotion to Major.[46] Figure 33 charts the progression of an officer in the Intelligence OCCFIELD.

Figure 33. Typical career progression for PMOS 0202



46. Although all Majors are supposed to be awarded the 0202 MOS, in 2005 we found 14 Majors who still held the feeder MOSs.

From figure 33, we can see that not all Captain Intelligence officers are 0202s, but the GAR requirements for the other Intelligence officer occupations all go to zero at the Captain level. In the GAR, all unrestricted Intelligence officers at Captain and above are in the MAGTF Intelligence officer PMOS (0202).

With this information, we analyzed the GAR and A-billet discrepancies. With some assumptions, we believe that we can at least partially reconcile the differences (see table 13). First let's look at the onboard data. We restricted our earlier analyses to Captains through Colonels, so we did not analyze PMOSs 0203, 0204, 0206, and 0207, which have no GAR requirements above the rank of First Lieutenant. The MOS Status Reports, however, list onboard personnel in these PMOSs and, table 13 shows quite a few officers above the rank of First Lieutenant still holding these PMOSs. If we add these Marine officers to those in 0202, we increase the number of Intelligence officers from 356 to 584 (the New "0202" and New "02XX" represent our calculations after reconciliation).[47] After reconciliation, we have as First Lieutenants in the Intelligence field 240 from the GAR on board and 225 from the A-billet data on board. In MAGTF Intelligence (0202), we have 584 on board in the GAR and 558 on board in the A-billet data.

This analysis allowed us to reconcile the GAR *onboard* numbers with the A-billet onboard numbers for the intelligence fields. The question we are trying to answer, however, is whether the MAGTF Intelligence officers are experiencing a shortage in FY 2005, as well as other years. In our data from 2005, the GAR requirement for 0202 was 674 officers in the ranks of Captain to Lieutenant Colonel. Even including officers from the other Intelligence PMOSs, the New "0202" from table 13, we still have only 584 officers on board. This puts the MOS, as a whole, at 86.8 percent filled. This is below the 100-percent line but not below the critical 85-percent line. Table 14 shows the MAGTF Intelligence officer GAR requirements and onboard numbers by grade and overall, before and after we adjust the inventory numbers.

47. In short, we added the Captains and the 14 Majors in PMOSs 0203 though 0207 to the onboard in 0202.

Table 13. Comparison and reconciliation of onboard from the 02XX GAR and A-billet data, 2005

	GAR on board		A-billet data on board (CNA rank assumptions)	
PMOS	First Lieutenant	Captain to Lieutenant Colonel	First Lieutenant	Captain to Lieutenant Colonel
0202	6	356	0	558
0203	88	96	109	0
0204	21	28	18	0
0206	54	60	39	0
0207	71	44	59	0
New “0202”	0	584	0	558
New “02XX”	240	0	225	0

Table 14. MAGTF Intelligence officer requirements and inventory, 2005

		Before CNA adjustment		After CNA adjustment	
Rank	GAR req.	GAR inventory	% Fill	GAR inventory	% Fill
Captain	325	125	38.5	339	104.3
Major	238	169	71.2	183	76.9
Lieutenant Colonel	111	62	55.9	62	55.9
Total	674	356	52.8	584	86.6

By grade, our reconciliation completely relieves the shortage of Captains and alleviates it for Majors. The Lieutenant Colonels are still very short since none are assigned to other Intelligence occupations.

Comparing shortages between the GAR and A-billet requirements now tells a more similar story. The A-billet requirement for 2005 MAGTF Intelligence officers was 489, lower than the GAR requirement by 184 officers. Recall, however, that the A-billet requirement we used does not include P2T2 or B-billets. With the total onboard inventory of 558 in the A-billet data, the PMOS is filled at 114 percent, and the A-billets are filled at 94 percent (460 out of 489). This is relatively short for the A-billet data, since most officer occupations are

filled at 120 percent or more (see figure 21). Thus, we believe that MAGTF Intelligence is a short PMOS in FY05, but *not as short as it appeared in the MOS Status Reports before our reconciliation of the data.*[48]

Analyses of OB relative to the GAR suggest that MAGTF Intelligence and the Communication PMOSs are the most persistent, current shortages. Indeed, MP proposed bonuses for these PMOS during the last year. From MM's perspective, however, staffing for both of these PMOSs has improved significantly in the last few years. Still, Marine Corps officers in both PMOSs must have had few opportunities for billets outside their MOS. Have the shortages in these two PMOSs been associated with higher attrition rates?

We calculated PMOS attrition rates by grade from FY95 to FY04 (see table 15). Both MAGTF Intelligence and Communication PMOS have much higher attrition as Lieutenants—before promotion boards for Captain. If accession planning does not account for higher-than-average early attrition for particular PMOS, these PMOSs will be short in the higher grades.

Table 15. PMOS attrition rates for unrestricted officers, FY95-FY04

		Attrition rate (percentage)		
PMOS	Name	First Lieutenant to Captain	Captain to Major	Major to Lieutenant Colonel
All		12.6	24.8	27.1
0202	MAGTF Intelligence	23.1	24.8	32.4
0602	Communications	20.0	32.1	34.4

48. Fortunately, most officer PMOSs show similar shortages when analyzed by A-billet or GAR requirements. If these two requirement measures show big differences, however, it is important to understand *why* they are different. Otherwise, false shortages may be identified.

Options for reducing shortages

Before analyzing options for alleviating shortages of particular PMOSs at the ranks of Captain and above, we will briefly examine a recent initiative in the acquisition field to alleviate shortages. This initiative sets the stage for our discussion of options for reducing shortages and may offer some insights.

Acquisition field

Historically, all occupations in the acquisition field were additional military occupational specialties (AMOSs), not PMOSs. Each Marine Corps officer with an AMOS in the acquisition field also had a PMOS in another field. Under this system, there were persistent shortages and problems of continuity in the acquisitions field. Often, officers would serve only one tour in an acquisition MOS, taking up to 18 months to become proficient, and then leave only to be replaced by another officer with no experience. Few officers would return to the acquisition community to serve a second tour.

A couple of factors made officers uninterested in subsequent acquisition tours. First, many viewed these tours as "career killers" since they represented time away from the primary occupational field. This view held despite the fact that the Critical Secondary MOS Study (2002) found promotion probability for acquisition officers to be comparable to that of other (i.e., nonacquisition) officers.

To provide continuity and reduce the possibility of shortages, the Acquisition Management Professional (9959) AMOS was recently converted to a PMOS. Officers are selected for this PMOS as a result of application to, and acceptance by, a selection board[49] (see next page for footnote). The first selection board for the 9959 PMOS was held in October 2005 and had 111 applications, of which 34 officers (and two alternates) were selected to receive the PMOS. The new acquisition PMOS has been attractive to officers who have realized

the importance of acquisition in the war effort or to those who felt that promotion prospects in their current PMOSs were poor. Still, the PMOS is experiencing shortages primarily in the ranks of Lieutenant Colonel and Colonel. Many of these billets are being filled by officers with a 9958 AMOS.

It is too early to tell what effect this conversion to PMOS status will have on selection for promotion, but it is possible that command opportunities have increased, which should improve promotion prospects. In the acquisition community, there are a total of only 120 billets, 33 of which are designated "command equivalents" because of the level of responsibility they entail. This results in command opportunity of about 25 percent (at a minimum).

Another recent development in the acquisition workforce is the change in the military-to-civilian mix. Historically, military members constituted a much larger proportion of the acquisition workforce in the USMC than in other Services. At times, the mix has been as high as 85 percent military and 15 percent civilian. Over the past few years, an effort has been under way to change this; the mix is now about 70 percent civilian and 30 percent military.

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49. The acquisition workforce also includes the following AMOSs:

- Acquisition Manager (9958)—officers in this MOS have a different PMOS, but are Majors or above, have a Bachelor's degree with at least 24 hours of business-related courses, have at least 4 years of acquisition experience, and are members of the Defense Acquisition Community (formerly the Acquisition Professional Community)
- Acquisition Professional Candidate (9957)—officers in this MOS also have a different PMOS, a level-2 certification, and meet all the requirements of membership in the DAC, except that they may have only 2 years of experience and may be only a Captain
- Acquisition Specialist (9960)—this MOS can be filled by a WO, LDO, or enlisted Marine, but the incumbent can only do the job for which he or she was specifically trained
- Contracting Officer (9656)—this MOS is filled by a graduate of the Navy Postgraduate School (or equivalent SEP) with a Master's degree in contracting.

Thus, the Marine Corps did three things to alleviate shortages in the acquisition field:

- It converted an AMOS to a PMOS.
- It increased the number of command opportunities using "command equivalents."[50]
- It civilianized some of the occupation's billets.

Options to alleviate shortages that are unlikely to be adopted

The study sponsors asked us to analyze all options for alleviating shortages. We begin with three options that *could* be used, but we believe that they are unlikely to be seriously considered because they have significant downsides.

Promote officers by PMOS or occupational groups

Enlisted Marines, Warrant Officers, and Limited Duty Officers are all promoted by PMOS in response to vacancies in the PMOS. Thus, there is effectively a competitive category for each PMOS. Such a system ensures that there will be no shortages or surpluses, unless there has been a sharp change in requirements or significant problems with the training pipeline. As long as sufficient numbers of Marines have the required time in grade and meet other qualifications, promotions will be made in response to vacancies and there will not be PMOS shortages.

Officer promotions in the Marine Corps, however, have historically been based on the "best and fully qualified" from all PMOSs. There is no indication that the Marine Corps leadership is inclined to change this. The best-and-fully-qualified promotion process has served the Marine Corps well and is a part of the Marine Corps' ethos and culture. Having the best officers selected for promotion is preferred to having the officers selected for promotion by PMOS.

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50. In the mid-1980s, Secretary of the Navy John Lehman first approved "command equivalents" for Acquisition Officers in the Navy.

A compromise between promotion by PMOS and promotion in one competitive category would be to establish three competitive categories for unrestricted Marine Corps officer promotions. The competitive categories might be:

- Aviation
- Combat Arms
- Combat Service Support.

Each competitive category then could have its own promotion guidelines and selection rate.

In addition to the likely lack of leadership support for such a proposal, it is not clear that such a structure would help with the shortages that the Marine Corps has experienced. There has *not* been a general shortage in any of these broad groups; instead, shortages have all been in particular PMOSs, in each of the broad categories.

Allow lateral entry of civilians

Allowing civilians to laterally move into the Marine Corps as Captains, Majors or Lieutenant Colonels could alleviate shortages in particular PMOSs at these grades. Although there has been some lateral entry in other Services for such occupations as doctors, no branch of the U.S. military currently allows lateral entry for officers in unrestricted communities. The training that would be required for these lateral entrants, their acceptance (or not) by regular Marine Corps officers, their ability to lead other Marines, and the cost of inducing civilians to enter the Marine Corps midcareer are just some of issues that suggest that civilian lateral entry would create more problems than it would solve. Lateral entry of civilians, however, is different from civilianizing some billets, a topic that we will address later in the paper.

Use involuntary lateral moves

Using involuntary lateral moves to transfer officers from surplus occupations to short occupations would solve shortage problems. In the past, the Marine Corps used forced lateral moves at augmentation; some officers in over PMOSs were given the choice of augmentation with a lateral move or separation. The policy was discontinued in

1998 because it was deemed "ineffective."[51] In fact, the Marine Corps permitted some officers with forced lateral moves to return to their original PMOS in the early 2000s.

An important part of the Marine Corps ethos is that officers trust the the institution. Forcing officers to laterally move or resign was widely believed to betray that trust, and the policy did not seem to work well. Also, since all officers now enter as regular officers (e.g., there is longer augmentation of reservists to regulars), there is no natural point at which to institute an involuntary lateral move program.

Let's turn now to options that the Marine Corps has used in the past or might consider using in the future.

More viable options to alleviate shortages: Short-term fixes

Since 9/11, and particularly since the Marine Corps has committed large numbers of troops to the war, additional active-duty Marines have been needed. Some of this increase in demand has been for specific PMOSs; some has been more broadly based. The Marine Corps has used a variety of options to increase strength and increase the number of available officers in short PMOSs. Although these short-term options would not be appropriate for long-term shortages, they provide mechanisms for quick increases in supply for needed personnel. The Marine Corps has used many of these strategies in the past few years, and, given the uncertainties of the GWOT, or "long war," they will probably be used again. Virtually all have negative side effects, but the magnitude of these side affects varies both in terms of the number of people affected and the length of the initiative.

Reduce B-billet assignments for high-demand PMOSs

One way to free up officers in short PMOSs is to exempt them from B-billet assignments. The Deputy Commandant, Manpower and Reserve Affairs, decided in August 2004 to reduce the number of

51. ALMAR 210/98 announced the discontinuation of the Forced Lateral Move Program and the initiation of the Supplementary Military Occupational Specialty (SMOS) Program.

B-billet assignments for Marines in high-demand PMOSs. This decision added to rules already in place to fence officers in certain PMOSs from B-billet assignments. We put this option under short-term measures because we believe that it should not be used as a solution for persistent PMOS shortages. Continually denying officers in high-demand PMOSs the opportunity to broaden their experience by taking B-billets, as well as giving them a break from the operating forces, may affect promotion opportunities. It may also induce more of these officers to leave the Marine Corps, exacerbating the problem. If a PMOS is short year after year, one needs to identify a solution that will fix the long-term problem. We address such solutions in the subsection on long-term shortage solutions.

Initiate stop loss

The Marine Corps initiated stop loss at the beginning of the Iraq War.[52] Stop loss also was used in Desert Shield/Desert Storm in the early 1990s. Whereas the Army got a significant amount of bad publicity for its stop-loss policies, the Marine Corps generally escaped negative publicity. If the Nation and the Services are committed to a military action that requires an immediate increase in strength, stop loss is a very credible option. Stop-Loss Marines are fully trained and already integrated into their units. Particularly if the program is short-term, negative long-term effects are minimal.

Use reservists

Reservists recalled to active duty can be used to increase the overall number of active-duty Marines or to increase the number of Marines in short occupations.

United States Code, Title 10, Section 12302, provides involuntary mobilization of members of the Ready Reserve (Selected Reserve (SelRes) or Individual Ready Reserve (IRR)). The Marine Corps has used this authority to call up both SelRes and IRR Marines in recent years. The law states that these involuntary call-ups can be for not more than 24 consecutive months, and OSD written policy allows for

52. The CMC does not have the authority to initiate stop loss.

no greater than 24 cumulative months. In practice, however, the Secretary of Defense has limited these call-ups to a single involuntary recall and limits the ability of the Services to call up IRR personnel under this authority. Individual reactivations have not been authorized for members who have not met the 24-cumulative-month total except for those who consent and accept the additional period of activation under this authority. For a variety of reasons, if given a choice between voluntary and involuntary call-ups, it is widely believed that Marines prefer without-consent orders because it makes it easier for them to explain the activation to employers and family. Reservists activated under section 12302 do not count against active-duty endstrength or officer grade tables, an important consideration when there is a short-term need for personnel.

Title 10, Section 12301(d), allows voluntary activations for operational support (e.g., not training or drills). There is no minimum or maximum period of service for orders; however, members who serve more than 3 cumulative years in a 4-year rolling time period count against active-duty endstrength and grade caps and should be listed on the Active Duty List (ADL). In addition, The National Defense Authorization Act (NDAA) sets the maximum number that can be called up under Section 12301(d) without being listed on the ADL; for FY06, it is 3,000 Marines.[53]

In Operation Desert Shield/Desert Storm in the early 1990s, the Marine Corps was authorized to involuntarily recall 44,000 Marines from the Ready Reserve (SelRes and IRR) to active duty. Slightly more than 8,300 were activated from the IRR and the rest from SelRes. For Operation Noble Eagle, Operation Iraq Freedom (OIF), and Operation Enduring Freedom (OEF), the Marine Corps was authorized to involuntarily recall 40,786 Marines from the Ready Reserve and 7,500 Marines from the IRR to active duty.

Of those involuntarily activated from the IRR for OIF, 2,659 orders were issued and 1,940 IRR personnel reported. Of those reporting, 89 were exempted; another 679 IRR members' orders were canceled, by

53. There also are voluntary 2- or 3-year activations authorized under Section 12301(d) for active duty special work (ADSW).

direction of the Secretary of Defense. Currently, the Marine Corps can only recall IRR members voluntarily, although it is seeking permission to involuntarily recall 2,500 IRR members. At present, the Marine Corps is using about 3,500 reservists for each OIF rotation.

Although it might seem that using reservists to fill gaps in the active-duty force is a logical solution, many of these decisions require approval above the level of the Marine Corps' leadership.

Other short-term measures

Finally, there are some short-term fixes that may apply to officer shortages, although they are more likely to be appropriate for enlisted shortages. During the current war in Iraq, many jobs previously performed by uniformed personnel have been outsourced to contractors. Thus, Brown and Root and other contractors are providing security and performing many other functions that, in other times, Marines would have performed.

On the enlisted side, the Marine Corps also has retrained artillery Marines as infantry Marines and has used these retrained Marines to augment infantry companies in Iraq. Although these Marines augment needed forces, it is not clear that the artillery Marines were supportive of this effort. In focus groups that CNA conducted (see Hattiangadi, 2005), artillery Marines retrained as infantry argued that they were not sufficiently trained and that they were concerned that their time out of their PMOS might hurt future promotion chances.

More viable options to alleviate shortages: Long-term fixes

There are various options to help mitigate systematic and persistent shortages by grade and PMOS in the officer ranks.

Officer Retention Board

One potential force-shaping tool is the Officer Retention Board. This board meets annually, usually in January, and has the following functions: (1) career designation, (2) inter-Service transfers, and (3) return to active duty.

Career designation replaced augmentation. The board looks at Captain-selects with at least 540 days of observed fitness reports. The board can decide that the officer not be continued, and at this point there would be no severance pay if the officer is to be separated. In recent years, few officers have been denied career designation. However, if inventory exceeds requirements, as some expect it to the next year, the process could become more competitive. Career designation, however, can only reduce surpluses; it cannot fix shortages.

Although both inter-Service transfers and return to active duty are potentially powerful force-shaping tools, the numbers have been small in recent years (less than 10 per year for inter-Service transfers and no more that 10 Captains and 10 Majors for return to active duty). They are mechanisms, however, for reducing shortages.[54]

Reduce the number of unmapped B-billets in the GAR

We would argue that, if there were fewer unmapped B-billets, it would be easier to identify real requirements for a PMOS. We understand that there are some unmapped B-billets that could be mapped back to particular PMOSs. The Platoon Commanders' position in the Reconnaissance units is one example. This position is variously held by a Infantry officer or a MAGTF Intelligence officer, with both communities believing that their officers are the most logical choice for Platoon Commanders. In this case, one could map back half of the billets to infantry and half of the units to intelligence PMOSs.

When there are unmapped B-billets that really are only appropriate for a few PMOSs, fair-sharing all the B-billets across all PMOSs doesn't make sense. In particular, it doesn't make sense to grow the inventory evenly for these billets when these billets will not be distributed evenly across all PMOSs in execution.

54. Nonvoluntary members may be selected as part of the annual Officer Retention Board to meet inventory shortfalls not satisfied by volunteers, but this has not been done in recent years.

Civilianize billets

From FY02 through FY04, the Marine Corps converted nearly 3,000 military billets to civilian positions. In FY05, the Marine Corps identified and programmed an additional 1,590 military billets for civilian conversion and developed conversion plans for FY06 and FY07. To date, the Marine Corps has used a bottom-up process in which base and station commands have identified billets for conversion. The Marine Corps has not systematically considered how conversion affects rotations, expected deployment time over a Marine's career, or the appropriate roles for active-duty Marines, reservists, civilians, and contractors. CNA has just started a study to examine these issues. From the perspective of our study of officer manpower, however, it is worthwhile to examine how civilianizing billets might reduce shortages in some officer PMOSs.

The Marine Corps is already civilianizing billets, although the main impetus has been to return Marines to the fleet rather than to address PMOS shortages. If, however, an officer PMOS experiences consistent shortages, certain billets in the PMOS could be considered for civilianization. Criteria for civilianizing a billet should include:

- Need for continuity
- Need for expertise
- Lack of requirement for operational deployments.

The Marine Corps has a relatively smaller civilian workforce than other Services. However, it has used civilians effectively in top jobs (for example, most Deputy Commandants have civilian deputies).

Just as we have civilianized billets in the acquisition field, it may be possible to civilianize some billets in PMOSs that have few deployment responsibilities. PMOSs that have experienced shortages and deploy infrequently include Judge Advocates, Financial Management, and Public Affairs officers (see appendix E).

Precept boards on skill shortages

The Marine Corps already uses skill-shortage precepts for its promotion boards. Our analyses have shown, on average, that skill-shortage precepts are associated with higher probabilities of promotion for officers in the precepted PMOS (relative to the officers' promotion probabilities in the PMOS in the years the PMOS is not precepted).

Command experience increases the probability that officers will be promoted. If the Marine Corps needs more officers in short PMOSs, it could consider either precepting command screening boards on skill shortages or creating more command opportunities for short PMOSs. The new acquisition PMOS has "command equivalent" billets. We do not yet know how promotion boards will evaluate these command-equivalent billets, but it is clear that the designers of the new acquisition PMOS hope that they will view such assignments favorably.

Pay the Critical Skills Retention Bonus

For many years, the Marine Corps has paid significant bonuses to aviators under the aviation continuation pay (ACP) program. Bonuses were meant to be the type of pay that could be turned on and turned off as circumstances warranted. ACP, however, has become almost an entitlement. Even as the airlines have experienced financial difficulties and stopped their aggressive hiring campaigns in recent years, we have not seen a great reduction in ACP.[55] Not all bonus programs have become entitlements, however. The Selective Reenlistment Bonus (SRB) program for enlisted personnel regularly adjusts bonuses up and down, as demand for particular PMOSs changes.

Critical Skills Retention Bonuses (CRBs) have been authorized and are used by the other Services. CRBs are similar to the enlisted SRBs that the Marine Corps has used so successfully. In recent years, the Marine Corps has paid SRBs in a lump sum, rather than as a series of anniversary payments. CNA found that the increased reenlistment

55. See "Airline Pilots Still Flying, But No Longer Quite So High: Press Rises as Pay and Pensions Drop," *New York Times*, 10 March 2006, p. C3.

response to lump-sum SRBs was extremely cost-effective (as described in Hattiangadi, 2003). As long as CRBs do not become entitlements, these bonuses could be very effective tools to increase retention in short PMOSs and to address current shortages.

Use voluntary lateral moves

The Marine Corps set up the Supplementary Military Occupational Specialty Program in 1998, just as it was discontinuing the involuntary lateral move program.[56] Company-grade unrestricted officers in PMOSs with onboard inventory greater than 105 percent of requirements may volunteer for the program. Eligible PMOSs are determined by MMOA, in coordination with Occupational Field Sponsors and Officer Plans (MP- M&RA). The idea is to substitute a 3-year B-billets tour with a 3-year assignment in a short PMOS. The 3-year assignment includes any required training. An SMOS board selects the officers from a group of volunteers. Selected officers must have at least 3 years remaining on their contracts or agree to an extension of active duty to allow them to complete their SMOS tour.

This program was carefully designed to ensure that officers participating in the program did not lose credibility in their PMOSs. Officers retain their PMOSs and return to a PMOS tour assignment in a similar career pattern to officers in their PMOSs who have had B-billets. The current program is quite small, with 16 requests in FY04 and 59 requests in FY05.

Increase accessions

Officer training pipelines are very long, particularly in the Aviation and Intelligence communities, so increasing accessions is not a particularly timely way to correct PMOS shortages. If the PMOS has attrition that is systematically higher than average, however, it may be worthwhile to revisit PMOS accession plans. We identified both the

56. ALMAR 210/98 canceled the involuntary lateral move program; MCO 1210.9 explains the SMOS Program. Marine Corps judge advocates, naval aviators, and naval flight officers are excluded from this program, and Marine Corps orders that explain lateral moves into these PMOSs are MCO 1542.1D, MCO 1040.22F, and MCO 1050.14C.

MAGTF Intelligence and the Communications PMOSs as having systematic shortages over many years. In addition, we found that attrition in these PMOSs was higher than average in the early years of an officer's career. We would suggest that the accession plans for these PMOSs be carefully evaluated to ensure that they are creating sufficient numbers of officers in these fields to counteract high early attrition.

Another possibility is to consider using enlisted personnel in short fields. Although this solution may create other problems if short occupational fields for enlisted Marines are similar to those for officers, it is worth exploring since training pipelines and the time from contracting to shipping is shorter for enlisted Marines. The Marine Corps has had success with enlisted-to-officer programs—excellent retention and performance. This is not surprising since enlisted Marines selected for officer programs have proven track records.

The Communications and Intelligence fields both seem promising for enlisted-to-officer accessions. As of December 2005, the numbers of Marines in the grades of E3 through E7 who had college degrees were as follows:

- 62 for the Communications field (06xx)
- 95 for the Intelligence field (02xx).

Appendix A: Legislation and regulations governing the USMC promotion system

Title 10

The specific provisions relevant to this study include:

- Personnel strengths and manpower requirements reporting (Ch 2)
- Officer strength, distribution in grade competitive categories and individual qualifications (Ch 32)
- Promotion, separation, and involuntary retirement of active-duty officers (Ch 36).
- Failure of selection, involuntary separation, and retirement (Ch 1407)
- Continuation of officers on the reserve active-status list and selective early removal (Ch 1409).

We will now review various officer management topics, outlining Title 10, DOD, Department of the Navy, and Marine Corps policy related to each.

Officer endstrength

Title 10 excerpts governing officer endstrength

Sec. 115: Congress shall authorizes personnel strength levels for each fiscal year. The Secretary of Defense (SECDEF) can authorize the Secretary of the Navy (SECNAV) to increase endstrength by not more than 2 percent above the authorized level.

Sec. 115a: Describes the SECDEF's annual manpower requirements report (the Defense Manpower Requirements Report (DMRR)), which must include the required annual active-duty endstrength justified against the national security policy, the number of personnel required in support positions and overseas positions, a five-FY projection that estimates the active-duty officer population as well as gains and losses expected in each officer grade.

Sec. 521: At least once each FY the SECDEF shall prescribe the total authorized active-duty strength for officers in grades above W5 to be on duty at the end of that FY.

Sec. 523: The authorized strength for Marine Corps commissioned officers in the grades of Major, Lieutenant Colonel, and Colonel are set as shown in table 16.

Table 16. Authorized strength for Marine Corps Commissioned Officers

Total number of commissioned officers[a]	Majors	Lieutenant Colonels	Colonels
10,000	2,525	1,480	571
12,500	2,900	1,600	632
15,000	3,275	1,720	653
17,500	3,650	1,840	673
20,000	4,025	1,960	694
22,500	4,400	2.080	715
25,000	4,775	2,200	735

a. Excluding officers in certain categories as specified in subsection 523(b), including reserve officers on active duty for certain activities, such as training, or on active duty for less than 180 days, and retired officers.

Whenever the number of officers in any grade is less than the number authorized, the difference may be applied to increase the number authorized for any lower grade. No officer can be demoted to satisfy these limits.

DoD policy excerpts governing officer endstrength

DoD Instruction (DoDI) 1110.1: The SECDEF will submit the DMRR to Congress no later than February 15 each year. Among other things; the submission includes a request for military endstrengths and justification based on national security policies.

Department of the Navy (DoN) policy excerpts governing officer endstrength

SECNAVINST 5310.15: CMC is responsible for supplying endstrength and quantitative data input, as well as narrative justification for the recommended strength levels (within the Promotion Plan) to the SECNAV for submission into the DMRR. These are to reflect DoN policy and be consistent with the DoN Program Guidance and Annual Management Guidance.

Marine Corps policy excerpts governing officer endstrength

No amplifications to the above policies.

The Active-Duty List

Title 10 excerpts governing the Active-Duty List

Sec. 620: The Service Secretaries are to maintain a single list of active-duty officers in order of seniority by rank and grade.

DoD policy excerpts governing the Active-Duty List

DoD Directive (DoDD) 1310.1 and DoDI 1320.13: USMC is required to maintain a single list of all active duty officers other than certain reserve officers, warrant officers, retired officers on active duty and certain medical cases as listed in Title 10 USC, section 641.

DoDD 1310.1: Seniority is to be determined uniformly and equitably by the guidelines contained.

DON policy excerpts governing the Active-Duty List

SECNAVINST 1427.2B: SECNAV will maintain an Active-Duty List, which shall contain the names, grades, dates of rank, and precedence numbers of all commissioned officers except for those listed in Title 10 USC, section 641.

Marine Corps policy excerpts governing the Active-Duty List

MCO P1400.31B: The Active-Duty List is the basis for promotion eligibility consideration by promotion boards.

Competitive category

Title 10 excerpts governing competitive category

Sec. 521: SECDEF may prescribe the strength of any competitive category.

Sec. 621: Under regulations prescribed by the SECDEF, each Service Secretary shall establish competitive categories for promotion. Each officer whose name appears on an Active Duty List shall be carried in a competitive category and compete for promotion within that category.

DoD policy excerpts governing competitive category

DoDD 1320.12: The Service Secretaries shall establish competitive categories, as required, to manage, in relation to the requirements of the officer category concerned, the career development and promotion of certain groups of officers whose specialized education, training, or experience—and often relatively narrow utilization—make separate career management desirable.

DoDI 1320.13 and DoDD 1320.12: It is DoD policy to provide an adequate officer inventory to meet projected manpower and skill requirements for each competitive category and grade. That inventory should reflect the appropriate distribution of officers by grade, experience, and skill.

DON policy excerpts governing competitive category

SECNAVINST 1400.1A: Department policy is to establish officer competitive categories to provide for separate promotion consideration and career development of groups of officers with related education, training, skills, and experience needed to meet mission objectives of the Marine Corps. Each officer on the Active-Duty List within the Marine Corps will be appointed to a competitive category for these purposes.

Marine Corps policy excerpts governing competitive category

MCO P1400.31B: The Commandant of the Marine Corps has divided the officer corps into five major categories: unrestricted, restricted officers (limited duty officers (LDOs)), warrant officers and chief warrant officers WOs/CWOs, active reserve (AR) officers, and specialist officers. Within these divisions, officers are considered among their own competitive category on either the Active-Duty List or the reserve active-status list.

Promotion zones

Title 10 excerpts governing promotion zones

Sec. 619: Table 17 shows the minimum time-in-grade (TIG) requirements.

Table 17. Minimum time-in-grade requirements

Rank	Minimum time in grade before promotion eligibility
O6, O7	1 year
O3, O4, O5	3 years
O2	18 months until 01 Oct 2005, then 2 years
O1	18 months

The Service Secretaries may prescribe longer TIG requirements for O1 through O7 for needs of the Service and may waive the TIG

requirement for O3 through O5 to ensure that they have at least two opportunities for consideration for promotion as below-zone officers.

Sec. 622: Promotions to the grades of O3 through O8 shall be based on calculated vacancies. Vacancies are determined by the number of positions needed to accomplish mission objectives, the estimated number of vacancies, and the number of officers authorized by the SECDEF.

Sec. 623: The Service Secretaries shall establish a promotion zone for each grade and competitive category to be considered by the board. The number of officers in the promotion zone for each rank and competitive category is based on the number of officers authorized, the number of officers needed, the number of officers already serving, and a 5-year plan to provide consistent promotion opportunity.

Sec. 645: Defines, for grades below O6, the promotion zone as a promotion eligibility category consisting of officers on the Active-Duty List in the same grade and competitive category who have neither previously failed selection nor been removed from the recommended-for-promotion list for the next higher grade and are senior to the junior officer in the promotion zone.

DoD policy excerpts governing promotion zones

DoDD 1320.12 and DoDI 1320.13: It is DoD policy to provide relatively similar promotion opportunities over a period of the subsequent 5 years in each grade and competitive category.

DON policy excerpts governing promotion zones

SECNAVINST 1420.1A: Annually CMC shall submit a 5-year plan to fill the projected vacancies of the year of the plan, to ensure reasonable career opportunity, to attain and maintain an all Regular Force on the Active Duty List (O4 and above), and to maintain relatively similar career opportunity for the latter 4 years in each grade and competitive category.

Marine Corps policy excerpts governing promotion zones

MCO P1400.31B: The promotion zone is defined as a promotion eligibility category consisting of officers from the most senior to the most junior officer eligible for consideration before a selection board in the same grade and competitive category.

Below-zone promotions

Title 10 excerpts governing below zone promotions

Sec. 616: For each grade and competitive category, below-zone promotions may not exceed 10 percent of the maximum number of officers that the board is authorized to recommend. The SECDEF may authorize a greater number, not to exceed 15 percent. If a category is small enough that the number authorized is less than 1, the board may recommend 1. The number of officers recommended for promotion from below the promotion zone does not increase the maximum number of officers the board is authorized to recommend.

Sec. 645: The term "officers below the promotion zone" refers to a group of officers on the Active-Duty List in the same grade and competitive category who are eligible for consideration for promotion to the next higher grade, are in the same grade as the officers in the promotion zone for that competitive category, and are junior to the junior officer in the promotion zone for that competitive category.

DoD policy excerpts governing below zone promotions

DoDD 1320.12 and DoDI 1320.13: No amplifications to the above policies.

DON policy excerpts governing below zone promotions

SECNAVINST 1420.1A: CMC will make recommendations, to SECNAV, in the promotion plan to limit the number of officers selected from below the promotion zone to those officers determined to be exceptionally well qualified. When this authority is exercised, SECNAV will prescribe in the annual promotion plan and in each promotion board precept, as applicable, the criteria for determining

which officers from below the promotion zone are exceptionally well qualified.

Marine Corps policy excerpts governing below zone promotions

MCO P1400.31B: Below-zone officers are eligible for consideration, but, if not selected, they will not incur a failure of selection. Not all boards are authorized to consider below-zone officers. In addition, the below-zone population is a rough estimate of the following year's in-zone population.

Above-zone promotions

Title 10 excerpts governing above-zone promotions

Sec. 619: An officer who has failed selection for promotion to the next higher grade remains eligible for consideration for promotion to that grade as long as he continues on active duty in other than a retired status and is not promoted.

Sec. 627: An officer in a grade below the grade of colonel who is in or above the promotion zone established for his grade and competitive category, and who is considered but not selected for promotion, shall be considered to have failed selection for promotion.

Sec. 645: The term "officers above the promotion zone" refers to a group of officers on an Active-Duty List in the same grade and competitive category who are eligible for consideration for promotion to the next higher grade, are in the same grade, and are senior to the senior officer in the promotion zone for that competitive category.

DoD policy excerpts governing above-zone promotions

No amplifications to the above policies.

DON policy excerpts governing above-zone promotions

SECNAVINST 1420.1A: Officers in or above the promotion zone who are selected for promotion, but decline, shall be considered to be above zone for subsequent promotion selection boards.

Marine Corps policy excerpts governing above-zone promotions

MCO P1400.31B: Above-zone officers who have been previously considered in the in-zone population, and not selected for promotion by a regularly scheduled board. These officers will incur an additional failure of selection if not selected by the selection board.

Promotion opportunity

Title 10 excerpts governing promotion opportunity

Sec. 624: All second and first lieutenants (O1 and O2) on the Active-Duty List who are on an approved all-fully-qualified-officers list shall be promoted to the next higher grade in accordance with regulations prescribed by the Service Secretary.[57]

The appointment of an officer may be delayed if there is cause to believe that the officer is mentally, physically, morally, or professionally unqualified to perform the duties of the grade for which he was selected for promotion.

DoD policy excerpts governing promotion opportunity

DoDI 1320.13: While the process of promoting to fill requirements in grades by competitive category may result in different promotion timing and opportunity for certain competitive categories, promotion opportunity within a category shall be relatively similar over a period of 5 years. In addition, the Service Secretary determines the timing and opportunity variables.

Table 18 shows the desired Active-Duty List promotion opportunity. For example, the promotion opportunity goal for O3s to O4 is 80 percent.

DoDI 1320.14: Promotion opportunity is defined as the cumulative opportunity for selection for promotion of officers who have

57. The USMC doesn't use the all-fully-qualified process for Second Lieutenants promoted to First Lieutenant. Rather they are promoted strictly by time in grade.

competed for promotion to the next higher grade. For the Commissioned Officer Promotion Program, it is calculated by taking the maximum number of recommendations that may be made by the promotion selection board and dividing that number by the number of officers in the zone.

Table 18. Desired active-duty promotion opportunity

To grade	Opportunity
O4	80 percent
O5	70 percent
O6	50 percent

DON policy excerpts governing promotion opportunity

SECNAVINST 1420.1A: Promotion flow point and opportunity for any competitive category may be temporarily set outside the DoDD 1320.13 guidelines (above) when necessary to attain or to maintain the authorized grade strength. In addition, Promotion zones will be established to meet the separate promotion requirements of each competitive category, which may result in different promotion flow points and promotion opportunity among the competitive categories. Within a competitive category, promotion zones will be designed to provide relatively similar promotion opportunity over a period of 5 years.

Variance for promotion opportunity in DoDI 1320.13 (see table 3) is defined at +/- 10 percent for promotion to O4 through O6.

Marine Corps promotion board precepts will specify the maximum number of officers in each grade and competitive category that the board may recommend for promotion.

Marine Corps policy excerpts governing promotion opportunity

MCO P1400.31B: Promotion opportunity is usually a percentage based on the in zone population. The following equation is used to determine selection opportunity:

Promotion opportunity = (# of authorized officer selections) / (# of officers in-zone).

Each selection board is authorized to select to the next higher grade a specific number of officers. The unrestricted portion of the promotion plan forecasts vacancies for a promotion year. Officer accessions, attrition, requirements, congressional and secretarial authorizations, and budgetary constraints affect this variable. Under no circumstances is the board authorized to exceed the "authorized to select" numbers identified within the precept.

Promotion timing

Title 10 excerpts governing promotion timing

Sec. 624: When the report of a selection board is approved by the President, the Service Secretary places the names of all officers approved for promotion within a competitive category on a single list for that competitive category, to be known as a promotion list. The promotion list is in order of the seniority, and promotions shall be made in the order in which the names of officers appear on that promotion list.

DoD policy excerpts governing promotion timing

DoDI 1320.13: The desired Active-Duty List promotion timing (in years of commissioned service (YCS)) is shown in table 19. For example, O3s should have 9 to 11 YCS before promotion to O4.

Table 19. Promotion timing

To grade	Timing
O4	10 YCS +/- 1
O5	16 YCS +/- 1
O6	22 YCS +/- 1

DON policy excerpts governing promotion timing:

No amplifications to the above policies.

Marine Corps policy excerpts governing promotion timing

MCO P1400.31B: Second lieutenants are promoted to first lieutenant based on time-in-grade requirements found in section 619 of title 10, United States Code (U.S.C.), and as determined by the SECNAV.

Incentives and special pays

Title 37 of U.S.C. excerpts that govern incentives and special pays

Title 37 is a collection of laws relating to pay and allowances of the uniformed services of the United States.

Sec. 301: A retention bonus is authorized for aviation career officers extending their period of active duty. A covered officer must be below the paygrade O7, be qualified to perform operational flying duty; and have completed or be within 1 year of completing undergraduate aviator training. The Service Secretary shall prescribe regulations to carry out this section subject to the approval of the SECDEF.

Sec. 306: For officers, O6 and below, serving in positions of unusual responsibility and of a critical nature, the Service Secretary may pay special pay. The Service Secretary shall prescribe the criteria and circumstances under which this pay will be authorized. Not more than 5 percent of the number of officers on active duty (other than for training) O3 and below, and not more than 10 percent of the number of officers on active duty in an armed force in paygrade O4, O5, or O6, may be paid special pay under this section.

Sec. 317: Special pay is authorized for officers eligible to retire, in critical acquisition positions, who extend the period of their active duty.

Sec. 321: Special pay is authorized for judge advocates on full-time active duty who are serving as judge advocates and have completed their active-duty service obligation.

Sec. 323: A retention bonus is authorized for officers serving on active duty and qualified in a designated critical military skill as defined by the SECDEF.

DoD policy excerpts that govern incentives and special pays

DoDD 1304.21: Authorizes accession bonuses for new officers in critical skills and critical skills retention bonuses for active-duty officers. The intent of bonuses is to influence personnel inventories in situations in which less costly methods have proved inadequate or impractical.

DON policy excerpts governing incentives and special pays

SECNAVINST 7220.87: Authorizes the Marine Corps to correct current or projected shortages of career judge advocates, improve retention of judge advocates, and alleviate the financial burden of student loan debts on junior judge advocates. Therefore, a retention bonus/debt subsidy can be paid in addition to any other pay and allowances selected judge advocates receive.

Marine Corps policy excerpts governing incentives and special pays

MARADMINs are published annually addressing eligibility requirements and contract terms for the Marine Corps:

- Aviation Continuation Pay policy (ACP)
- Law School Education Debt Subsidy Program (LSEDS).

Force shaping

Title 10 excerpts governing additional force shaping

Sec. 521: SECDEF shall prescribe the total authorized active-duty strength as of the end of the fiscal year for officers in grades above chief warrant officer, W-5, while under SECDEF regulations the Service Secretaries may prescribe the strength of any individual category of officers serving on active duty.

Sec. 615: The Service Secretary shall furnish each selection board with information and/or guidelines relating to the needs of the armed force concerned for officers having particular skills, including guidelines or information relating to the need for either a minimum number or a maximum number of officers with particular skills within a competitive category.

Sec. 616: A selection board shall recommend for promotion to the next higher grade those officers whom the board considers, giving due consideration to the needs of the Marine Corps for officers with particular skills, best qualified for promotion within each competitive category.

DoD policy excerpts governing additional force-shaping options

DoDD 1320.12: The number of below-zone active-duty officers who may be recommended for promotion to O4 through O6 may not exceed 10 percent of the maximum number of officers to be recommended for promotion. To satisfy the needs of the Marine Corps, the Service Secretary, with the approval of the Secretary of Defense, may increase this portion to 15 percent.

DoDI 1320.14: The Service Secretary may lower the number of officers authorized to serve on active duty or in an active status in a grade and competitive category below the Service mission need requirements when it conflicts with the total grade limitations (see officer endstrength). The number authorized also may be set higher than actual requirements when warranted by promotion flow considerations in a specific competitive category.

DON policy excerpts governing additional force-shaping options

SECNAVINST 1400.1A: New competitive categories will be established when clearly needed to meet Marine Corps mission objectives. It is therefore intended that periodic review of existing competitive categories will be made. Changes to categories may be requested by CMC and will be made when the following criteria are met:

- The specialized education, training, or experience and often relatively narrow use of a group of officers makes it impossible for them to compete for promotion on an equitable basis with other officers having more generalized experience.
- It is necessary to protect a substantial investment in education, training, or experience by ensuring equitable promotion opportunity when that education, training, or experience will be used within a relatively narrow career field.

- The specialized community can be managed as a separate career field in such a manner as to ensure the most efficient use of unique resources in the various officer grades.
- The specialized community will be large enough to sustain a career force in the grades, O4 through O6, generally within the promotion guidelines of SECNAVIST 1420.1 (which are the same as DoDI 1320.13).

Table 20 shows the MOSs in the USMC active-duty unrestricted officer competitive category. All these MOSs compete for promotion together. Table 21 shows the restricted officer competitive categories. In the Marine Corps, all restricted officers are limited duty officers (LDOs). Promotion for restricted officers is determined by MOS, so each entry in table 21 is a separate competitive category.

The promotion board precept will provide SECNAV guidance relating to the needs of the Marine Corps for officers with particular skills in each competitive category, and other information and guidelines as necessary to enable the board to perform its functions properly.

SECNAVINST 1420.1A: The annual promotion plan should identify any expected need for selective continuation of officers or selective early retirement to aid in meeting strength, opportunity, or promotion flow points.

Promotion board reports shall certify that the board complied with all instructions contained in the precept and the officers recommended for promotion by the board are fully qualified and the best qualified for promotion to meet the needs of the Marine Corps from among the officers whose names were furnished to the board.

SECNAVINST 1920.7A: Continuation is defined as the deferment of involuntary retirement or discharge for years of service or failures of selection for promotion of eligible Regular and Reserve officers serving in permanent grades above first lieutenant.

Marine Corps policy excerpts governing additional force-shaping options

No amplifications to the above policies.

Table 20. MOSs in the unrestricted officer competitive categories[a]

Description	MOS
Adjutant	0180
Intelligence	0202
Infantry	0302
Logistics	0402
Communication	0602
Field Artillery	0802
Engineer	1302
Tank	1802
Assault Amphibious Vehicle	1803
Signals Intelligence/Electronic Warfare	2602
Ground Supply	3002
Financial Management	3402/04
Motor Transport	3502
Data Systems	4002
Public Affairs	4302
Judge Advocate	4402
Military Police	5803
Aircraft Maintenance	6002
Aviation Supply	6602
Expeditionary Airfield Officer	7002
Air Command and Control	7202
Surface-to-Air Weapons	7204
Air Support Control	7208
Air Defense Control	7210
Air Traffic Control	7220
Pilot VMA	7507/09
Pilot VMFA	7521/23
Pilot VMM	7531/32
Pilot VMAQ	7541/43
Pilot VMGR	7550/56/57
Pilot HMH/M/L/A	7558/60/61/62/63/64/65/66/67/68
Naval Flight	7524/25/80/82/88
Basic Pilot	7597/98
Naval Flight Officer Student (TBS)	7578
Flight Student (TBS)	7599
Mission Commander	9807
Ground Control Station Internal Pilot	9808

a. Source: Draft SECNAVINST 1400.1B which is slated to replaced SECNAVINST 1400.1A. We have excluded the following categories: Basic Officer, General Officer, and the four Colonel categories.

Table 21. Restricted officer (LDO) individual competitive categories[a]

Description	MOS
Counterintelligence	0210
Embarkation	0430
Data Systems Management	0650
Ordnance	2102
Explosive Ordnance Disposal	2305
Ammunition	2340
Electronics Maintenance - Ground	2802
Traffic Management	3102
Food Service	3302
Auditing	3410
Combat Camera	4602
Electronics Maintenance - Aviation	5902
Aircraft Maintenance Engineer	6004
Avionics	6302
Aviation Ordnance	6502
Meteorological/Oceanographic	6802

a. Source: MOS Manual for the Marines Corps (MCO P1200.16).

Continuation on active duty

Title 10 of U.S.C. excerpts that govern selection of regular officers for continuation on active duty

Section 611 and 637: These sections allow the Service Secretary, when the needs of the Marine Corps require it, to convene selection boards to recommend continuation for commissioned officers who are subject to discharge or retirement under section 632.

DoD policy excerpts that govern the selection of regular officers for continuation on active duty

DoDD 1320.8: Continuation of regular commissioned officers on active duty and reserve commissioned officers on the Reserve Active Status List. It is the policy of the DoD to retain qualified officers when the skill needs of the military services require it.

DON policy excerpts that govern the selection of regular officers for continuation on active duty

SECNAVINST 1920.7A: Continuation on active duty of regular commissioned officers and reserve officers on the reserve active-status list in the Navy and Marine Corps. It is the policy of the Department of the Navy to selectively continue officers to meet present and projected officer needs by grade, competitive category, and skill identifiers when those requirements cannot be met by in-zone promotions.

Marine Corps orders policy excerpts that govern the selection of regular officers for continuation on active duty

MCO P1400.31B: If the needs of the Service warrant, the CMC can recommend that the SECNAV convene a continuation board. Officers selected for continuation are afforded the opportunity to decline continuation.

CMC's annual Promotion Plan typically recommends the continuation of twice-passed-over prior enlisted Captains with 15 or more years of active service and all O4s. In addition, Lieutenant Colonels and Majors with skills in the short MOSs are recommended for continuation to 3 years past their mandatory retirement points (to 31 and 23 YOS, respectively).

Retirement

Title 10 of the U.S.C. excerpts that govern retirement

Sec. 6323: An officer who applies for retirement after completing more than 20 years of active service—at least 10 of which were as a commissioned officer—may, at the discretion of the President, be retired on the first day of any month designated by the President.

Sec. 631, 632: Allows officers in the grades of O2, O3, and O4 who have twice failed selection and are within 2 years of qualifying for retirement for 20 years of service to stay until retirement-eligible.

Sec. 633: Mandates retirement for O5s after 28 YCS.

Sec. 634: Mandates retirement for O6s after 30 YCS.

Sec. 635: Mandates retirement for O7s after 30 YCS or 5 years in grade, whichever is later.

Sec. 636: Mandates retirement for O8s after 35 YCS or 5 years in grade, whichever is later; after 38 YCS for O9s; and after 40 YCS for O10s.

Sec. 637: Mandates mandatory retirement for officers who are continued on active service after 20 YOS for Captains and 24 YOS for Majors.

Sec. 638: Authorizes the convening of selective early retirement (SER) boards to recommend the retirement of officers in the grade of O5-O8. Eligibility criteria are specific to each grade and competitive category. SER boards are limited to selecting no more than 30 percent of the number of officers considered.

DoD policy excerpts that govern retirement

DoDD 1332.32: Selective early retirement of lieutenant colonels through brigadier generals on the Active-Duty List may be considered for selective early retirement by a selection board as a means to manage officer grade imbalances or strength overage in a competitive category.

DON policy excerpts that govern retirement

SECNAVINST 1811.3M: Voluntary retirements are to assist in meeting force management objectives of maintaining a vigorous active force, reasonable promotion flow, and reasonable career opportunities in each officer competitive category.

Marine Corps Policy excerpts that govern retirement

The Marine Corps Separation and Retirement Manual is also a source for Marine Corps policy.

Statutory and DoN regulations governing officer promotions

DOD Instructions (DODI)

1110.1, Defense Manpower Requirements report (DMRR).

1320.4, Military Officer Actions Requiring Approval of the Secretary of Defense or the President, or Confirmation by the Senate.

1320.13, Commissioned Officer Promotion Reports (COPRs) and Procedures.

1320.14, Commissioned Officer Promotion Program Procedures.

DOD Directives (DODD)

1304.21, Policy on Enlistment Bonuses, accession Bonuses for New Officers in Critical Skills, Selective Reenlistment Bonuses, and Critical Skills Retention Bonuses for Active Members.

1310.1, Rank and Seniority of Commissioned Officers.

1310.2, Appointing Commissioned Officers.

1320.8, Continuation of Regular Commissioned Officers on Active Duty and Reserve Commissioned Officers on the Reserve Active Status List

1320.12, Commissioned Officer Promotion Program.

1332.32, Selective Early Retirement of Officers on an Active-Duty List and the Reserve Active Status List and Selective Early Removal of Officers from the Reserve Active Status List.

SecNav Instructions

1400.1A, Officer Competitive Categories for the Active-Duty Lists of the Navy and Marine Corps.

1420.1A, Promotion and Selective Early Retirement of Commissioned Officers on the Active-Duty List of the Navy and Marine Corps.

1427.2B, Rank, Seniority and Placement of Officers on the Active Duty and Reserve Active Status Lists of the Navy and Marine Corps.

1811.3M, Voluntary Retirement and Transfer to the Fleet Reserve of Members of the Navy and Marine Corps Serving on Active Duty.

1920.7A, Continuation on Active Duty of regular Commissioned Officers and Reserve Officers on the Reserve Active Status List in the Navy and Marine Corps.

5310.15, Defense Manpower Requirements Report.(DMRR).

7220.87, Navy Judge Advocate Continuation Pay (JACP) and Marine Corps Law School Education Debt Subsidy (LSEDS).

Marine Corps Order
P1200.16, Military Occupational Specialty (Short Title: MOS Manual)

Marine Corps Order
P1400.31B, Marine Corps Promotion MAnual, volume 1, Officer Promotions (Short Title: MARCORPPROMAN, Vol. 1, OFFPROM).

U.S.C., Title 10, Chapter 2, "Armed Forces,"
Section 115, "Personnel Strengths: Requirement for Annual Authorization."
Section 115a, "Annual Manpower Requirements Report."

U.S.C., Title 10, Chapter 32, "Officer Strength and Distribution in Grade,"
Section 521, "Authority to Prescribe Total Strengths of Officers on Active Duty and Officer Strengths in Various Categories."
Section 523, "Authorized Strengths: Commissioned Officers on Active Duty in Grades of Major, Lieutenant Colonel, and Colonel and Navy Grades of Lieutenant Commander, Commander, and Captain."

U.S.C., Title 10, Chapter 36, "Promotion, Separation, and Involuntary Retirement of Officers on the Active-duty List,"
Section 611, "Convening of Selection Boards."
Section 615, "Information Furnished to Selection Boards."
Section 616, "Recommendations for Promotion by Selection Boards."
Section 619, "Eligibility for Consideration for Promotion: Time-in-Grade and Other Requirements."
Section 620, "Active-Duty Lists."
Section 621, "Competitive Categories for Promotion."
Section 622, "Numbers to be recommended for Promotion."
Section 623, "Establishment of Promotion Zones."
Section 624, "Promotions: How Made."
Section 627, "Failure of Selection for Promotion."
Section 631, "Effect of Failure of Selection for Promotion: First Lieutenants and Lieutenants (Junior Grade)."
Section 632, "Effect of Failure of Selection for Promotion: Captains and Majors of the Army, Air Force, and Marine Corps and Lieutenants and Lieutenant Commanders of the Navy."
Section 633, "Retirement for Years of Service: Regular Lieutenant

Colonels and Commanders."
Section 634, "Retirement for Years of Service: Regular Colonels and Navy Captains."
Section 635, "Retirement for Years of Service: Regular Brigadier Generals and Rear Admirals (Lower Half)."
Section 636, "Retirement for Years of Service: Regular Officers in Grades Above Brigadier General and Rear Admiral (Lower Half)."
Section 637, "Selection of Regular Officers for Continuation on Active Duty."
Section 638, "Selective Early Retirement."

U.S.C., Title 10, Chapter 37, "General Service Requirements,"
Section 651, "Members: Required Service."

U.S.C., Title 10, Chapter 59, "Separation,"
Section 1174, "Separation Pay Upon Involuntary Discharge or Release From Active Duty."
Section 1174a, "Special Separation Benefits Programs."
Section 1175, "Voluntary Separation Incentive."

U.S.C., Title 10, Chapter 69, "Retired Grade,"
Section 1370, "Commissioned Officers: General Rule; Exceptions."

U.S.C., Title 10, Chapter 571, "Voluntary Retirement,"
Section 6323, "Officers: 20 Years."

U.S.C., Title 37, Chapter Five, "Special and Incentive Pays."
Section 301, "Incentive Pay: Hazardous Duty"
Section 306, "Special Pay: Officers holding positions of unusual responsibility and of critical nature."
Section 317, "Special Pay: Officers in critical acquisition positions extending period of active duty"
Section 321, "Special Pay: Judge Advocate Continuation Pay."
Section 323. "Special Pay: Retention Incentives for Members Qualified in a Critical Military Skill"

Appendix B: Promotion policies in other Services and in foreign militaries

Other Services

United States Navy

A SECNAV Instruction states that "Department of the Navy policy is to meet skill and experience requirements for officers in each grade and competitive category established in [SECNAVINST 1400.1A] by using a system of competitive selection boards." In the typical "Supplemental Guidance to the Precept" for an Active-Duty Line Officer Board, the board members are instructed to select those officers that the majority believes are "best qualified for promotion giving due consideration to the needs of the Navy for officers with particular skills when specific skill guidance [is provided] to the board."[58] This structure allows the Navy to use promotions as a force management tool; despite this language, however, the overarching guidance to Navy selection boards is to promote the "best and fully qualified."

The Navy has four general officer communities:

4. Unrestricted Line (URL)
5. Restricted Line (RL)
6. Staff Corps (SC)
7. Chief Warrant Officers (CWO).

As in the Marine Corps, all Navy URL officers are in a single competitive category and, thus, compete with each other for promotion. However, contrary to the Marine Corps process, which promotes

58. This is from the FY05 Active-Duty Line Board.

CWOs by MOS, CWOs are considered as one competitive category. Within the Restricted Line, there are ten competitive categories (e.g., human resources, intelligence, cryptology and LDO (Line)), while there are nine competitive categories in the Staff Corps (e.g., Judge Advocate General, Medical Corps, Dental Corps, and LDO (Staff)).[59]

Promotion Boards for Navy Restricted Line and Unrestricted Line Officers

The mechanics of line officer promotions in the Navy closely resemble those of the Marine Corps, but each competitive category in the Navy has an individual authorized selection rate that is published in the precept for that board. The authorized selection rates for the FY05 selection board for Lieutenant Commanders are shown in table 22.

Table 22. FY05 Promotion Board authorized selections for promotion to the permanent grade of Lieutenant Commander[a]

Competitive category	Percentage to select
Unrestricted Line Officer	85
Special Duty Officer (Human Resources)	85
Engineering Duty Officer	90
Aerospace Engineering Duty Officer (Engineering)	90
Aerospace Engineering Duty Officer (Maintenance)	87
Special Duty Officer (Information Professional)	90
Special Duty Officer (Cryptology)	90
Special Duty Officer (Intelligence)	90
Special Duty Officer (Public Affairs)	88
Special Duty Officer (Oceanography)	88
Limited Duty Officer (Line)	90

a. Precept convening the FY05 selection board for Unrestricted and Restricted Line officers.

Source: http://www.npc.navy.mil/Boards/ActiveDutyOfficer/04Line.

59. Navy Officer Promotion Board Brief, 2005. Available at http://www.npc.navy.mil/NR/rdonlyres/D8C8EDFA-9C07-462A-A09B-38C9FA4704FE/0/ActivePromoBrief4505Revised.ppt.

Table 22 highlights two differences between the Navy and the Marine Corps in how competitive categories are defined. First, not all of these categorizations have equivalents in the Marine Corps. For example, some human resources specialties (e.g., officer recruiter) are not primary occupations in the Marine Corps; they are B-billets and filled by officers from various occupations. Other categories, such as public affairs, intelligence, adjutants, and information professionals, are Marine Corps PMOSs. Officers in these occupations compete against each other for promotion within one general category in the Marine Corps. In the Navy, however, officers in these occupations compete within their own categories. In short, these occupations are usually in the Restricted Line in the Navy and in the Unrestricted Line in the Marine Corps.

U.S. Air Force

The U.S. Air Force philosophy and policy regarding commissioned officer promotion is similar to that of the U.S. Marine Corps in that it also promotes "on a best and fully qualified basis."[60] However, it has split its officer community into eight competitive categories (e.g., Line of the Air Force, Judge Advocate General, Medical Supply Corps). Within each of the eight Air Force competitive categories, promotion-eligible officers are ranked by year group regardless of their Air Force Specialty Code (AFSC)(AFCS is the USAF equivalent of MOS).

The Line of the Air Force (LAF), which we focus on here, comprises about 80 percent of Air Force officers with AFSCs similar to the MOSs in the Marine Corps' URL. The Secretary of the Air Force (SECAF) gives each promotion board a Memorandum of Instructions (MOI) (the equivalent of the Navy and Marine Corps precepts). The MOI contains guidance for promotion board members and, typically, includes the maximum percentage of officers that can be recommended for promotion in each competitive category and identifies any existing skill shortages.

60. Air Force Instruction 36-2501, 16 July 2004, p. 19. Available at http://www.e-publishing.af.mil.

Promotion Boards for the Line of the Air Force

The Air Force promotion selection process for LAF officers has two major differences from that of the Marine Corps. The first is the use of "senior raters."[61] Senior raters are the eligible population's commanding officers who complete promotion recommendation forms in which they classify each eligible officer in one of three categories: "definitely promote," "promote," or "not promote." Senior raters are allowed a limited number of "definitely promote" ratings. Furthermore, although these recommendations are not to be used as the primary promotion selection criteria, they are used to identify and to differentiate between well-rounded officers.[62]

The second major distinction is procedural. The Air Force promotion board is subdivided into panels, the number of which depends on the number of eligible officers to be considered. The records of eligible officers are distributed by competitive category to the panels equally, both in terms of the number of records and in the distribution of "definitely promote," "promote," or "do not promote" recommendations. Each panel is assigned a proportion of the promotion quota to ensure equal promotion opportunity across panels. Every member of a panel, then, rates all of the panel's records using the "best-qualified method," keeping in mind the "best interests of the Air Force" and not giving preferential treatment to "any particular command, specialty, or group" as directed by the MOI.[63] Recall that in both the Marine Corps and the Navy, records of eligible officers are divided among members for review (as opposed to being reviewed by all board members), and each reviewing member then briefs his records to the entire board for an up or down vote. Once Air Force panel members finish rating the officers' records, the scores of all

61. Holt, 2001, p. 30

62. Air Force Instruction 36-2406, 15 April 2005, p. 102. Available at http://www.e-publishing.af.mil. While a "definitely promote" does not guarantee promotion, research suggests that 98 percent of the officers with a "definitely promote" rating get promoted (Holt, 2001, p. 30).

63. Secretary of the Air Force Memorandum of Instructions for CY04 Major LAF, JAG, MSC, NC and CY04 Captain LAF Selective Continuation Boards.

panel members are merged and records are put in order of merit. Selectees are derived from this list in order of merit until the panel quota is filled.[64]

United States Army

As in the Marine Corps, promotions are given to those Army officers who have demonstrated the ability to perform the duties of the next grade. Thus, promotions in the Army are an incentive to excel in the next grade as opposed to a reward for past performance. Furthermore, the Army requires that officers be "'fully qualified' and 'best qualified' for promotion."[65] There are ten competitive categories in the Army: the Army Competitive Category (ACC), Chaplains, Judge Advocate General's Corps, Medical Service Corps, Army Medical Specialist Corps, Veterinary Corps, Army Nurse Corps, Medical Corps, Dental Corps, and Warrant Officer Corps. A separate officer promotion selection board convenes for each grade and competitive category.[66] Here we focus on the ACC, which is the most similar to the Marine Corps' Unrestricted Line.

Promotion boards for the Army Competitive Category

A general officer presides over the board—usually 18 to 21 members who are in a grade senior to those being considered for promotion. Similar to the Air Force, board members receive an MOI from the Secretary of the Army (SA). The MOI includes guidance on the method of selection, special factors (such as force structure requirements), and the maximum number of officers to be promoted in each competitive category.[67] The MOI can be as specific as to include floors or ceilings, such as "at least 2 FAOs who speak Chinese."

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64. The actual process is more complicated. About 5 percent of each panel's quota is left to accommodate the "gray/aggregate gray" process and below zone records. For a complete description, see Air Force Instruction 36-2501, 16 July 2004, pp. 21-23.

65. Policies and Procedures for Active-Duty list Officer Selection Boards, Department of the Army Memo 600-2, 24 September 1999, p. 6.

66. Officer Promotions. Department of the Army Regulation 600-8-29, p. 15, 52.

67. DA AR 600-8-29, p. 17.

Up to the grade of major, Army officers compete for promotion within the ACC, which includes such branches as Air Defense, Aviation, Field Artillery, and Infantry. But, for Lieutenant Colonel and Colonel, officers are reorganized into four competitive categories called Career Fields (CF): Operations, Information Operations, Operations Support, and Institutional Support. The CFs are subdivided into Functional Areas.[68] The MOI contains a percentage to select to the grade of Major for the ACC, and a separate percentage to select for each CF to the grades of Lieutenant Colonel and Colonel to ensure that no skill shortages occur.

The Career Fields were established to build an officer corps with operations experience as well as technical proficiency that can fully support the Army's overall needs. In the past, Army officers perceived a favorable bias toward officers who had significant operational experience. Therefore, officers in specialized fields felt compelled (by some accounts) to take operational assignments to remain competitive for promotion. This practice had a two-sided effect. Speciality officers spent less time in their specialty (i.e., foreign area officer or public affairs), while operational officers spent less time in their intended billets because specialty officers took their slots in the operational units. The Career Field system allows officers (O5s and O6s) to be "managed, professionally developed, assigned and promoted according to the requirements of their branch or functional area and career field."[69] Thus, the system encourages specialty officers to remain within their specialty.

Regardless of the competitive category or grade, the selection board process is the same. First, board members review all in-zone and above-zone officer files and assign a numerical score to each record. A single list of relative standing, without regard for MOS, is created by merging scores from all members. Next, members review and

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68. Officers are designated (with some choice) to a CF at promotion to major even though they may not serve in that CF until 10-11 YOS (Source: Commissioned Officer Development and Career Management, DA PAM 600_3. Available at http://www.usapa.army.mil/pdffiles/p600_3.pdf.

69. Army Human Resources Command. <https://www.hrc.army.mil/site/active/opfamdd/cfd.htm>

score below-zone records. Any below-zone officers who are deemed to be ahead of their peers are integrated into the relative standing list of in-zone and above-zone officers. This list identifies the officers who are the "best qualified for promotion." Then, the selectee list is compared with the guidance in the MOI to ensure that the skill requirements have been met. If the skill requirements are fulfilled, the board conducts a final vote to promote as many officers as the MOI permits. If there are unmet requirements, the board president may order a re-vote or may go to the SA for more guidance on whether the mix of selected officers should be adjusted. In either case, a final vote is conducted to certify that "no officer is recommended as best qualified for promotion unless he or she receives the recommendation of a majority of the members of the board."[70]

Foreign militaries

To complete our analysis of the available options to ensure that active-duty unrestricted officer force structure requirements are met by grade and MOS, we compare the USMC promotion selection process to the promotion processes of foreign militaries. Given that the rank structure, commissioning processes, time-in-grade requirements, and occupational specialties of foreign militaries can differ significantly from those of the Marine Corps, we offer general comparisons, concentrating on the relationship between military occupations and the promotion process. The breadth of these comparisons depends on the information currently available.

United Kingdom Royal Marines

The Royal Marines (RM) structure is somewhat different from the USMC's in that the officer corps doesn't have formal military occupational specialties except to distinguish between ground officers and pilots. The small size of the Royal Marine Corps, its reliance on the larger Royal Army for capabilities, such as artillery, and the focus by the Corps on light infantry missions allow them to have essentially all generalist officers with limited specializations. (Officer specializations include Landing Craft, Special Boat Service, Mountain Leader,

70. Department of the Army Memo 600-2, p. 7.

Signals, Pilot, Intelligence, Weapons Training, Heavy Weapons, Physical Training, and Staff.[71]) Thus, their occupations are not as formal as MOSs in the USMC.[72]

All Royal Marine officers are grouped together in each rank for promotion. Starting in 2006, however, Royal Marine aviators will no longer be pooled with their ground counterparts; they will be grouped with Royal Navy aviators for promotion.

British Army

The British Army (BA) officer corps numbers about 14,000, which is similar to the USMC officer corps. The RA closely resembles the USMC in element and structure as well. Unlike the RM, which has no officer MOSs, the British Army has an *Arm and Corps* structure similar the USMC. For example, an infantry officer's *Arm and Corps* is Combat and Infantry. Officers are considered for promotion within individual Corps (instead of in one large group (the URL), as occurs in the USMC).[73] The Manning and Career Management Divisions at the BA Personnel Center are responsible for career management of all officers up to lieutenant colonel. The responsibilities consist of shaping career paths, convening promotion boards, and developing professional military education.

Rank structure and commission

The rank structure for USMC and British Army is the same, but the two Services differ in sources of commission and type of commissions awarded. USMC officers can be commissioned from multiple sources, but all USMC commissioned officers attend The Basic School before going on to specialized training. Currently, all USMC officers receive a regular commission, regardless of commissioning source.

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71. Source: http://www.royal-navy.mod.uk/static/pages/2677.html.

72. Personal communication with Major A.P.L. Watkins, Royal Marines Attache. British Embassy. Washington, DC, CNA, 29 Mar 05.

73. Corps for promotion include Army Air Corps, Engineers, Signals, Infantry, Electrical and Mechanical Engineers, Artillery, Adjuncts, Chaplains, Medical, and Logistics. <http://www.army.mod.uk/servingsoldier/career/mcmdivs/>

In contrast, officers in the British Army almost exclusively obtain commissions from the Royal Military Academy at Sandhurst—a program that takes about a year. The British Army has three types of commissions: the Short Service Commission (SSC), the Intermediate Regular Commission (IRC), and the Regular Commission (Reg C). The SSC is the first commission that all British Army officers receive and requires a minimum of 3 years of service, but allows only 8 years maximum. Officers may apply for conversion to an IRC after 2 years of service. An IRC requires a minimum of 10 years of service and takes an officer to his Initial Pension Point (IPP) at 16 years of service. Conversion to Reg C can occur any time after 2 years of service on an IRC. A Reg C is required for an officer to serve a full career. To be promoted to Major, a British Army officer must have an IRC at a minimum; promotion above Major requires a Reg C. The philosophy is to allow British Army planners more flexibility in force shaping.

Promotion policy

Promotion boards are used for promotion to Major and above. The boards are composed of officers one rank senior to the officers promoted.[74] British Army officers are grouped into pools based on rank and corps (i.e., Infantry Captains compete against each other for promotion to Major, and Artillery Captains compete against each other for promotion to Major).

Promotion policy for BA officers is in transition. Officers commissioned before April 1, 2000, fall under Age Based Terms of Service (AToS), while those commissioned later fall under Length of Service Terms of Service (LToS).[75] The difference is that AToS set *age* rather than *time in rank* as the primary trigger for promotion eligibility. This policy change will affect Majors and Lieutenant Colonels the most, particularly the timing of their entry into the zone for promotion.

Regardless of the terms of service system, the British Army officer promotion system shares many characteristics with the USMC system. For

74. The promotion board for Major is called promotion board 5, for Lieutenant Colonel is promotion board 4, and for Colonel and Brigadier General is promotion board 2.

75. Direct Entry Officer Terms of Service. <www.army.mod.uk>

example, promotion from Second Lieutenant to First Lieutenant is essentially automatic after 2 years of service, and promotion to Captain requires 5 years of service, of which 2.5 must be spent in Regimental (operational) duty.[76] In addition, the officer must have completed one of two junior officer PME schools during his service. Captains are also given Annual Reviews (ARs), much like USMC Fit reps, which figure into their promotion above Captain and also influence when the officer comes in zone.

Eligibility for promotion to Major marks the substantive difference between AToS and LToS officers. The difference involves when the officer becomes in zone for promotion. Officers who fall under LToS are considered in zone on 1 January of their 11th year of service. They are in zone until their IPP, which occurs at 16 years of service. Captains who fail to be promoted to Major by their IPP are retired from the British Army. Officers who fall under AToS come into zone for promotion on 1 January of the year that they will turn 30 years of age. The zone ends at the IPP, or 16 years of service, which is the same for LToS officers. Officers under LToS who receive "Exceptional" marks on their last AR are considered in zone beginning 1 January during their 10th year of service, which is one year before their peers who did not get rated "Exceptional."[77] Planners at the Ministry of Defense have set initial goals for promotion to Major as shown in table 23.

Table 23. Goals for promotion to Major[a]

Year of service	Percentage promoted
11	35%
12	50%
13	55%
14 to 16 (IPP)	No limit for qualified officers

a. *Officer Career Development Handbook,* Ch. 1, Sec. 1.114 (http://www.army.mod.uk/linked_files/apc/ocd/ocdh_a1.pdf).

76. The Marine Corps also has boards for promotion to Captain. Today all "fully qualified" 1st Lieutenants can be promoted, but there used to be an authorized percentage to select below 100 percent. (Source: Memoranda from the CMC to the SECNAV, FY1990-FY2004)

77. This is the equivalent of being "Below Zone" in the USMC.

Promotion to Lieutenant Colonel also differs depending on the terms of service under which an officer falls. All officers must have a Regular commission and be reviewed by the promotion board. But, as with Majors, each group comes into zone during their seventh year as a Major, while the rest of Majors enter zone during their eighth year to be eligible for promotion. All officers must have at least two AR's from Regimental duty, and two AR's from staff duty, in addition to having attended Intermediate Command and Staff Course. AToS officers enter zone in either their 6th year as a major or the year they will turn 37 years of age, whichever is later.

Promotion to Colonel and above still falls under AToS due to the recent introduction of LToS, but this policy will change as the current cohort of LToS officers approaches that point. The promotion zone starts in the fourth year of being a Lieutenant Colonel, and ends on 31 December of the year the officer turns 50 years of age.

Canadian forces

Canada has a single unified defense service with three "environments" (Land, Sea and Air), each having the same promotion policy. Commissioned officers are in one of two groups—either General Service Officers or Specialist Officers. Within each designation, officers are further divided into military occupations (MOCs). General Service Officers are roughly equivalent to Unrestricted Officers in the USMC containing similar MOCs, such as infantry and aviation. Not all Specialist Officers have an equivalent in the USMC, however, because many of their occupations are in the areas of service support that the Navy provides the USMC.[78]

78. Canadian Specialist Officer MOCs are: Dental, Dental Associate, Medical, Medical Associate, Nursing, Chaplain, Pharmacist, Pastoral Associate, Legal, Music, Social Work, Personnel Selection and Training Development. CFAO 11-6 COMMISSIONING AND PROMOTION POLICY -OFFICERS -REGULAR FORCE. ANNEX B.

    Note that the Legal and Music Specialist Officer MOCs have equivalent LDO MOSs in the Marine Corps.

Eligibility

The rank structure of Canadian Forces–Land environment is the same as the USMC and is organized so that the General Service and Specialist officers are considered for promotion separately. Officers between First Lieutenant to Lieutenant-Colonel have specified time-in-rank requirements and zones in which they are eligible for promotion. Accelerated promotion is allowed for General Service Officers (rank of Lieutenant and higher) and Specialist Officers (Captain and higher) with a minimum of 1 year time in rank. A special merit board is convened for accelerated promotions.

Before convening a selection board, the Career Managers (CMs) for each MOC conduct a Selection List Reduction (SLR), which is used to determine the eligible pool. The CMs review the prior 3 years' worth of Personnel Evaluation Reports (PER) for all officers in a given MOC and rank. Each officer is scored and placed on a lineal list based on that score. Each list is cut off when the total number reaches three times the forecasted number of officers to be promoted in that MOC.[79] This list is sent to the selection board. The CMs may include officers that fall below the cutoff but could be considered eligible.

Promotion boards

Selection boards are convened for promotion of officers between Captain and Brigadier General. As in the USMC, promotion from Second Lieutenant to First Lieutenant is essentially automatic provided the officer completes the training requirements for his MOC. Canadian officers are usually promoted by rank and MOC. Each MOC has specific occupational and educational requirements for promotion. Operational MOCs place greater emphasis on command experience, while technical MOCs assign greater weight to technical experience and graduate education. However, starting at the rank of Colonel, all officers are generally grouped into a single pool for promotion, though some occupational input is taken into consideration.[80]

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79. Canadian Forces Selection Board Guidance Manual, Chapter 2, Part 5.

80. Interview with CDR JA Roche Canadian Forces. DGMC Standards and Policy in ADM(HR Mil). National Defense Headquarters Ottawa.

Each board must have at least four members who represent the occupation, service, and primary language. One member of the board, called a nonaffiliated member, must be from an occupation different from the occupation of those officers being considered. The board president must be three ranks senior, and the other board members should be at least two ranks senior.[81]

The selection board is convened and briefed by the appropriate CM on the occupations for the officers under consideration. The board members then receive workbooks for each officer on the list provided by the CM. Each officer is scored on a 100 point scale, with 60 points for performance, 35 points for potential and , and 5 points for second language ability. In the event of ties, preference is given to officers with higher “potential” scores, which is similar to the Marine Corps policy in which only those officers who reflect the greatest potential to perform well in the next grade should be promoted. However, unlike the USMC, promotion below the grade of Colonel is guided by potential within a MOC.

Australian Regular Army

The organization of the Australian Regular Army (ARA) officer corps is similar to that of the USMC, although it does include specialist officers who have no Marine Corps equivalent. Officers are classified as either generalist or specialist, and generalist officers are further divided into Corps, such as infantry or artillery.

Promotions in the ARA are governed by the Selection group of the Directorate of Officer Career Management for the Army (DOCM-A). Officers within a grade compete for promotions with all other officers in that grade. The goal is to promote the best and most fully qualified, but this is not absolute because the needs of the service are also considered. If a certain "corps" (Artillery, Infantry, Engineers, etc.) is found to be short, officers in this corps will be promoted even if they are ranked below other officers.

81. Canadian Forces Selection Board Guidance Manual. A-PD-229-001/AG-001.

Promotion boards

There are boards for promotions to Captain and Major, but they only function to verify that officers are Army Individual Readiness Notice (AIRN) compliant, meet the time-in-grade (TIG) requirement, and received a recommendation for promotion before they are selected.[82] The boards are made up of six officers at least one rank senior to the officers under consideration. For example, a promotion board for Lieutenant Colonels would consist of full Colonels and perhaps some Brigadier Generals. Promotion Advisory Committees, the equivalent of USMC promotion boards, are used starting at promotion to O-5.

All eligible officers in a grade are ranked in order. This order is then divided into multiple bands, the number of which varies by grade. For instance, promotion to Major would have three bands, whereas promotion to Lieutenant Colonel would have as many as five to seven bands. Officers who fall in the first band (or first couple of bands) are recommended for promotion, officers in the middle bands may or may not be promoted, and officers in the last bands are not recommended for promotion. The ranking of officers, which in turn determines their band, is based on a "best and most fully qualified" criterion. However, the needs of the Service are also considered since officers may be promoted even if they are ranked below other officers if they are in a corps with unmet requirements. With regard to PME, for promotion above Major, attendance at Australia's Command and Staff College (ACSC) is essentially a requirement. As a result, selection for attendance at ACSC is treated with almost equal weight as selection for promotion.

82. To be AIRN compliant officers must be physically fit, medically (including dental) cleared, employable, deployable, and service weapon qualified. (Interview with MAJ Paul Robards, Australian Army, June 20, 2005).

Bibliography

Air Force Instruction 36-2406. "Officer and Enlisted Evaluation Systems," 15 April 2005

Air Force Instruction 36-2501. "Officer Promotions and Selective Continuation," 16 July 2004

Army Regulation 600-8-29. "Officer Promotions," 25 February 2005

Canadian Forces Selection Board Guidance Manual. A-PD-229-001 / AG-001

Correll, John T. "Developing Aerospace Leaders." *Air Force Magazine.* Vol. 84, No. 12, December 2001

Department of the Army Memo 600-2. "Policies and Procedures for Active-Duty list Officer Selection Boards," 24 September 1999

Department of the Navy, SECNAV INSTRUCTION 1420.1A. "Promotion and Selective Early Retirement of Commissioned Officers on Active-Duty Lists of the Navy and Marine Corps." 8 January 1991

Holt, Michael S., Major USMC. "Evolution of the Marine Corps Officer Promotion System." Master's Thesis, Marine Corps University, AY 2004-2005

Marine Corps Promotion Manual, Vol. 1, Officer Promotions. MCO P1400.31B

Thie, Harry J., and Jefferson P. Marquis. "The Present Military Personnel Management Framework: Where It Came From." RAND National Defense Research Institute Project Memorandum, September 2001

Vasquez, Scott, Captain USMC, and Michael B. Williams, Captain USMC. "Reengineering the Marine Corps Officer Promotion Process for the Unrestricted Officers." Master's Thesis, Naval Postgraduate School, March 2002

Yardley, Roland J., Peter Schirmer, and Harry J. Thie, with Samantha J. Merck. "OPNVAV N14 Quick Reference: Officer Manpower and Personnel Governance in the U.S. Navy. Law, Policy and Practice." RAND National Defense Research Institute, 2005

Interviews, Questionnaires, and Websites

Interview (phone) with Major Paul Robards (Australian Army) on 20 June 2005

Interview (phone) with Major A.P.L. Watkins (Royal Marines Attache. British Embassy. Washington, DC) on 29 March 2005

Questionnaire (E-mail) to CDR JA Roche (Canadian Forces. DGMC Standards and Policy in ADM(HR Mil). National Defense Headquarters Ottawa.) on 15 April 2005

United Kingdom Ministry of Defense. *Officer Career Development Handbook Chapter 1, Section 1.114*. As found at Internet site <http://www.army.mod.uk/linked_files/apc/ocd/ocdh_a1.pdf>

United Kingdom Ministry of Defense. *Direct Entry Officer Terms of Service*. As found at Internet site <http://www.army.mod.uk/servingsoldier/termsofserv/tosoffrs/directentry.html>

United Kingdom Royal Army. *Manning and Career Management Divisions of the Army Personnel Centre*. As found at Internet site <http://www.army.mod.uk/servingsoldier/career/mcmdivs/>

United Kingdom Royal Navy. *Royal Marine Corps Specializations*. As found at Internet site <http://www.royal-navy.mod.uk/static/pages/2677.html>

United States Air Force. *Air Force Personnel Center: Officer Promotions.* As found at Internet site <http://www.afpc.randolph.af.mil/offprom/>

United States Army. *Human Resources Command.* As found at Internet site <https://www.hrc.army.mil/site/active/opfamdd/cfd.htm>

United States Army. *Promotions Branch.* As found at Internet site <https://www.hrc.army.mil/site/active/select/promo.htm>

United States Marine Corps. *Personnel Management Division*. As found at Internet site <https://lnweb1.manpower.usmc.mil/manpower/mi/mra_ofct.nsf/MMPR/Officer%20Promotion%20Home>

United States Navy. *Active Duty Officer Promotions*. As found at Internet site <http://www.npc.navy.mil/Boards/ActiveDutyOfficer/>

Appendix C: MOS data standardization

During the course of the study period, a number of MOSs were consolidated with others. In addition, we did not have MOS status reports for FY93, FY94 and FY97, and only had Occupational Field data for FY98 and FY99. Because of these issues, we performed various calculations to prepare the data for analysis.

Following are detailed explanations of the calculations. In each calculation, the MOS is shown with the relevant two-digit fiscal year in brackets. A fiscal year denoted as [XX] means the calculation was performed for more than one year. Following the explanations, the data are displayed in tables 24 through 27, with the calculated values highlighted in gray.

1802 and 1803

Note that, for FY98 and FY99, we had only Occupational Field (18XX) data.

1802[98] = (1802[96] / (1802[96] + 1803[96])) * 18XX[98]

1803[98] = (1803[96] / (1802[96] + 1803[96])) * 18XX[98]

1802[99] = (1802[00] / (1802[00] + 1803[00])) * 18XX[99]

1803[99] = (1803[00] / (1802[00] + 1803[00])) * 18XX[99]

0602

In FY97 the 2502 and 4002 MOSs were combined into a single new MOS, 0602.

From FY90 to FY96: 0602[XX] = 2502[XX] + 4002[XX}

0402

In FY99, the 3502 MOS was consolidated with 0402.

From FY90 to FY99: 0402[XX] = 3502[XX] + 0402[XX]

0202

In FY97, the 2602 MOS was consolidated with 0202.

From FY90 to FY96: 0202[XX] = 2602[XX] + 0202[XX]

6602

Note the straight-line interpolation.

1995 = (1992 – 1996) / 4) + 1996

7202, 7204, 7208, 7210, 7220, 7320[83]

It appears from the pattern of data that MOSs 7204, 7208, 7210, 7220, and 7320 merged into 7202 in 1995 for O4 and O5. Evidence of this includes:

- GAR goes to zero for 7204, 7208, 7210, 7220 and 7320 in 1995 for O4 and O5.
- GAR and OB in 7202 in 1995 for O4 and O5 is concurrent with sum of 7204, 7208, 7210, 7220 and 7320 in 1994.

It also appears that O3s from 7204, 7208, 7210, 7220 and 7320 will promote into 7202, so we decided to roll up O3s as well. Note that MOS 7204 is "deleted" in 1999, and a "new MOS" in 2001 [Air Weapons Officer/Low Altitude Air Defense Officer] is created. We designate this combination of MOSs in the text as 72XX.

72XX for the grade of O3 for FY90-FY05 = 7204[XX] + 7208[XX] + 7210[XX] + 7220[XX] + 7320[XX]

72XX for the grades of O4 and O5 for FY90-FY92 = 7204[XX] + 7208[XX] + 7210[XX] + 7220[XX] + 7320[XX].

83. MOS 7320, Air Traffic Control Officer, was merged into MOS 7220 in 1994.

All MOS

Note: for 1993, 1994 and 1997 a straight-line interpolation was used.

1993 = (1 / 3 * (1995 – 1992)) + 1992

1994 = (2 / 3 * (1995 – 1992)) + 1992

1997 = (1996 + 1998) / 2.

)

Table 24. O3 data table (reconciled)

MOS	MOS NAME		FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
0202 (2602)	MAGTF Intel	C2/C4I	GAR	296	305	327	310	293	276	571	446	321	295	295	297	297	305	310	325
			OB	224	236	227	243	258	273	181	192	202	217	228	158	132	112	122	125
			%GAR	0.76	0.78	0.70	0.78	0.88	0.99	0.32	0.43	0.63	0.74	0.77	0.53	0.44	0.37	0.39	0.39
0602 (2502/ 4002)	Comms	C2/C4I	GAR	425	384	363	365	366	368	373	319	265	269	270	278	278	271	270	289
			OB	355	348	364	332	299	266	285	274	263	285	279	317	319	330	347	345
			%GAR	0.83	0.90	1.00	0.91	0.82	0.72	0.76	0.86	0.99	1.06	1.03	1.14	1.15	1.22	1.28	1.20
72XX	Air C2	C2/C4I	GAR	286	267	244	237	231	224	219	211	202	171	172	174	176	171	170	182
			OB	230	250	269	244	218	192	204	186	169	173	167	182	170	204	203	189
			%GAR	0.80	0.93	1.10	1.03	0.94	0.86	0.93	0.88	0.83	1.01	0.97	1.05	0.97	1.19	1.20	1.04
0302	Infantry	URCA	GAR	558	748	656	624	592	560	556	540	524	500	526	507	507	477	472	501
			OB	888	974	948	839	731	623	673	635	596	608	649	753	786	768	724	650
			%GAR	1.59	1.30	1.44	1.35	1.24	1.11	1.21	1.18	1.14	1.22	1.23	1.48	1.55	1.61	1.53	1.30
0802	Artillery	URCA	GAR	228	384	401	339	278	216	210	221	232	220	216	214	214	199	198	211
			OB	400	433	429	387	346	305	310	280	251	249	258	289	305	309	306	279
			%GAR	1.75	1.13	1.07	1.14	1.25	1.41	1.48	1.27	1.08	1.13	1.19	1.35	1.43	1.55	1.55	1.32
1802 (18)	Tanks	URCA	GAR	54	63	46	48	49	51	64	62	60	48	47	48	48	45	45	43
			OB	120	107	96	83	70	57	59	54	50	53	57	62	66	63	62	59
			%GAR	2.22	1.70	2.09	1.75	1.42	1.12	0.92	0.88	0.84	1.10	1.21	1.28	1.36	1.40	1.37	1.38
1803 (18)	AAV	URCA	GAR	36	46	38	39	41	42	35	34	33	40	39	39	39	33	32	34
			OB	72	67	60	57	53	50	52	48	44	39	42	49	52	51	49	37
			%GAR	2.00	1.46	1.58	1.44	1.31	1.19	1.49	1.42	1.35	0.99	1.09	1.24	1.33	1.53	1.51	1.09
0180	Adjutant	URCS	GAR	237	183	162	171	180	189	184	157	129	119	119	126	126	134	134	132
			OB	110	148	149	133	117	101	110	99	87	86	106	151	174	184	197	197
			%GAR	0.46	0.81	0.92	0.78	0.65	0.53	0.60	0.63	0.67	0.72	0.89	1.20	1.38	1.37	1.47	1.49
3404	Finance	URCS	GAR	112	99	100	103	105	108	112	99	87	76	77	75	75	71	70	66
			OB	114	117	114	97	81	64	77	76	74	83	92	119	134	133	129	124
			%GAR	1.01	1.18	1.14	0.95	0.76	0.59	0.69	0.76	0.86	1.10	1.21	1.59	1.78	1.87	1.85	1.87

Table 24. O3 data table (reconciled) (continued)

MOS	MOS NAME		FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
4302	Public Affairs	URCS	GAR	22	35	35	37	38	40	56	55	54	54	55	54	54	47	46	47
			OB	28	24	22	22	23	23	28	33	38	44	50	55	57	60	57	50
			%GAR	1.25	0.67	0.62	0.60	0.59	0.58	0.50	0.60	0.70	0.81	0.91	1.01	1.05	1.27	1.23	1.08
5803	Military Police	URCS	GAR	58	59	58	56	54	52	53	50	47	39	38	46	46	40	42	47
			OB	61	69	66	62	58	54	57	53	49	54	51	60	71	71	68	66
			%GAR	1.05	1.18	1.14	1.11	1.08	1.04	1.08	1.06	1.04	1.38	1.35	1.29	1.54	1.77	1.63	1.42
6002	Aviation Maintenance	URLog	GAR	92	66	66	64	63	61	73	75	77	80	79	79	79	81	79	78
			OB	95	103	95	86	78	69	73	68	63	62	74	89	98	98	109	107
			%GAR	1.03	1.56	1.43	1.34	1.24	1.13	1.00	0.91	0.82	0.78	0.94	1.13	1.24	1.21	1.38	1.38
6602	Aviation Supply	URLog	GAR	92	84	78	77	76	74	73	64	56	67	72	66	66	66	67	65
			OB	85	96	101	91	81	72	62	56	50	54	51	66	72	78	81	77
			%GAR	0.93	1.14	1.29	1.19	1.08	0.97	0.85	0.87	0.89	0.81	0.71	0.99	1.09	1.18	1.21	1.18
0402 (3502)	Logistics	URLog	GAR	510	473	457	472	472	340	325	311	296	378	393	411	411	421	423	434
			OB	421	446	436	372	349	217	222	250	278	346	392	489	526	513	492	446
			%GAR	0.83	0.94	0.95	0.79	0.74	0.64	0.68	0.81	0.94	0.92	1.00	1.19	1.28	1.22	1.16	1.03
1302	Engineer	URLog	GAR	172	144	145	148	151	154	160	153	147	142	143	145	145	130	129	131
			OB	147	156	168	154	139	125	141	138	134	136	148	164	174	181	179	161
			%GAR	0.85	1.08	1.16	1.04	0.92	0.81	0.88	0.90	0.91	0.96	1.03	1.13	1.20	1.39	1.39	1.23
3002	Ground Supply	URLog	GAR	322	257	256	268	281	293	286	252	219	210	204	209	209	201	200	199
			OB	268	279	271	233	195	157	156	157	158	173	201	252	273	282	272	254
			%GAR	0.83	1.08	1.06	0.87	0.70	0.54	0.55	0.62	0.72	0.82	0.98	1.21	1.31	1.40	1.36	1.28
4402	Lawyers	URJA	GAR	273	207	201	199	196	194	185	191	196	206	204	208	208	195	196	199
			OB	236	221	192	187	182	177	189	177	165	144	123	152	182	182	193	179
			%GAR	0.86	1.07	0.96	0.94	0.93	0.91	1.02	0.93	0.84	0.70	0.61	0.73	0.88	0.93	0.99	0.90
7509	AV-8	FW	GAR	228	245	267	251	236	220	223	207	191	206	210	194	194	197	194	190
			OB	149	182	210	223	235	248	253	230	206	195	151	145	162	154	148	143
			%GAR	0.65	0.74	0.79	0.89	1.00	1.13	1.13	1.11	1.08	0.95	0.72	0.74	0.83	0.78	0.76	0.75
7523	FA-18	FW	GAR	210	264	232	255	279	302	310	247	184	194	195	191	191	205	203	202

Table 24. O3 data table (reconciled) (continued)

MOS	MOS NAME		FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
			OB	201	222	228	233	239	244	256	219	182	184	159	165	166	159	161	159
			%GAR	0.96	0.84	0.98	0.91	0.86	0.81	0.83	0.89	0.99	0.95	0.82	0.86	0.87	0.78	0.79	0.79
7543	EA-6A/B	FW	GAR	28	32	38	35	31	28	27	40	53	58	59	57	57	63	62	61
			OB	17	22	23	30	36	43	48	51	54	55	38	44	49	49	52	52
			%GAR	0.59	0.68	0.61	0.86	1.16	1.54	1.78	1.28	1.03	0.96	0.64	0.77	0.86	0.78	0.83	0.84
7557	C-130	FW	GAR	86	113	118	116	114	112	120	140	160	174	170	171	171	202	202	196
			OB	68	99	123	106	90	73	79	125	171	170	151	168	174	157	155	148
			%GAR	0.79	0.88	1.04	0.92	0.79	0.65	0.66	0.89	1.07	0.98	0.89	0.98	1.02	0.78	0.77	0.76
7562	CH-46	RW	GAR	372	404	378	368	359	349	338	327	316	310	301	273	273	294	291	309
			OB	486	470	436	424	412	400	426	418	409	405	393	408	406	363	339	310
			%GAR	1.31	1.16	1.15	1.15	1.15	1.15	1.26	1.28	1.30	1.31	1.31	1.49	1.49	1.23	1.17	1.00
7563	UH-1	RW	GAR	144	173	156	149	141	134	129	133	137	146	144	151	151	149	146	150
			OB	149	152	165	160	155	150	152	151	149	154	134	135	132	117	115	112
			%GAR	1.03	0.88	1.06	1.08	1.10	1.12	1.18	1.13	1.09	1.05	0.93	0.90	0.88	0.79	0.78	0.75
7564	CH-53A/D	RW	GAR	144	114	103	92	81	70	67	92	117	59	58	66	66	59	55	64
			OB	217	181	158	130	103	75	78	75	73	78	71	73	77	71	67	61
			%GAR	1.51	1.59	1.53	1.41	1.27	1.07	1.16	0.82	0.62	1.32	1.22	1.10	1.16	1.20	1.22	0.96
7565	AH-1	RW	GAR	149	174	164	175	185	196	196	202	209	227	219	238	238	258	263	259
			OB	192	189	178	181	185	189	200	215	231	244	239	237	232	198	184	173
			%GAR	1.29	1.09	1.08	1.04	1.00	0.96	1.02	1.06	1.11	1.07	1.09	1.00	0.98	0.77	0.70	0.67
7566	CH-53E	RW	GAR	120	149	144	153	162	171	180	207	234	163	157	169	169	173	175	175
			OB	153	166	185	186	187	188	196	203	210	225	205	206	213	191	171	155
			%GAR	1.28	1.11	1.28	1.22	1.15	1.10	1.09	0.98	0.90	1.38	1.31	1.22	1.26	1.11	0.98	0.88

Table 25. O4 data table (reconciled)

MOS	MOS NAME	FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
0202 (2602)	MAGTF Intel	GAR	144	128	124	132	141	149	211	217	222	234	237	246	246	236	235	238
		OB	85	91	94	112	130	148	141	136	131	128	142	139	142	163	163	169
		%GAR	0.59	0.71	0.76	0.85	0.92	0.99	0.67	0.63	0.59	0.55	0.60	0.57	0.58	0.69	0.70	0.71
0602 (2502/ 4002)	Comms	GAR	250	207	195	216	237	258	262	262	263	280	278	278	278	250	241	251
		OB	200	203	192	195	197	200	193	194	194	192	200	195	188	199	205	196
		%GAR	0.80	0.98	0.99	0.90	0.83	0.78	0.74	0.74	0.74	0.69	0.72	0.70	0.68	0.80	0.85	0.78
72XX	Air C2	GAR	168	142	132	132	133	133	135	137	138	128	128	141	141	133	132	132
		OB	120	122	117	111	106	100	125	133	141	142	133	127	109	109	100	89
		%GAR	0.72	0.86	0.89	0.84	0.80	0.75	0.93	0.97	1.02	1.11	1.04	0.90	0.77	0.82	0.76	0.68
0302	Infantry	GAR	233	465	426	367	309	250	271	327	384	387	371	385	385	408	401	413
		OB	520	495	465	473	481	489	476	479	483	468	479	468	451	470	465	466
		%GAR	2.24	1.06	1.09	1.29	1.56	1.96	1.76	1.46	1.26	1.21	1.29	1.22	1.17	1.15	1.16	1.13
0802	Artillery	GAR	126	230	285	226	166	107	107	127	147	143	147	149	149	151	152	168
		OB	223	226	209	207	204	202	193	202	211	203	206	199	185	187	195	193
		%GAR	1.77	0.98	0.73	0.92	1.23	1.89	1.80	1.59	1.44	1.42	1.40	1.34	1.24	1.24	1.29	1.15
1802 (18)	Tanks	GAR	36	38	32	34	35	37	40	43	46	42	42	44	44	36	35	32
		OB	51	62	60	63	66	69	83	72	61	49	51	49	48	53	54	50
		%GAR	1.42	1.65	1.88	1.87	1.87	1.86	2.08	1.68	1.33	1.17	1.22	1.11	1.08	1.46	1.53	1.56
1803 (18)	AAV	GAR	35	33	26	29	31	34	34	36	39	41	41	37	37	36	34	33
		OB	42	47	46	43	39	36	35	30	26	35	36	40	39	35	37	37
		%GAR	1.19	1.45	1.78	1.50	1.26	1.06	1.03	0.83	0.66	0.85	0.88	1.07	1.04	0.97	1.09	1.12
0180	Adjutant	GAR	73	66	62	69	76	83	82	84	86	85	85	85	85	96	94	93
		OB	74	84	80	79	78	77	70	68	66	67	58	49	51	58	58	61
		%GAR	1.02	1.27	1.29	1.14	1.03	0.93	0.85	0.81	0.77	0.79	0.68	0.57	0.60	0.61	0.61	0.65
3404	Finance	GAR	76	64	61	69	77	85	84	77	69	71	72	73	73	60	61	61
		OB	76	82	86	79	73	66	66	63	59	57	51	48	50	57	61	63
		%GAR	1.00	1.28	1.41	1.15	0.94	0.78	0.79	0.82	0.86	0.80	0.70	0.66	0.69	0.95	1.00	1.03

Table 25. O4 data table (reconciled) (continued)

MOS	MOS NAME	FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
4302	Public Affairs	GAR	44	26	23	24	24	25	24	25	27	26	26	23	23	26	25	25
		OB	21	23	21	20	19	18	19	21	22	22	18	23	25	29	29	31
		%GAR	0.48	0.88	0.91	0.85	0.78	0.72	0.79	0.81	0.83	0.85	0.67	1.01	1.08	1.13	1.13	1.24
5803	Military Police	GAR	42	36	37	38	40	41	43	45	46	40	41	43	43	40	39	44
		OB	26	27	26	28	31	33	34	35	36	35	41	40	37	37	34	32
		%GAR	0.63	0.76	0.70	0.74	0.77	0.80	0.79	0.79	0.78	0.88	1.00	0.92	0.87	0.92	0.87	0.72
6002	Aviation Maintenance	GAR	40	33	33	38	44	49	52	52	52	62	65	52	52	56	57	56
		OB	33	48	52	53	53	54	50	52	54	51	48	48	50	55	53	54
		%GAR	0.82	1.48	1.58	1.37	1.22	1.10	0.96	1.00	1.04	0.82	0.74	0.93	0.96	0.98	0.93	0.97
6602	Aviation Supply	GAR	54	36	35	39	42	46	49	52	54	57	60	61	61	55	53	49
		OB	39	40	37	39	40	42	43	44	44	41	41	40	40	41	44	40
		%GAR	0.72	1.11	1.06	1.00	0.95	0.91	0.88	0.84	0.81	0.72	0.69	0.65	0.66	0.74	0.82	0.82
0402 (3502)	Logistics	GAR	351	266	257	277	293	229	237	255	274	268	284	297	297	278	274	289
		OB	164	184	186	220	243	197	200	235	269	263	259	257	258	274	278	280
		%GAR	0.47	0.69	0.72	0.79	0.83	0.86	0.84	0.92	0.98	0.98	0.91	0.87	0.87	0.98	1.02	0.97
1302	Engineer	GAR	102	97	89	99	110	120	117	118	119	118	118	119	119	114	109	103
		OB	106	123	112	106	101	95	91	87	83	82	88	99	100	111	115	113
		%GAR	1.03	1.27	1.26	1.07	0.92	0.79	0.78	0.74	0.69	0.70	0.74	0.83	0.84	0.97	1.06	1.09
3002	Ground Supply	GAR	147	120	112	117	123	128	128	134	140	140	143	142	142	123	121	123
		OB	151	157	152	141	131	120	115	114	112	115	117	114	107	125	134	138
		%GAR	1.02	1.30	1.35	1.20	1.06	0.94	0.90	0.85	0.80	0.82	0.82	0.80	0.75	1.02	1.11	1.12
4402	Lawyers	GAR	131	105	103	113	124	134	131	134	138	126	126	131	131	128	126	133
		OB	108	108	100	107	115	123	121	127	134	144	141	125	122	121	115	116
		%GAR	0.82	1.02	0.97	0.95	0.93	0.92	0.92	0.95	0.97	1.15	1.12	0.95	0.93	0.95	0.91	0.87
7509	AV-8	GAR	103	106	100	96	92	88	89	100	111	102	101	104	104	123	117	119
		OB	40	52	62	76	89	102	102	111	120	122	127	123	119	129	140	146
		%GAR	0.39	0.49	0.62	0.79	0.96	1.16	1.15	1.11	1.08	1.20	1.26	1.19	1.14	1.05	1.19	1.23
7523	FA-18	GAR	133	114	99	115	131	147	144	126	108	107	105	102	102	117	115	113

Table 25. O4 data table (reconciled) (continued)

MOS	MOS NAME	FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
		OB	86	104	115	129	143	157	158	127	96	94	105	108	110	128	139	139
		%GAR	0.65	0.91	1.16	1.12	1.09	1.07	1.10	1.01	0.89	0.88	1.00	1.06	1.08	1.10	1.20	1.23
7543	EA-6A/B	GAR	13	12	18	19	20	21	24	26	28	33	32	34	34	31	30	29
		OB	15	11	7	9	10	12	12	24	36	36	42	40	39	44	45	43
		%GAR	1.20	0.91	0.39	0.46	0.52	0.57	0.50	0.93	1.31	1.11	1.31	1.19	1.16	1.45	1.51	1.50
7557	C-130	GAR	58	60	52	69	86	103	97	86	74	71	74	71	71	78	78	83
		OB	50	44	37	43	49	55	55	54	53	48	57	58	70	98	99	94
		%GAR	0.87	0.73	0.72	0.63	0.57	0.53	0.57	0.63	0.72	0.68	0.77	0.81	0.99	1.25	1.27	1.13
7562	CH-46	GAR	159	152	146	152	158	164	172	182	192	192	183	169	169	195	193	198
		OB	182	179	186	200	215	230	226	220	214	218	225	238	241	298	291	282
		%GAR	1.15	1.18	1.27	1.32	1.36	1.40	1.31	1.21	1.12	1.14	1.23	1.41	1.43	1.53	1.51	1.42
7563	UH-1	GAR	61	46	42	50	57	65	54	61	67	51	52	53	53	65	64	63
		OB	99	93	78	80	81	83	79	70	62	56	70	82	83	92	89	88
		%GAR	1.64	2.03	1.87	1.61	1.42	1.28	1.46	1.16	0.92	1.10	1.34	1.55	1.56	1.42	1.40	1.40
7564	CH-53A/D	GAR	59	48	49	48	48	47	50	47	43	24	23	35	35	29	26	32
		OB	88	83	70	58	46	34	33	38	43	43	45	45	44	44	43	43
		%GAR	1.49	1.72	1.42	1.20	0.96	0.72	0.66	0.82	1.00	1.80	1.97	1.29	1.26	1.52	1.66	1.37
7565	AH-1	GAR	61	52	49	75	100	126	130	119	108	99	98	105	105	109	107	113
		OB	100	94	88	88	88	88	83	90	97	97	117	141	154	177	187	188
		%GAR	1.64	1.81	1.80	1.18	0.88	0.70	0.64	0.75	0.89	0.98	1.19	1.34	1.47	1.63	1.75	1.66
7566	CH-53E	GAR	58	66	62	68	73	79	71	84	98	107	106	104	104	127	123	122
		OB	52	62	63	79	95	111	108	113	118	122	131	153	157	167	180	177
		%GAR	0.90	0.93	1.02	1.17	1.30	1.41	1.52	1.34	1.21	1.14	1.24	1.47	1.51	1.31	1.47	1.45

Table 26. O5 data table (reconciled)

MOS	MOS NAME	FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
0202 (2602)	MAGTF Intel	GAR	100	70	67	69	70	72	96	105	114	102	102	110	110	107	107	111
		OB	32	47	51	58	66	73	71	71	71	72	79	73	71	63	65	62
		%GAR	0.32	0.66	0.76	0.85	0.93	1.01	0.74	0.68	0.62	0.71	0.78	0.67	0.64	0.59	0.61	0.55
0602 (2502/ 4002)	Comms	GAR	143	103	99	109	120	130	131	127	124	123	123	117	117	113	112	115
		OB	94	96	102	97	93	88	82	82	83	79	81	89	96	109	99	97
		%GAR	0.66	0.93	1.03	0.89	0.77	0.68	0.63	0.65	0.67	0.64	0.65	0.76	0.82	0.96	0.88	0.84
72XX	Air C2	GAR	55	82	105	88	70	53	60	65	71	62	63	63	63	66	66	68
		OB	67	66	67	66	64	63	60	65	71	68	77	84	90	103	103	92
		%GAR	1.21	0.80	0.64	0.75	0.91	1.19	1.00	1.00	1.00	1.10	1.23	1.34	1.42	1.55	1.56	1.36
0302	Infantry	GAR	182	228	160	175	190	205	211	224	237	231	236	244	244	258	258	268
		OB	373	370	383	357	332	307	289	292	295	292	287	301	306	314	318	318
		%GAR	2.05	1.62	2.39	2.04	1.75	1.50	1.37	1.30	1.24	1.27	1.22	1.23	1.25	1.22	1.23	1.19
0802	Artillery	GAR	80	144	178	144	109	75	67	74	81	74	73	74	74	74	75	77
		OB	124	131	137	132	128	124	118	112	106	103	111	117	126	133	129	130
		%GAR	1.55	0.91	0.77	0.92	1.17	1.65	1.76	1.52	1.31	1.39	1.52	1.58	1.70	1.80	1.72	1.68
1802 (18)	Tanks	GAR	11	20	13	12	11	10	12	13	14	16	16	15	15	13	13	13
		OB	36	38	38	35	31	28	27	32	38	35	32	32	33	34	32	30
		%GAR	3.23	1.95	2.92	2.89	2.85	2.80	2.25	2.49	2.70	2.25	2.05	2.15	2.18	2.58	2.48	2.27
1803 (18)	AAV	GAR	11	15	14	12	11	9	9	10	11	12	12	14	14	14	15	13
		OB	13	12	14	15	17	18	18	22	25	26	24	22	17	17	16	18
		%GAR	1.24	0.77	1.00	1.24	1.56	2.00	2.00	2.22	2.40	2.17	1.98	1.54	1.23	1.23	1.10	1.40
0180	Adjutant	GAR	34	32	32	35	37	40	39	42	46	46	43	42	42	41	42	44
		OB	29	34	35	37	38	40	36	38	41	39	37	39	30	27	30	31
		%GAR	0.85	1.05	1.10	1.06	1.03	1.00	0.92	0.91	0.89	0.85	0.86	0.92	0.71	0.66	0.71	0.70
3404	Finance	GAR	48	38	36	40	44	48	45	46	48	48	48	51	51	39	41	42
		OB	21	21	24	28	33	37	33	38	43	38	34	32	29	30	31	31
		%GAR	0.43	0.56	0.67	0.71	0.74	0.77	0.73	0.82	0.89	0.80	0.70	0.63	0.57	0.78	0.77	0.75

Table 26. O5 data table (reconciled) (continued)

MOS	MOS NAME	FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
4302	Public Affairs	GAR	9	16	12	13	13	14	14	17	19	20	20	20	20	19	18	18
		OB	9	6	6	7	8	9	8	8	8	9	9	8	6	7	8	9
		%GAR	1.00	0.35	0.50	0.55	0.60	0.64	0.57	0.48	0.42	0.46	0.46	0.38	0.30	0.37	0.42	0.49
5803	Military Police	GAR	16	18	25	23	21	19	17	19	21	19	19	17	17	14	14	18
		OB	6	11	15	16	17	18	18	17	16	15	16	21	20	18	19	20
		%GAR	0.38	0.61	0.60	0.70	0.81	0.95	1.06	0.89	0.76	0.81	0.83	1.21	1.15	1.30	1.34	1.14
6002	Aviation Maintenance	GAR	24	20	19	22	26	29	32	34	36	34	32	42	42	34	34	34
		OB	4	7	5	10	14	18	18	23	28	29	31	31	30	32	29	26
		%GAR	0.15	0.33	0.28	0.43	0.54	0.62	0.56	0.68	0.79	0.87	0.96	0.74	0.72	0.94	0.85	0.76
6602	Aviation Supply	GAR	34	22	22	24	27	29	31	30	30	34	36	35	35	26	26	28
		OB	19	27	29	29	28	28	27	26	25	25	36	35	33	31	28	26
		%GAR	0.57	1.23	1.32	1.18	1.06	0.96	0.87	0.86	0.85	0.73	0.99	1.01	0.93	1.19	1.06	0.93
0402 (3502)	Logistics	GAR	200	166	180	148	159	157	164	161	158	140	144	154	154	158	157	160
		OB	83	86	99	103	103	84	81	101	120	125	154	158	145	148	151	150
		%GAR	0.41	0.52	0.55	0.70	0.65	0.54	0.49	0.62	0.76	0.89	1.07	1.03	0.94	0.94	0.96	0.94
1302	Engineer	GAR	78	54	60	68	75	83	80	80	79	77	76	76	76	74	70	71
		OB	55	51	54	56	57	59	56	58	60	57	53	49	52	52	52	54
		%GAR	0.70	0.95	0.90	0.82	0.76	0.71	0.70	0.73	0.76	0.74	0.70	0.65	0.68	0.71	0.73	0.76
3002	Ground Supply	GAR	87	64	64	69	75	80	82	83	85	86	90	83	83	74	74	73
		OB	75	72	67	68	70	71	68	68	68	67	71	79	83	82	78	77
		%GAR	0.86	1.13	1.05	0.99	0.93	0.89	0.83	0.82	0.80	0.78	0.79	0.95	1.00	1.10	1.06	1.05
4402	Lawyers	GAR	75	55	53	56	60	63	60	63	66	64	64	66	66	64	63	65
		OB	71	64	64	61	57	53	47	54	61	58	60	70	71	76	75	74
		%GAR	0.95	1.17	1.21	1.07	0.95	0.84	0.78	0.86	0.93	0.91	0.94	1.06	1.08	1.19	1.18	1.15
7509	AV-8	GAR	39	43	40	39	38	37	39	51	64	69	67	61	61	71	71	69
		OB	33	31	31	32	34	36	35	39	43	39	50	54	58	70	75	74
		%GAR	0.83	0.72	0.77	0.83	0.90	0.97	0.90	0.76	0.67	0.57	0.74	0.89	0.95	0.99	1.05	1.07
7523	FA-18	GAR	58	63	54	63	71	80	82	68	54	51	50	51	51	57	58	55

Table 26. O5 data table (reconciled) (continued)

MOS	MOS NAME	FY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
		OB	55	57	57	65	72	79	75	70	65	62	62	57	62	66	69	70
		%GAR	0.95	0.90	1.06	1.03	1.01	0.99	0.91	1.03	1.21	1.23	1.23	1.12	1.22	1.15	1.18	1.26
7543	EA-6A/B	GAR	5	3	12	13	15	16	16	17	17	20	17	17	17	24	24	21
		OB	7	6	8	10	12	14	13	13	14	13	17	20	22	24	24	24
		%GAR	1.40	2.00	0.67	0.75	0.82	0.88	0.81	0.80	0.79	0.64	0.96	1.17	1.28	1.01	0.98	1.12
7557	C-130	GAR	23	23	23	25	27	29	29	34	39	44	48	39	39	43	44	41
		OB	24	23	23	21	19	17	17	18	20	18	20	22	20	19	22	26
		%GAR	1.04	1.02	1.01	0.85	0.71	0.59	0.59	0.54	0.51	0.42	0.41	0.57	0.51	0.44	0.51	0.63
7562	CH-46	GAR	102	94	89	96	102	109	107	110	113	118	110	95	95	110	110	109
		OB	124	131	127	117	107	97	94	106	118	119	133	134	139	144	137	132
		%GAR	1.22	1.39	1.43	1.23	1.05	0.89	0.88	0.96	1.04	1.00	1.21	1.41	1.46	1.30	1.24	1.21
7563	UH-1	GAR	19	19	17	19	20	22	23	20	18	24	23	26	26	27	26	27
		OB	52	58	62	59	55	52	49	45	41	40	45	39	39	39	39	42
		%GAR	2.71	3.03	3.67	3.15	2.73	2.36	2.13	2.22	2.34	1.67	1.92	1.49	1.51	1.43	1.48	1.56
7564	CH-53A/D	GAR	28	21	20	24	29	33	30	29	28	17	17	21	21	19	19	23
		OB	42	43	38	34	31	28	26	27	27	24	22	18	16	19	20	19
		%GAR	1.51	2.10	1.88	1.42	1.09	0.85	0.87	0.91	0.96	1.37	1.29	0.87	0.76	0.99	1.05	0.82
7565	AH-1	GAR	20	21	20	21	22	23	24	27	29	42	41	46	46	42	42	42
		OB	42	51	54	57	60	63	59	62	65	62	60	61	60	69	69	70
		%GAR	2.10	2.40	2.70	2.71	2.73	2.74	2.46	2.33	2.22	1.50	1.45	1.32	1.29	1.64	1.65	1.69
7566	CH-53E	GAR	19	21	19	25	32	38	40	39	37	49	50	50	50	53	52	51
		OB	27	26	38	42	45	48	47	51	56	55	63	70	67	77	79	78
		%GAR	1.46	1.21	2.02	1.64	1.41	1.26	1.18	1.33	1.50	1.13	1.26	1.39	1.34	1.44	1.51	1.53

Table 27. O6 data table (reconciled)

MOS	MOS NAME		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
9906	C2/INTEL/ URCA/URCS	GAR	323	312	211	212	214	215	215	261	307	301	300	314	314	340	348	357
		OB	315	306	310	309	308	307	302	301	300	306	312	330	340	348	339	329
		%GAR	0.98	0.98	1.47	1.46	1.44	1.43	1.40	1.15	0.98	1.02	1.04	1.05	1.08	1.02	0.97	0.92
9904	URLOG	GAR	137	137	97	96	95	94	94	109	123	125	117	118	118	116	118	122
		OB	83	87	137	134	130	127	127	105	82	98	105	115	118	121	133	133
		%GAR	0.61	0.63	1.41	1.39	1.37	1.35	1.35	0.96	0.67	0.78	0.89	0.97	1.00	1.04	1.12	1.09
9914	URJA	GAR	40	32	33	33	33	33	33	33	32	37	43	40	40	40	42	42
		OB	26	28	34	34	33	33	33	30	26	22	23	25	28	33	35	35
		%GAR	0.65	0.86	1.03	1.02	1.01	1.00	1.00	0.91	0.81	0.61	0.53	0.61	0.69	0.82	0.84	0.82
9907	FW/NFO/ RW	GAR	141	152	97	98	98	99	99	129	159	152	145	147	147	129	128	133
		OB	208	213	149	151	153	155	158	169	180	179	174	191	206	217	236	249
		%GAR	1.48	1.40	1.54	1.55	1.56	1.57	1.60	1.31	1.13	1.18	1.20	1.30	1.40	1.69	1.85	1.87

Appendix D: Yearly data for OB and GAR and A-billet requirements

This appendix contains charts that show the A-billet and GAR requirements compared with their respective onboard levels, in each of the officer PMOSs (figures 34 through 59). The GAR and OB comparison is shown separately for the grades of O3, O4, and O5. The A-billet charts show the aggregate A-billet requirement for all grades (REQ) and the breakdown of onboard between those in A-billets (OB(A)) and B-billets (OB(B)).

This appendix also provides tables of the data used to create the charts (tables 28 through 53). It includes GAR data from 1990 to 2005 and A-billet data from 1992 to 2005 for all of the officer PMOSs shown. To fit the tables of data on the page, however, we include data for both requirements only from 1992 to 2005.

Figure 34. Comparison of OB to GAR and OB to A-billet Requirement for Adjutants

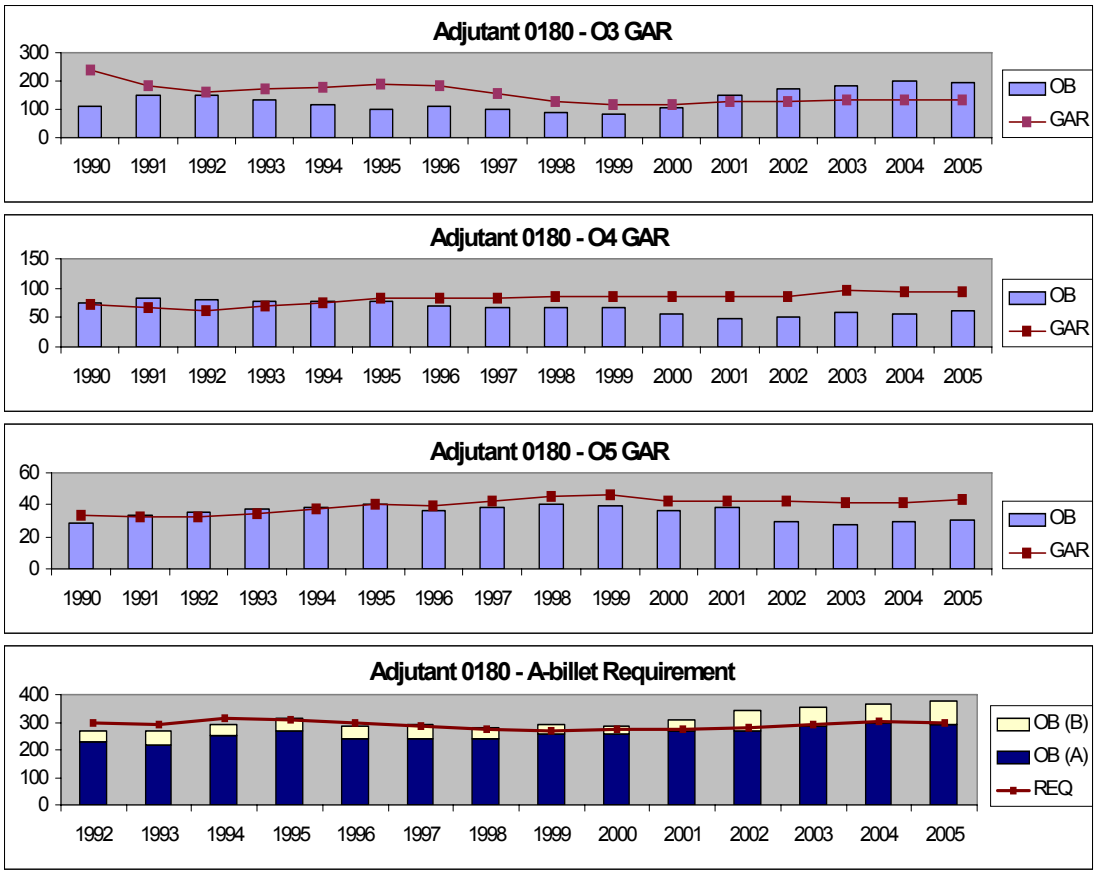

Table 28. Data for Comparison of OB to GAR and OB to A-billet Requirement for Adjutants

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	162	171	180	189	184	157	129	119	119	126	126	134	134	132
OB	149	133	117	101	110	99	87	86	106	151	174	184	197	197
O4 GAR	62	69	76	83	82	84	86	85	85	85	85	96	94	93
OB	80	79	78	77	70	68	66	67	58	49	51	58	58	61
O5 GAR	32	35	37	40	39	42	46	46	43	42	42	41	42	44
OB	35	37	38	40	36	38	41	39	37	39	30	27	30	31
A-BILLET REQUIREMENT DATA														
Req	296	290	316	306	300	288	275	270	273	275	278	294	304	295
A-billets	226	220	253	271	240	240	240	257	256	270	267	288	298	290
B-billets	45	49	41	43	46	50	39	35	27	39	77	69	66	88

Figure 35. Comparison of OB to GAR and OB to A-billet Requirement for MAGTF Intelligence Officers

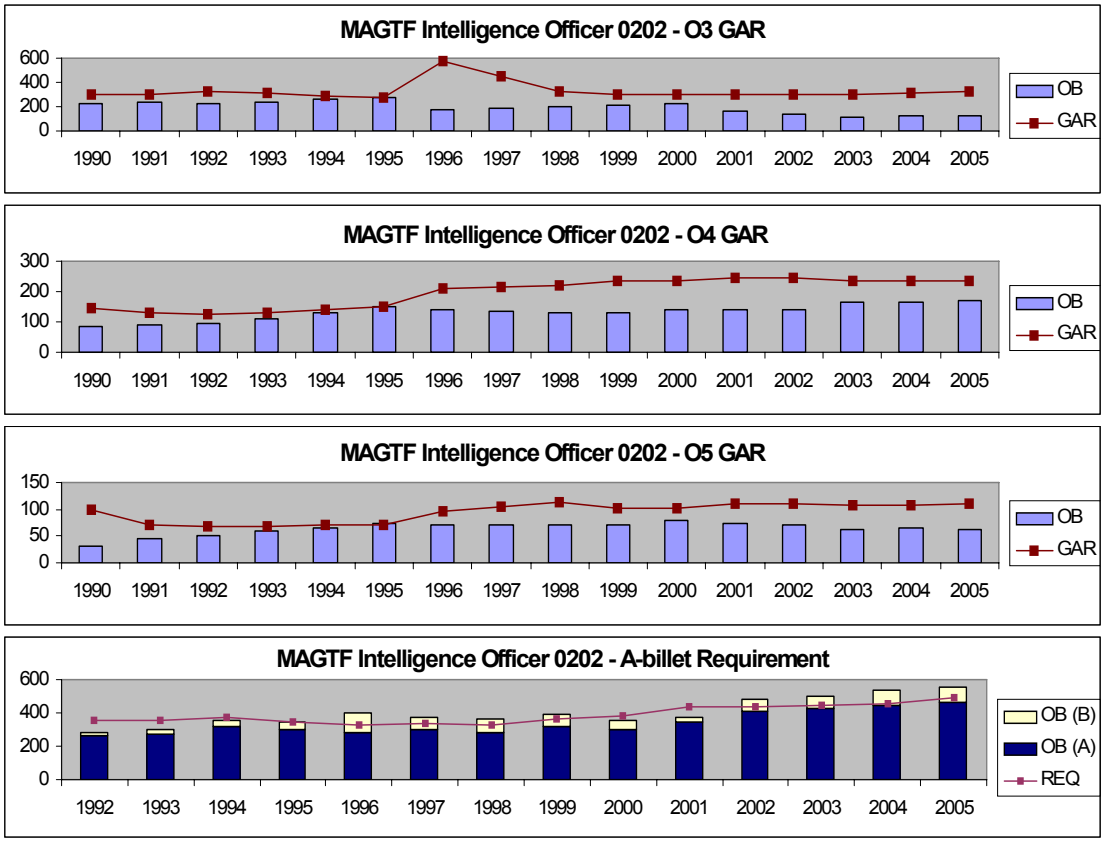

Table 29. Data for Comparison of OB to GAR and OB to A-billet Requirement for MAGTF Intelligence Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	327	310	293	276	571	446	321	295	295	297	297	305	310	325
OB	227	243	258	273	181	192	202	217	228	158	132	112	122	125
O4 GAR	124	132	141	149	211	217	222	234	237	246	246	236	235	238
OB	94	112	130	148	141	136	131	128	142	139	142	163	163	169
O5 GAR	67	69	70	72	96	105	114	102	102	110	110	107	107	111
OB	51	58	66	73	71	71	71	72	79	73	71	63	65	62
A-BILLET REQUIREMENT DATA														
Req	354	358	369	344	331	339	330	368	378	436	439	442	459	489
A-billets	260	271	314	300	283	301	286	322	297	342	406	423	445	460
B-billets	20	33	37	45	113	71	74	73	56	29	72	81	87	98

Figure 36. Comparison of OB to GAR and OB to A-billet Requirement for Infantry Officers

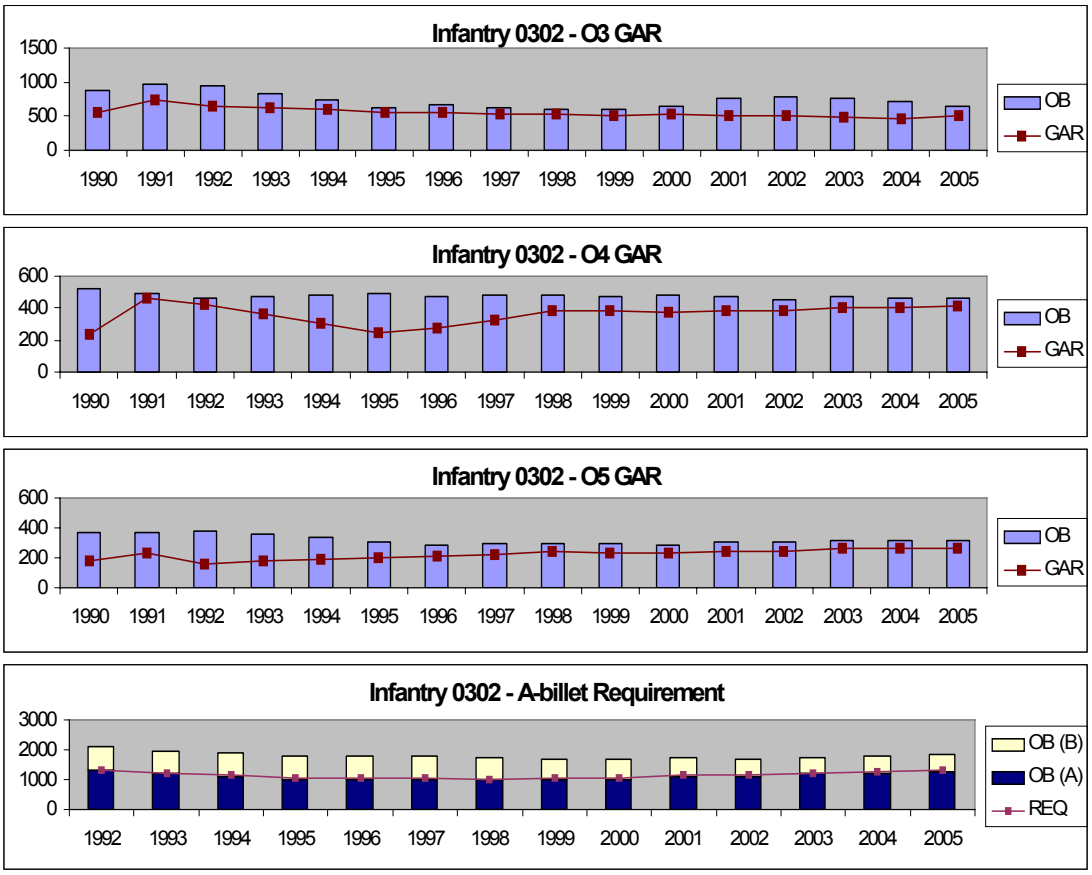

Table 30. Data for Comparison of OB to GAR and OB to A-billet Requirement for Infantry Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	656	624	592	560	556	540	524	500	526	507	507	477	472	501
OB	948	839	731	623	673	635	596	608	649	753	786	768	724	650
O4 GAR	426	367	309	250	271	327	384	387	371	385	385	408	401	413
OB	465	473	481	489	476	479	483	468	479	468	451	470	465	466
O5 GAR	160	175	190	205	211	224	237	231	236	244	244	258	258	268
OB	383	357	332	307	289	292	295	292	287	301	306	314	318	318
A-BILLET REQUIREMENT DATA														
Req	1307	1218	1160	1074	1027	1057	1020	1058	1051	1167	1159	1221	1265	1316
A-billets	1300	1189	1117	1002	999	1024	1010	1011	1019	1110	1128	1190	1236	1269
B-billets	817	758	767	785	772	782	747	688	688	649	571	522	563	555

Figure 37. Comparison of OB to GAR and OB to A-billet Requirement for Logistics Officers

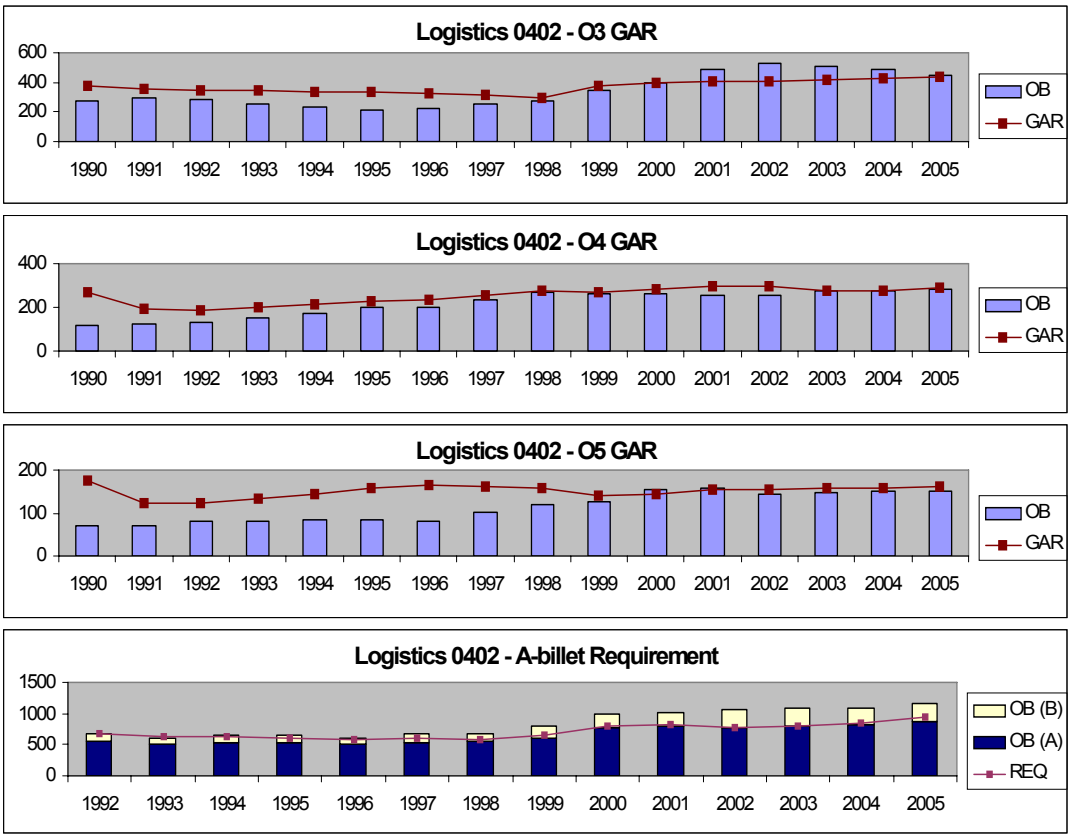

Table 31. Data for Comparison of OB to GAR and OB to A-billet Requirement for Logistics Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	342	341	341	340	325	311	296	378	393	411	411	421	423	434
OB	280	259	238	217	222	250	278	346	392	489	526	513	492	446
O4 GAR	186	200	215	229	237	255	274	268	284	297	297	278	274	289
OB	129	151	174	197	200	235	269	263	259	257	258	274	278	280
O5 GAR	122	134	145	157	164	161	158	140	144	154	154	158	157	160
OB	81	82	83	84	81	101	120	125	154	158	145	148	151	150
A-BILLET REQUIREMENT DATA														
Req	683	640	622	614	592	606	589	652	799	813	780	809	850	944
A-billets	549	502	539	530	509	544	549	594	773	790	765	801	828	883
B-billets	117	113	126	128	107	133	131	195	231	238	289	282	272	269

Figure 38. Comparison of OB to GAR and OB to A-billet Requirement for Command & Control Systems Officers

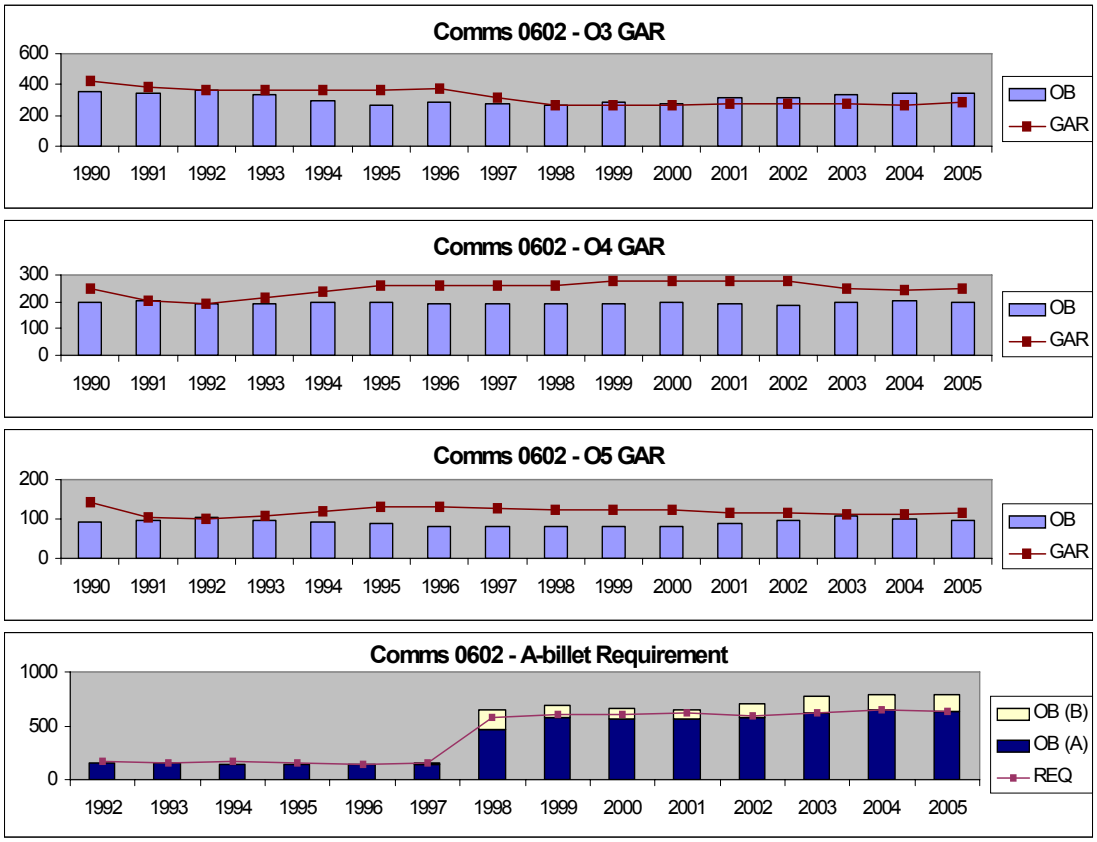

Table 32. Data for Comparison of OB to GAR and OB to A-billet Requirement for Command & Control Systems Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	363	365	366	368	373	319	265	269	270	278	278	271	270	289
OB	364	332	299	266	285	274	263	285	279	317	319	330	347	345
O4 GAR	195	216	237	258	262	262	263	280	278	278	278	250	241	251
OB	192	195	197	200	193	194	194	192	200	195	188	199	205	196
O5 GAR	99	109	120	130	131	127	124	123	123	117	117	113	112	115
OB	102	97	93	88	82	82	83	79	81	89	96	109	99	97
A-BILLET REQUIREMENT DATA														
Req	172	156	163	148	143	153	572	605	610	618	592	620	652	640
A-billets	152	154	142	143	136	144	466	573	565	557	584	617	647	634
B-billets	0	2	1	3	9	4	177	118	98	84	123	163	144	152

Figure 39. Comparison of OB to GAR and OB to A-billet Requirement for Artillery Officers

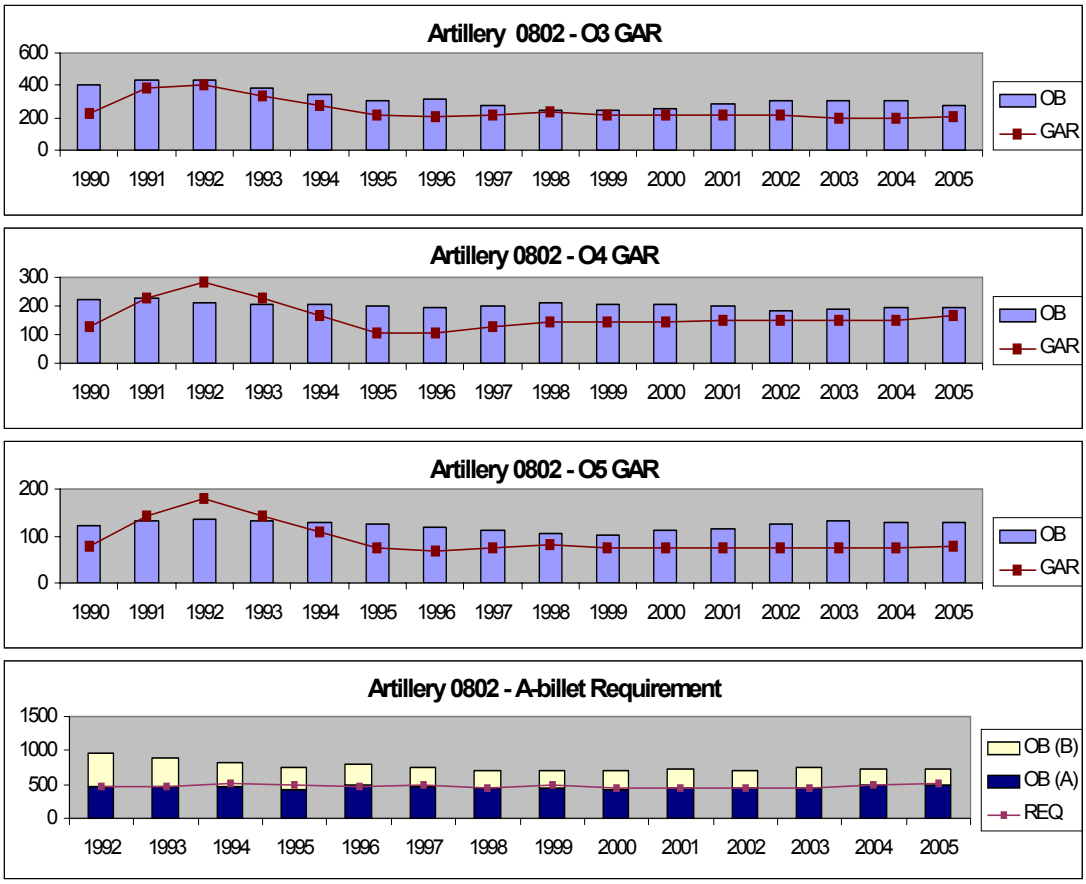

Table 33. Data for Comparison of OB to GAR and OB to A-billet Requirement for Artillery Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	401	339	278	216	210	221	232	220	216	214	214	199	198	211
OB	429	387	346	305	310	280	251	249	258	289	305	309	306	279
O4 GAR	285	226	166	107	107	127	147	143	147	149	149	151	152	168
OB	209	207	204	202	193	202	211	203	206	199	185	187	195	193
O5 GAR	178	144	109	75	67	74	81	74	73	74	74	74	75	77
OB	137	132	128	124	118	112	106	103	111	117	126	133	129	130
A-BILLET REQUIREMENT DATA														
Req	478	479	507	491	462	491	457	482	448	448	450	457	488	526
A-billets	474	468	478	425	488	472	443	451	427	443	444	447	483	489
B-billets	482	429	331	317	316	276	262	247	274	287	258	292	248	245

Figure 40. Comparison of OB to GAR and OB to A-billet Requirement for Engineer Officers

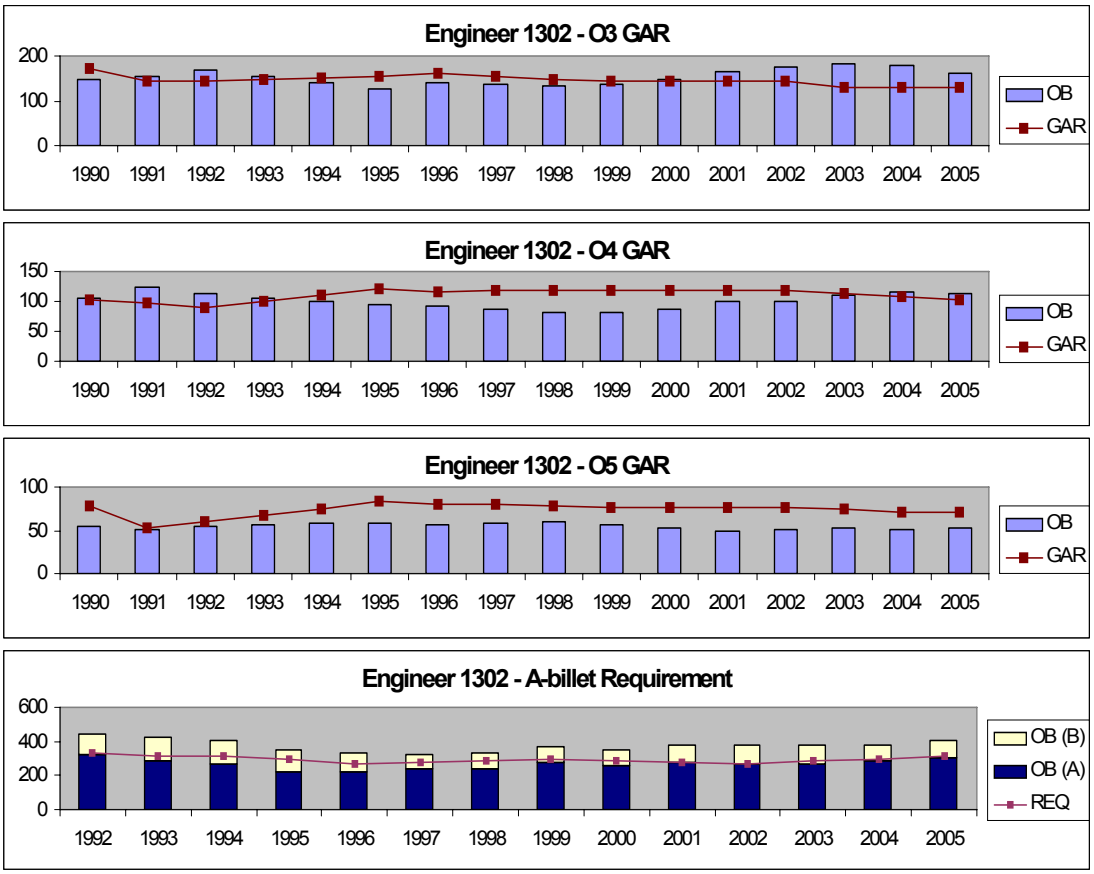

Table 34. Data for Comparison of OB to GAR and OB to A-billet Requirement for Engineer Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	145	148	151	154	160	153	147	142	143	145	145	130	129	131
OB	168	154	139	125	141	138	134	136	148	164	174	181	179	161
O4 GAR	89	99	110	120	117	118	119	118	118	119	119	114	109	103
OB	112	106	101	95	91	87	83	82	88	99	100	111	115	113
O5 GAR	60	68	75	83	80	80	79	77	76	76	76	74	70	71
OB	54	56	57	59	56	58	60	57	53	49	52	52	52	54
A-BILLET REQUIREMENT DATA														
Req	329	316	317	295	265	278	288	295	285	276	272	282	292	312
A-billets	323	290	272	218	223	243	241	273	255	276	266	272	289	301
B-billets	121	132	136	133	111	83	88	92	98	104	108	107	89	102

Figure 41. Comparison of OB to GAR and OB to A-billet Requirement for Tank Officers

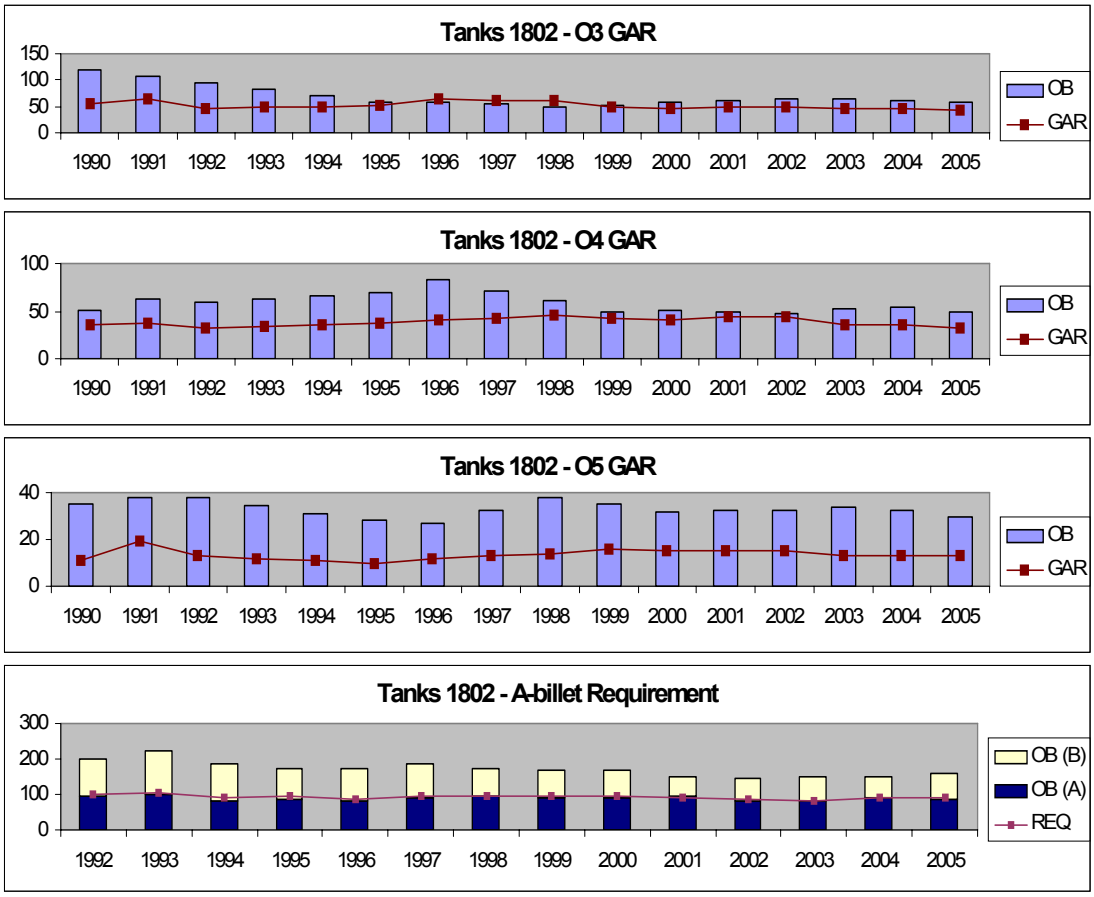

Table 35. Data for Comparison of OB to GAR and OB to A-billet Requirement for Tank Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	46	48	49	51	64	62	60	48	47	48	48	45	45	43
OB	96	83	70	57	59	54	50	53	57	62	66	63	62	59
O4 GAR	32	34	35	37	40	43	46	42	42	44	44	36	35	32
OB	60	63	66	69	83	72	61	49	51	49	48	53	54	50
O5 GAR	13	12	11	10	12	13	14	16	16	15	15	13	13	13
OB	38	35	31	28	27	32	38	35	32	32	33	34	32	30
A-BILLET REQUIREMENT DATA														
Req	101	103	89	97	86	95	97	96	95	89	85	84	92	90
A-billets	97	102	81	85	84	89	95	89	91	95	82	83	90	88
B-billets	103	120	105	90	90	96	77	79	79	56	63	69	62	70

Figure 42. Comparison of OB to GAR and OB to A-billet Requirement for AAV Officers

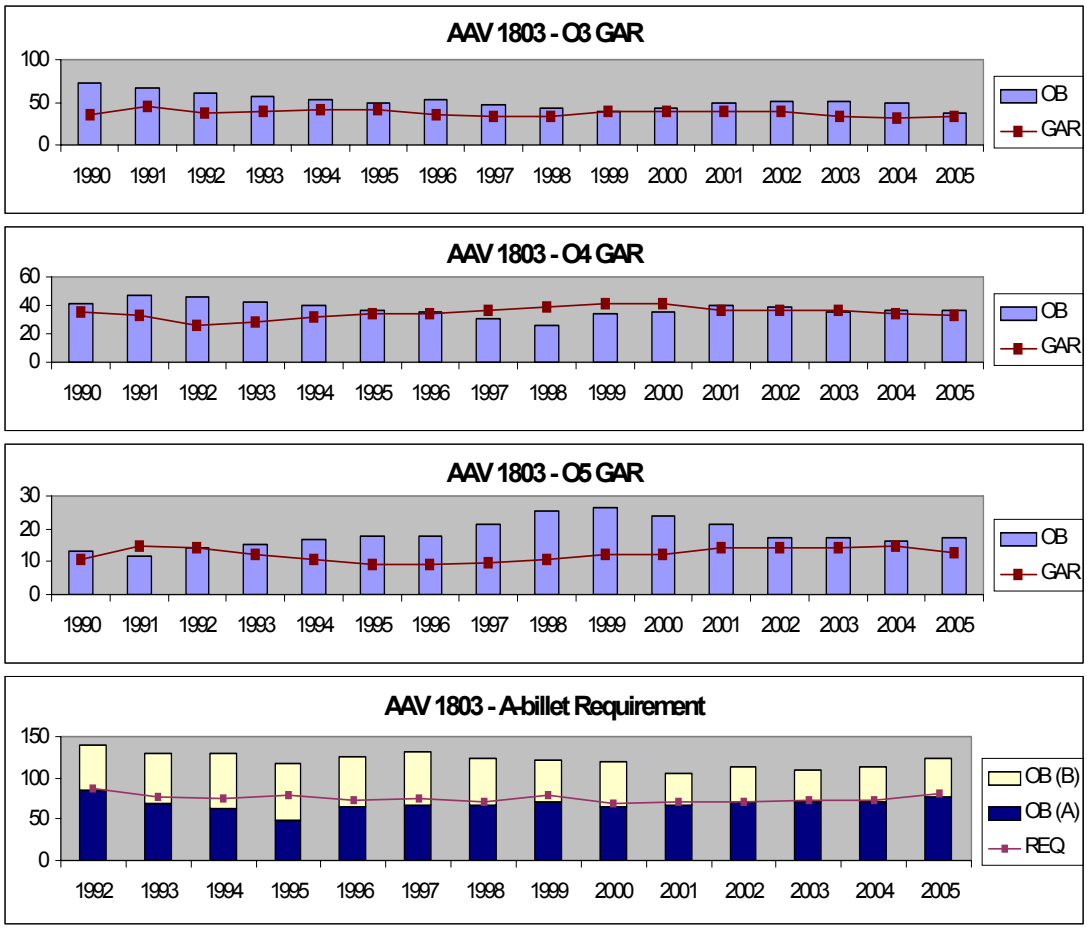

Table 36. Data for Comparison of OB to GAR and OB to A-billet Requirement for AAV Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	38	39	41	42	35	34	33	40	39	39	39	33	32	34
OB	60	57	53	50	52	48	44	39	42	49	52	51	49	37
O4 GAR	26	29	31	34	34	36	39	41	41	37	37	36	34	33
OB	46	43	39	36	35	30	26	35	36	40	39	35	37	37
O5 GAR	14	12	11	9	9	10	11	12	12	14	14	14	15	13
OB	14	15	17	18	18	22	25	26	24	22	17	17	16	18
A-BILLET REQUIREMENT DATA														
Req	88	77	74	79	73	75	70	79	69	71	71	72	73	82
A-billets	86	68	63	49	64	66	67	70	64	67	71	70	70	77
B-billets	53	61	66	69	61	65	56	52	55	39	42	39	44	46

Figure 43. Comparison of OB to GAR and OB to A-billet Requirement for Ground Supply Officers

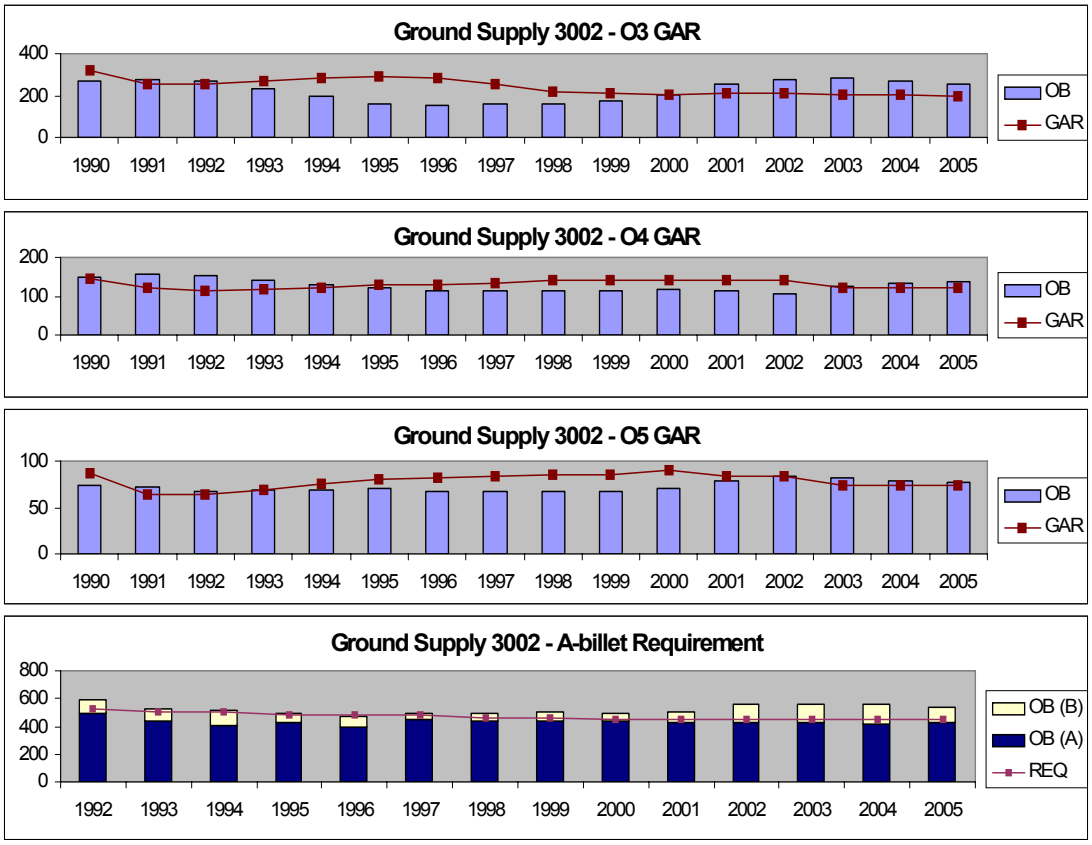

Table 37. Data for Comparison of OB to GAR and OB to A-billet Requirement for Ground Supply Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	256	268	281	293	286	252	219	210	204	209	209	201	200	199
OB	271	233	195	157	156	157	158	173	201	252	273	282	272	254
O4 GAR	112	117	123	128	128	134	140	140	143	142	142	123	121	123
OB	152	141	131	120	115	114	112	115	117	114	107	125	134	138
O5 GAR	64	69	75	80	82	83	85	86	90	83	83	74	74	73
OB	67	68	70	71	68	68	68	67	71	79	83	82	78	77
A-BILLET REQUIREMENT DATA														
Req	529	505	505	486	483	480	462	462	448	444	444	447	449	445
A-billets	491	438	407	426	397	445	440	441	433	429	431	426	421	425
B-billets	106	91	111	64	78	52	52	63	64	71	124	130	138	116

Figure 44. Comparison of OB to GAR and OB to A-billet Requirement for Financial Management Officers

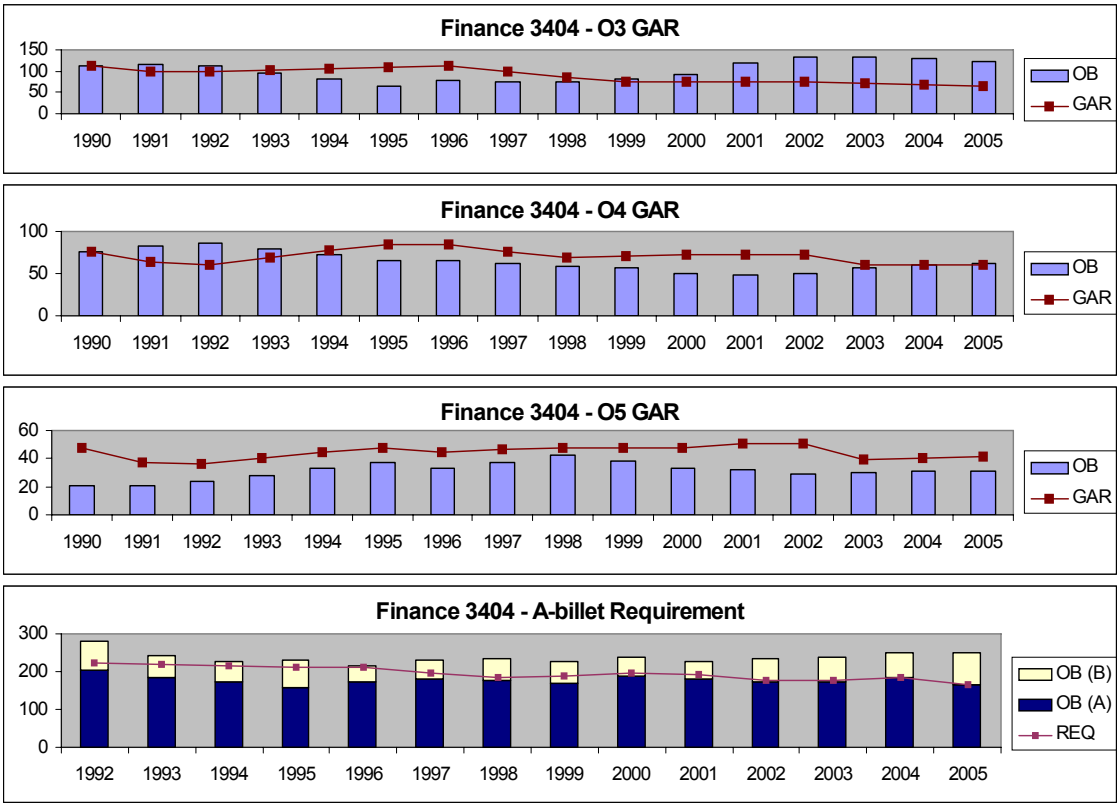

Table 38. Data for Comparison of OB to GAR and OB to A-billet Requirement for Financial Management Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	100	103	105	108	112	99	87	76	77	75	75	71	70	66
OB	114	97	81	64	77	76	74	83	92	119	134	133	129	124
O4 GAR	61	69	77	85	84	77	69	71	72	73	73	60	61	61
OB	86	79	73	66	66	63	59	57	51	48	50	57	61	63
O5 GAR	36	40	44	48	45	46	48	48	48	51	51	39	41	42
OB	24	28	33	37	33	38	43	38	34	32	29	30	31	31
A-BILLET REQUIREMENT DATA														
Req	223	218	217	212	210	196	185	187	198	193	176	176	184	166
A-billets	204	185	175	156	174	180	177	168	188	182	172	174	185	166
B-billets	75	57	53	74	41	49	59	58	50	46	64	65	64	85

Figure 45. Comparison of OB to GAR and OB to A-billet Requirement for Public Affairs Officers

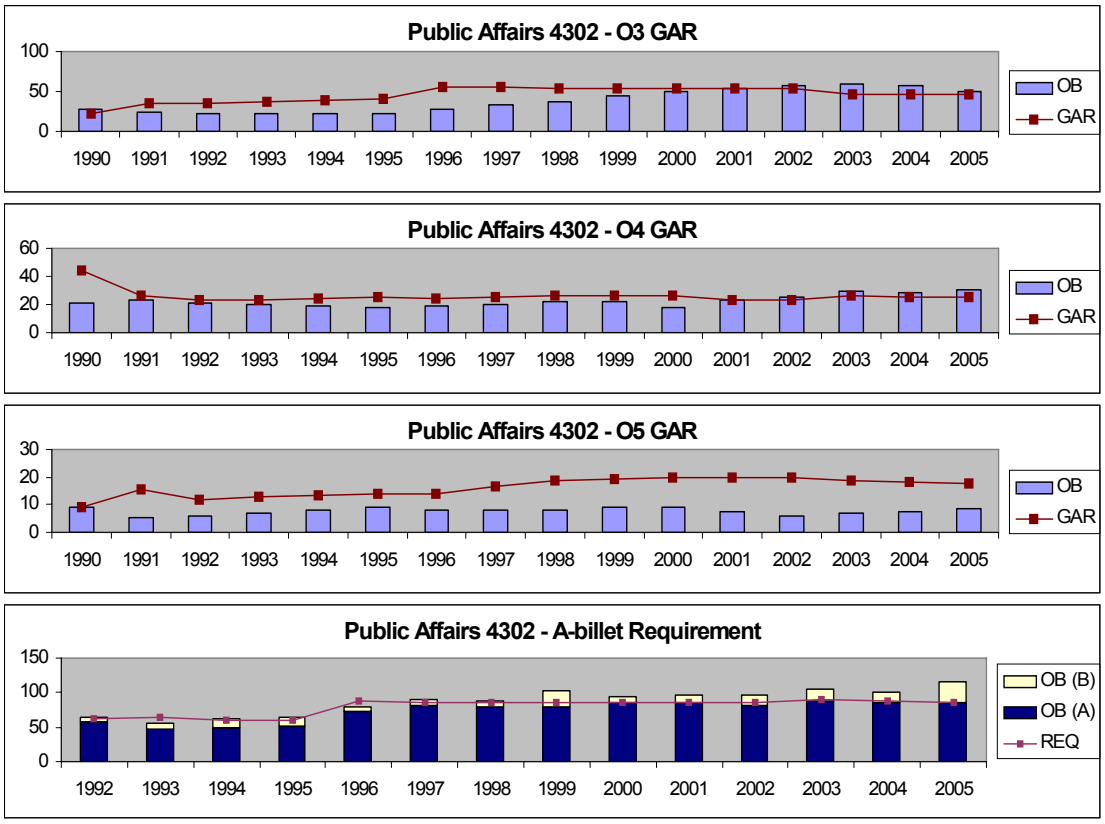

Table 39. Data for Comparison of OB to GAR and OB to A-billet Requirement for Public Affairs Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	35	37	38	40	56	55	54	54	55	54	54	47	46	47
OB	22	22	23	23	28	33	38	44	50	55	57	60	57	50
O4 GAR	23	24	24	25	24	25	27	26	26	23	23	26	25	25
OB	21	20	19	18	19	21	22	22	18	23	25	29	29	31
O5 GAR	12	13	13	14	14	17	19	20	20	20	20	19	18	18
OB	6	7	8	9	8	8	8	9	9	8	6	7	8	9
A-BILLET REQUIREMENT DATA														
Req	62	64	61	60	87	85	86	85	86	86	85	89	87	86
A-billets	58	48	49	52	72	82	79	80	85	85	81	87	86	85
B-billets	7	7	14	12	7	9	9	22	10	11	16	19	15	31

Figure 46. Comparison of OB to GAR and OB to A-billet Requirement for Judge Advocates

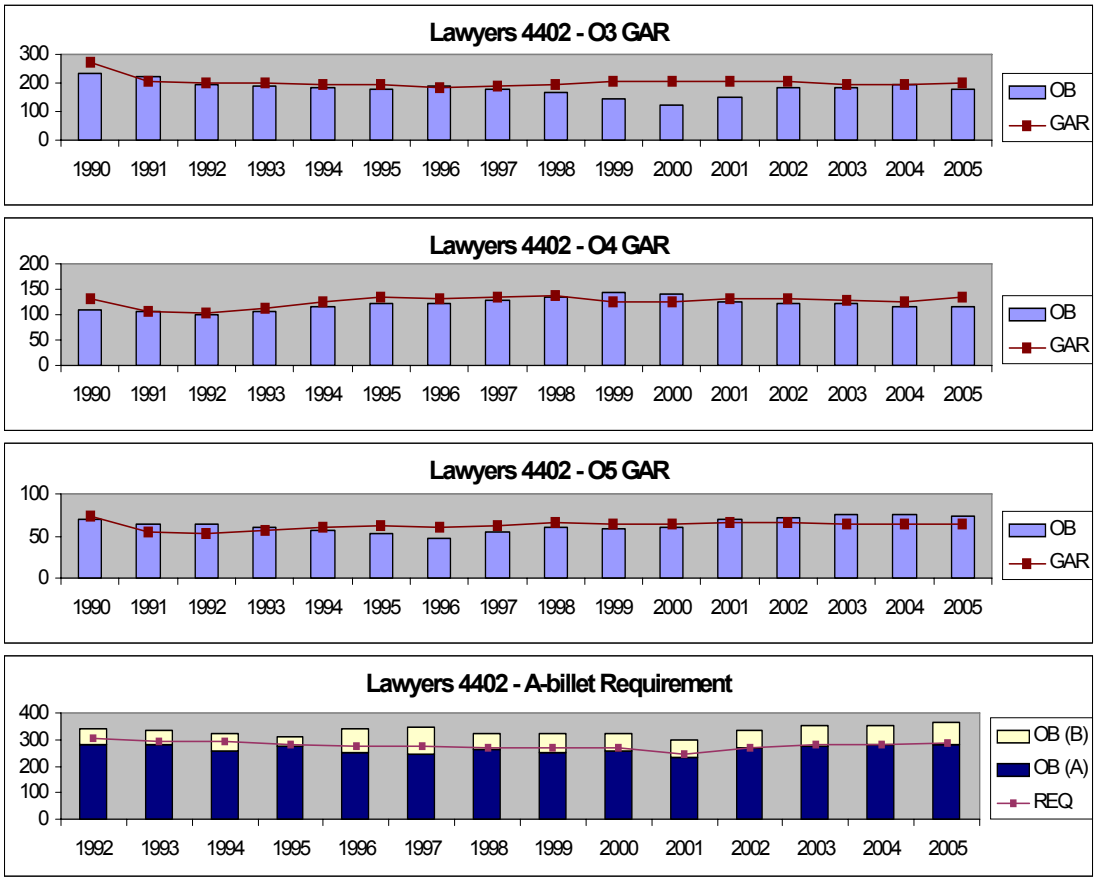

Table 40. Data for Comparison of OB to GAR and OB to A-billet Requirement for Judge Advocates

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	201	199	196	194	185	191	196	206	204	208	208	195	196	199
OB	192	187	182	177	189	177	165	144	123	152	182	182	193	179
O4 GAR	103	113	124	134	131	134	138	126	126	131	131	128	126	133
OB	100	107	115	123	121	127	134	144	141	125	122	121	115	116
O5 GAR	53	56	60	63	60	63	66	64	64	66	66	64	63	65
OB	64	61	57	53	47	54	61	58	60	70	71	76	75	74
A-BILLET REQUIREMENT DATA														
Req	302	293	290	283	272	272	267	270	267	242	267	278	281	284
A-billets	278	282	255	276	253	246	262	248	254	232	266	275	278	278
B-billets	65	55	68	32	90	101	58	73	71	66	67	75	72	88

Figure 47. Comparison of OB to GAR and OB to A-billet Requirement for Military Police Officers

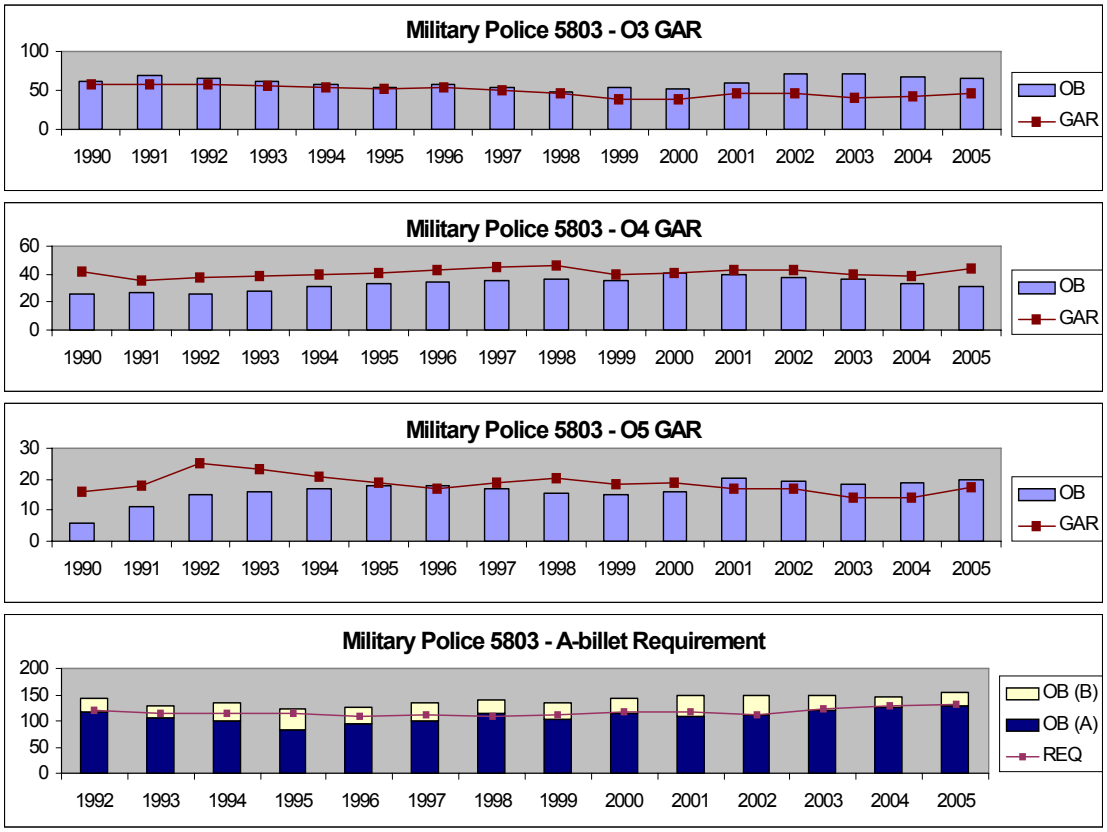

Table 41. Data for Comparison of OB to GAR and OB to A-billet Requirement for Military Police Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	58	56	54	52	53	50	47	39	38	46	46	40	42	47
OB	66	62	58	54	57	53	49	54	51	60	71	71	68	66
O4 GAR	37	38	40	41	43	45	46	40	41	43	43	40	39	44
OB	26	28	31	33	34	35	36	35	41	40	37	37	34	32
O5 GAR	25	23	21	19	17	19	21	19	19	17	17	14	14	18
OB	15	16	17	18	18	17	16	15	16	21	20	18	19	20
A-BILLET REQUIREMENT DATA														
Req	119	113	114	113	108	112	110	111	118	117	112	123	130	132
A-billets	118	106	100	84	95	100	115	103	114	110	111	121	125	129
B-billets	26	24	35	38	31	33	24	32	29	39	38	27	22	26

Figure 48. Comparison of OB to GAR and OB to A-billet Requirement for Aviation Maintenance Officers

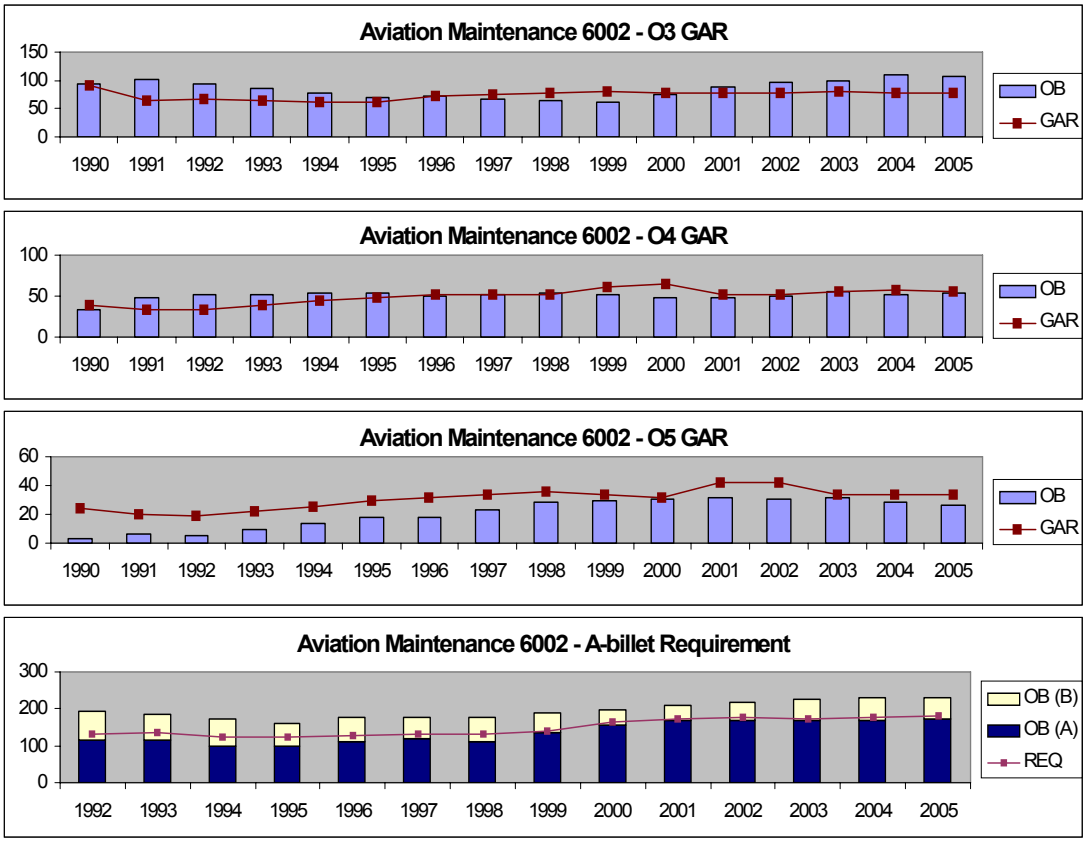

Table 42. Data for Comparison of OB to GAR and OB to A-billet Requirement for Aviation Maintenance Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	66	64	63	61	73	75	77	80	79	79	79	81	79	78
OB	95	86	78	69	73	68	63	62	74	89	98	98	109	107
O4 GAR	33	38	44	49	52	52	52	62	65	52	52	56	57	56
OB	52	53	53	54	50	52	54	51	48	48	50	55	53	54
O5 GAR	19	22	26	29	32	34	36	34	32	42	42	34	34	34
OB	5	10	14	18	18	23	28	29	31	31	30	32	29	26
A-BILLET REQUIREMENT DATA														
Req	133	134	124	122	126	133	133	138	166	172	175	174	175	181
A-billets	115	114	99	97	113	120	112	136	155	170	170	169	169	172
B-billets	80	72	75	64	62	58	64	51	41	39	48	57	60	57

Figure 49. Comparison of OB to GAR and OB to A-billet Requirement for Aviation Supply Officers

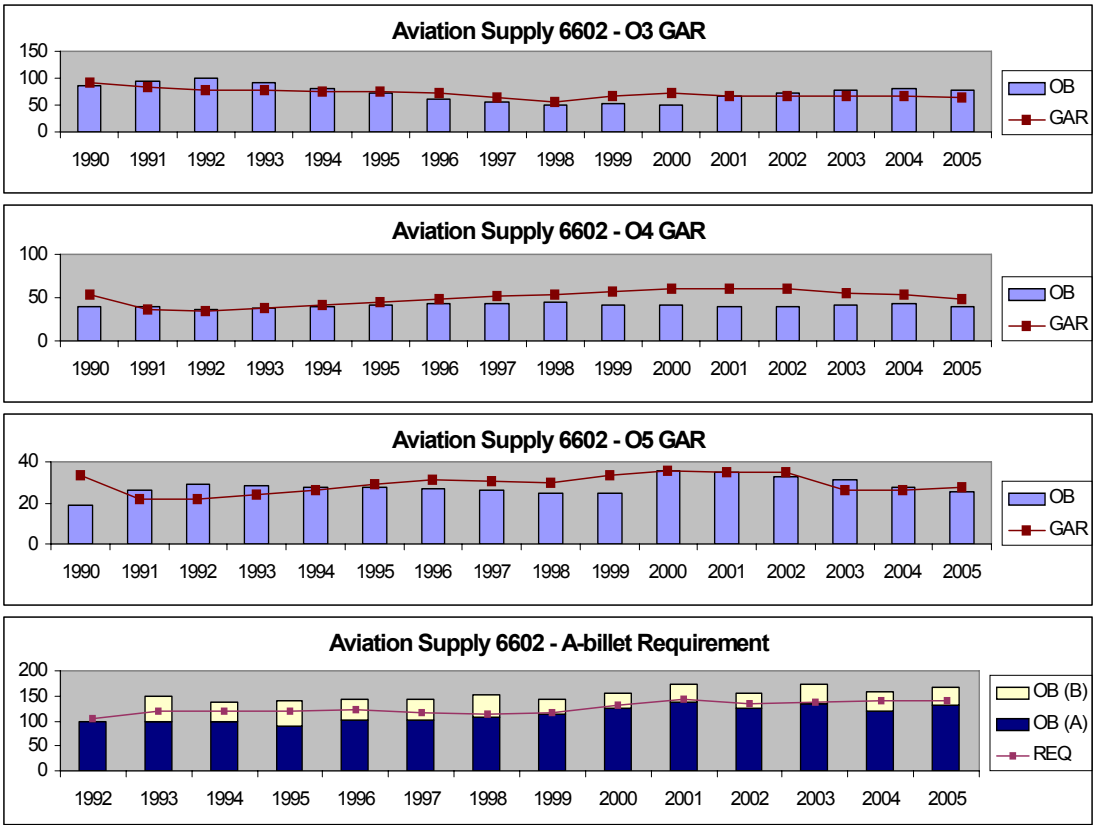

Table 43. Data for Comparison of OB to GAR and OB to A-billet Requirement for Aviation Supply Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	78	77	76	74	73	64	56	67	72	66	66	66	67	65
OB	101	91	81	72	62	56	50	54	51	66	72	78	81	77
O4 GAR	35	39	42	46	49	52	54	57	60	61	61	55	53	49
OB	37	39	40	42	43	44	44	41	41	40	40	41	44	40
O5 GAR	22	24	27	29	31	30	30	34	36	35	35	26	26	28
OB	29	29	28	28	27	26	25	25	36	35	33	31	28	26
A-BILLET REQUIREMENT DATA														
Req	104	118	120	118	121	117	114	116	132	144	133	138	140	141
A-billets	99	99	98	91	102	102	106	112	125	138	124	133	120	131
B-billets	1	51	38	49	41	42	47	32	29	35	32	40	38	36

Figure 50. Comparison of OB to GAR and OB to A-billet Requirement for Air Command & Control Officers

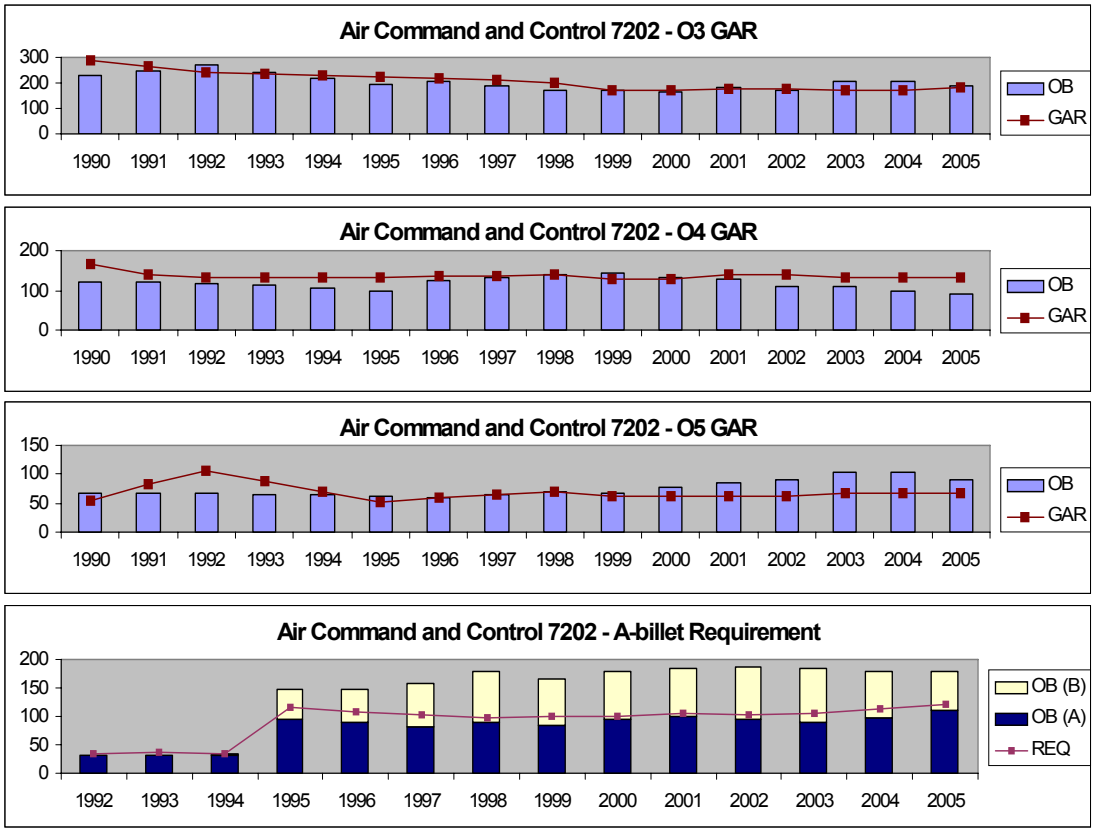

Table 44. Data for Comparison of OB to GAR and OB to A-billet Requirement for Air Command & Control Officers

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	244	237	231	224	219	211	202	171	172	174	176	171	170	182
OB	269	244	218	192	204	186	169	173	167	182	170	204	203	189
O4 GAR	132	132	133	133	135	137	138	128	128	141	141	133	132	132
OB	117	111	106	100	125	133	141	142	133	127	109	109	100	89
O5 GAR	105	88	70	53	60	65	71	62	63	63	63	66	66	68
OB	67	66	64	63	60	65	71	68	77	84	90	103	103	92
A-BILLET REQUIREMENT DATA														
Req	34	36	34	115	107	103	97	100	100	106	102	105	112	122
A-billets	31	31	32	94	89	81	90	85	95	99	94	90	97	110
B-billets	1	1	1	54	58	78	88	80	83	85	93	95	81	70

Figure 51. Comparison of OB to GAR and OB to A-billet Requirement for AV-8 Pilots

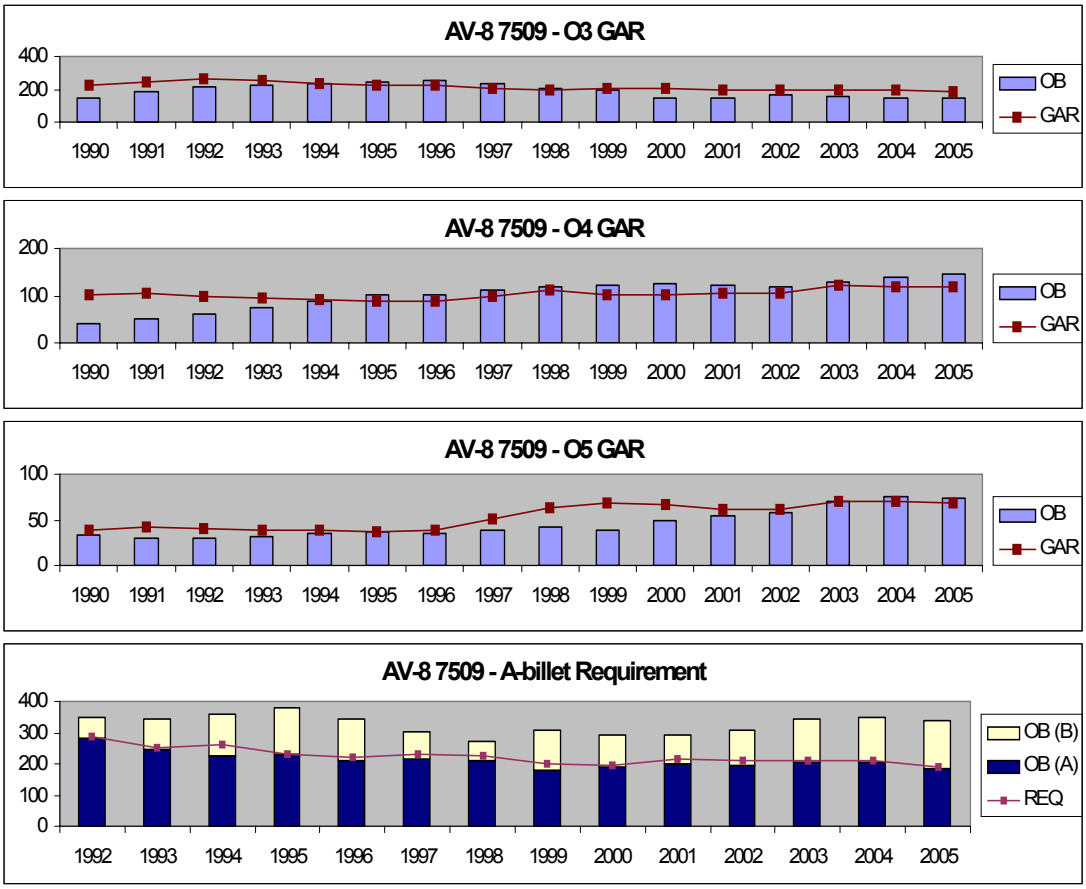

Table 45. Data for Comparison of OB to GAR and OB to A-billet Requirement for AV-8 Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	267	251	236	220	223	207	191	206	210	194	194	197	194	190
OB	210	223	235	248	253	230	206	195	151	145	162	154	148	143
O4 GAR	100	96	92	88	89	100	111	102	101	104	104	123	117	119
OB	62	76	89	102	102	111	120	122	127	123	119	129	140	146
O5 GAR	40	39	38	37	39	51	64	69	67	61	61	71	71	69
OB	31	32	34	36	35	39	43	39	50	54	58	70	75	74
A-BILLET REQUIREMENT DATA														
Req	286	250	260	230	219	232	227	200	195	214	212	211	211	190
A-billets	280	247	225	233	208	215	208	179	188	199	197	207	206	187
B-billets	67	99	133	144	137	89	62	131	106	95	110	138	141	153

Figure 52. Comparison of OB to GAR and OB to A-billet Requirement for FA-18 Pilots

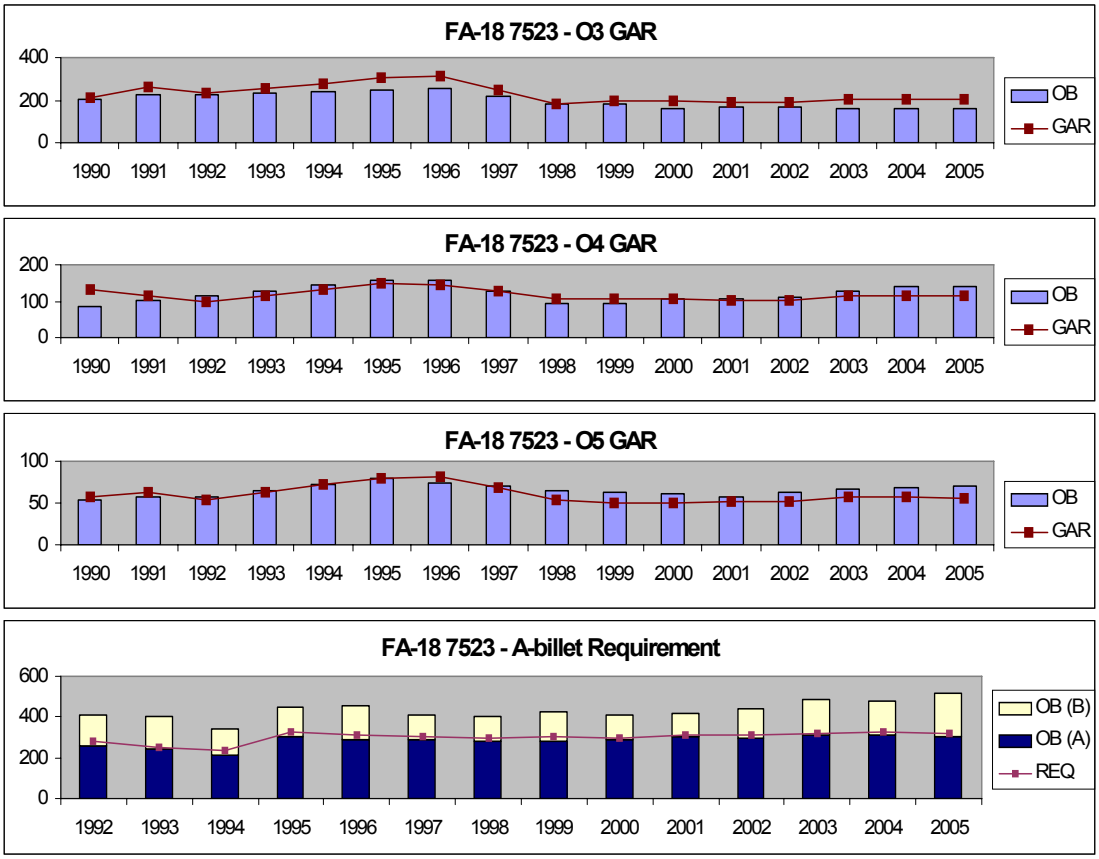

Table 46. Data for Comparison of OB to GAR and OB to A-billet Requirement for FA-18 Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	232	255	279	302	310	247	184	194	195	191	191	205	203	202
OB	228	233	239	244	256	219	182	184	159	165	166	159	161	159
O4 GAR	99	115	131	147	144	126	108	107	105	102	102	117	115	113
OB	115	129	143	157	158	127	96	94	105	108	110	128	139	139
O5 GAR	54	63	71	80	82	68	54	51	50	51	51	57	58	55
OB	57	65	72	79	75	70	65	62	62	57	62	66	69	70
A-BILLET REQUIREMENT DATA														
Req	281	253	232	328	311	306	297	302	296	312	312	320	323	316
A-billets	257	241	214	306	292	292	278	283	287	305	300	310	310	307
B-billets	155	158	129	142	166	116	121	146	124	110	143	173	168	207

Figure 53. Comparison of OB to GAR and OB to A-billet Requirement for EA-6A/B Pilots

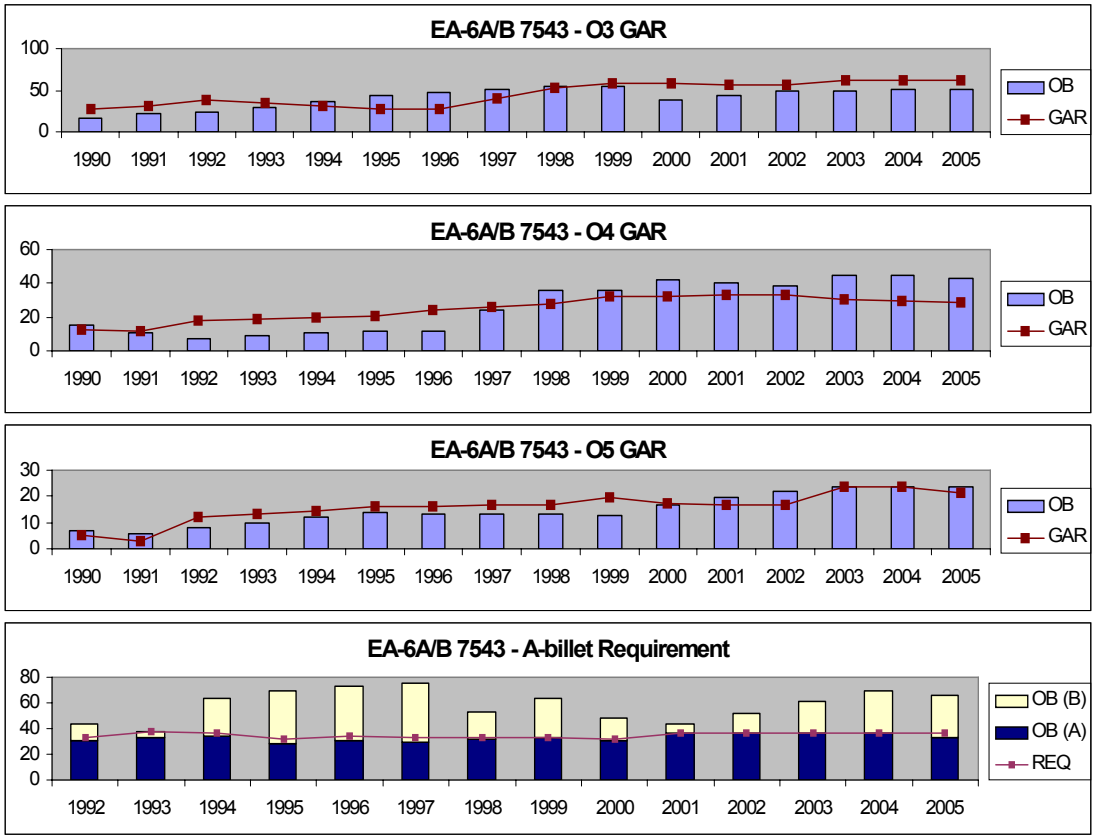

Table 47. Data for Comparison of OB to GAR and OB to A-billet Requirement for EA-6A/B Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	38	35	31	28	27	40	53	58	59	57	57	63	62	61
OB	23	30	36	43	48	51	54	55	38	44	49	49	52	52
O4 GAR	18	19	20	21	24	26	28	33	32	34	34	31	30	29
OB	7	9	10	12	12	24	36	36	42	40	39	44	45	43
O5 GAR	12	13	15	16	16	17	17	20	17	17	17	24	24	21
OB	8	10	12	14	13	13	14	13	17	20	22	24	24	24
A-BILLET REQUIREMENT DATA														
Req	33	38	37	32	34	33	33	33	32	36	37	37	37	37
A-billets	31	33	34	28	31	30	32	33	31	37	37	37	37	33
B-billets	13	5	30	42	42	45	21	31	17	6	15	24	32	33

Figure 54. Comparison of OB to GAR and OB to A-billet Requirement for C-130 Pilots

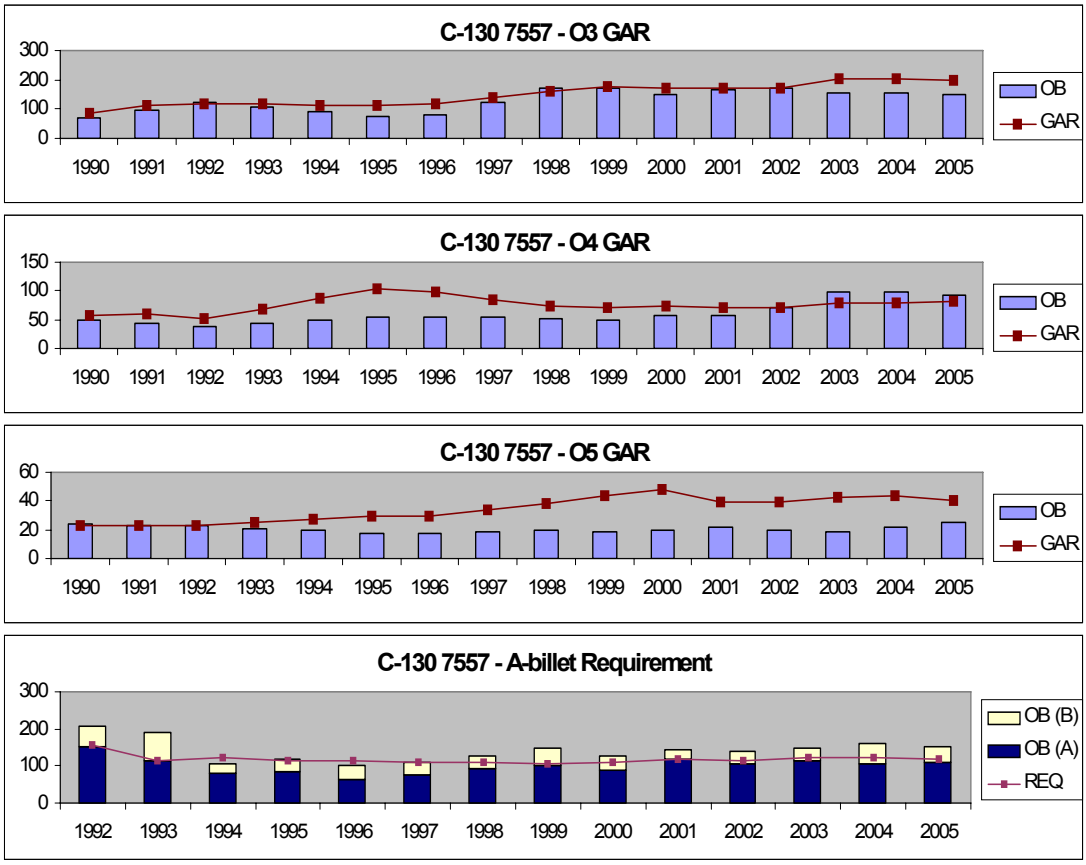

Table 48. Data for Comparison of OB to GAR and OB to A-billet Requirement for C-130 Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	118	116	114	112	120	140	160	174	170	171	171	202	202	196
OB	123	106	90	73	79	125	171	170	151	168	174	157	155	148
O4 GAR	52	69	86	103	97	86	74	71	74	71	71	78	78	83
OB	37	43	49	55	55	54	53	48	57	58	70	98	99	94
O5 GAR	23	25	27	29	29	34	39	44	48	39	39	43	44	41
OB	23	21	19	17	17	18	20	18	20	22	20	19	22	26
A-BILLET REQUIREMENT DATA														
Req	156	116	122	116	112	111	110	104	108	119	113	121	121	119
A-billets	152	112	82	84	65	76	92	103	87	117	105	112	106	108
B-billets	57	77	25	33	36	33	35	43	39	26	33	36	56	46

Figure 55. Comparison of OB to GAR and OB to A-billet Requirement for CH-46 Pilots

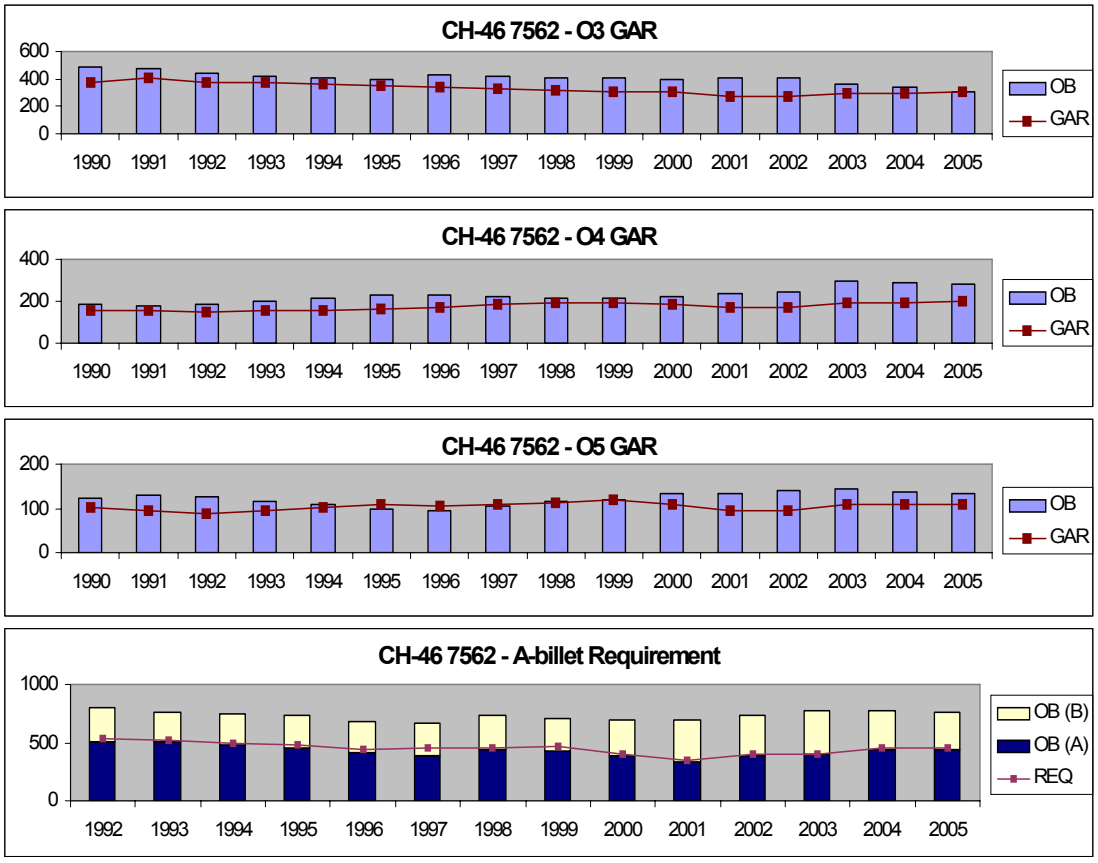

Table 49. Data for Comparison of OB to GAR and OB to A-billet Requirement for CH-46 Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	378	368	359	349	338	327	316	310	301	273	273	294	291	309
OB	436	424	412	400	426	418	409	405	393	408	406	363	339	310
O4 GAR	146	152	158	164	172	182	192	192	183	169	169	195	193	198
OB	186	200	215	230	226	220	214	218	225	238	241	298	291	282
O5 GAR	89	96	102	109	107	110	113	118	110	95	95	110	110	109
OB	127	117	107	97	94	106	118	119	133	134	139	144	137	132
A-BILLET REQUIREMENT DATA														
Req	530	524	489	475	441	456	451	468	406	352	406	406	460	455
A-billets	511	503	476	450	419	393	446	431	392	337	384	399	443	436
B-billets	287	255	268	281	256	271	288	276	306	358	355	375	324	319

Figure 56. Comparison of OB to GAR and OB to A-billet Requirement for UH-1 Pilots

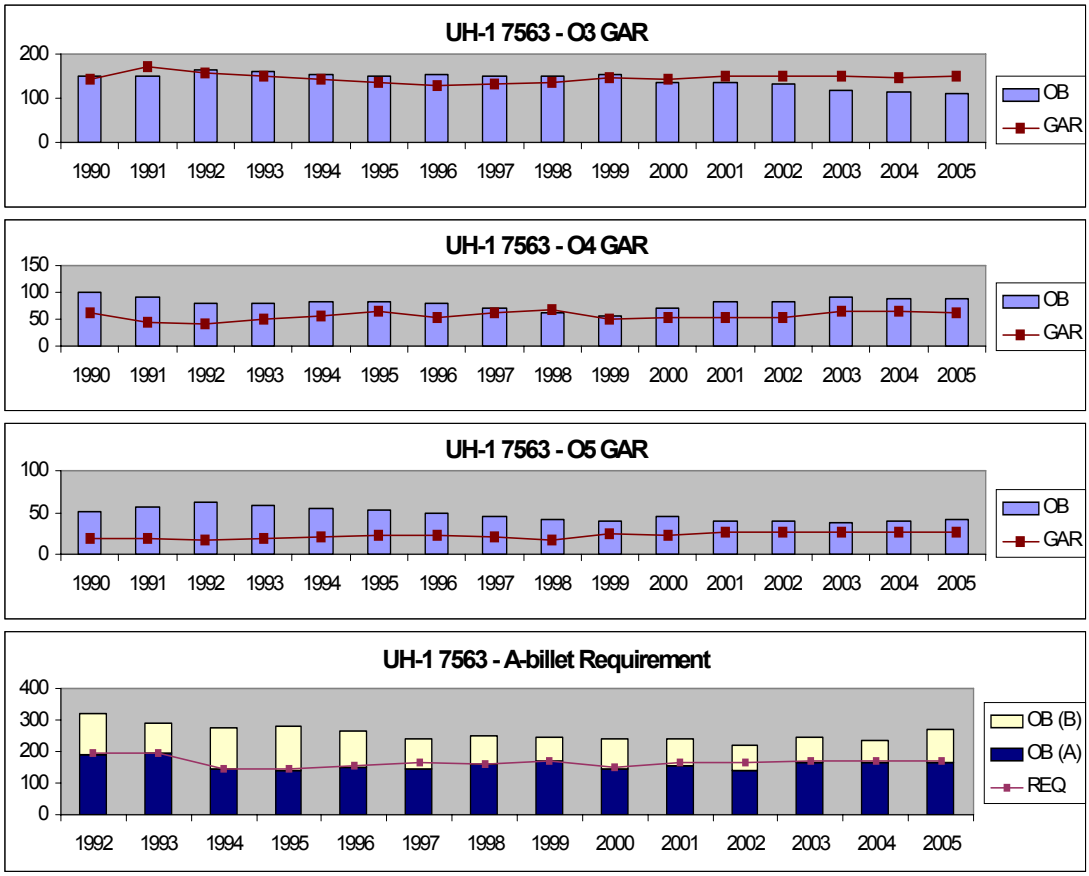

Table 50. Data for Comparison of OB to GAR and OB to A-billet Requirement for UH-1 Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	156	149	141	134	129	133	137	146	144	151	151	149	146	150
OB	165	160	155	150	152	151	149	154	134	135	132	117	115	112
O4 GAR	42	50	57	65	54	61	67	51	52	53	53	65	64	63
OB	78	80	81	83	79	70	62	56	70	82	83	92	89	88
O5 GAR	17	19	20	22	23	20	18	24	23	26	26	27	26	27
OB	62	59	55	52	49	45	41	40	45	39	39	39	39	42
A-BILLET REQUIREMENT DATA														
Req	196	195	145	145	157	164	162	168	150	166	164	168	168	170
A-billets	192	194	143	140	152	143	158	168	147	157	139	164	163	164
B-billets	130	95	131	139	114	97	94	78	93	83	81	80	73	105

Figure 57. Comparison of OB to GAR and OB to A-billet Requirement for CH-53A/D Pilots

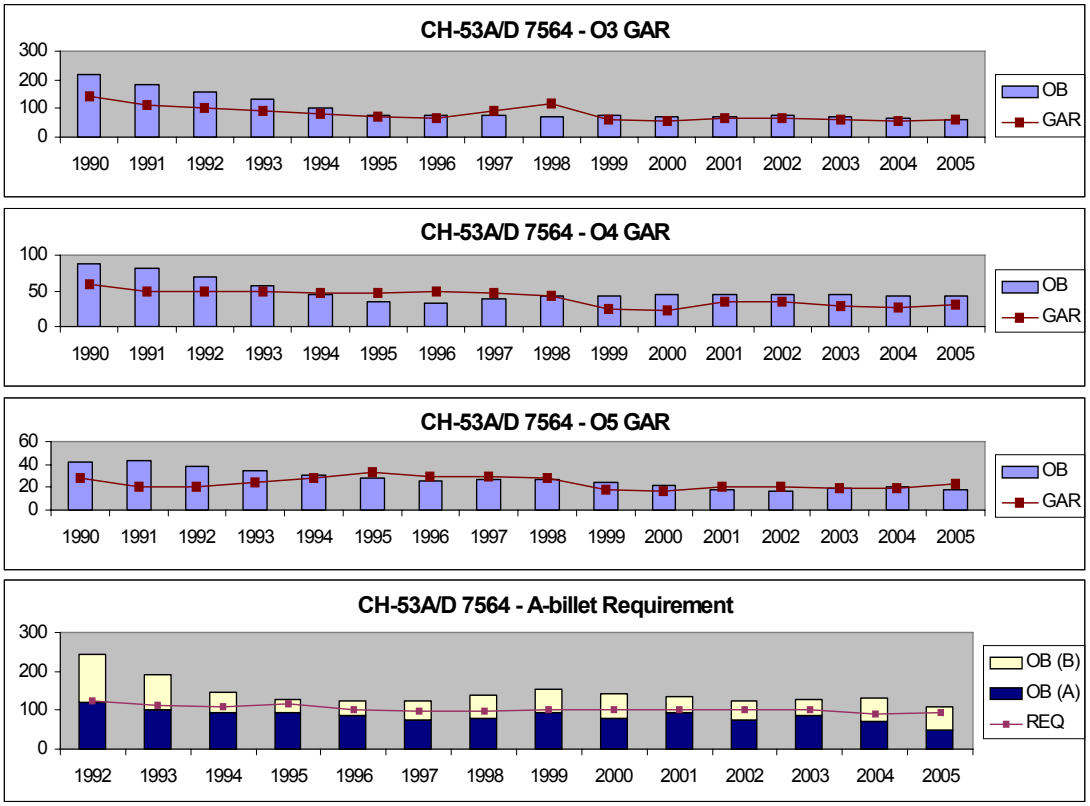

Table 51. Data for Comparison of OB to GAR and OB to A-billet Requirement for CH-53A/D Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	103	92	81	70	67	92	117	59	58	66	66	59	55	64
OB	158	130	103	75	78	75	73	78	71	73	77	71	67	61
O4 GAR	49	48	48	47	50	47	43	24	23	35	35	29	26	32
OB	70	58	46	34	33	38	43	43	45	45	44	44	43	43
O5 GAR	20	24	29	33	30	29	28	17	17	21	21	19	19	23
OB	38	34	31	28	26	27	27	24	22	18	16	19	20	19
A-BILLET REQUIREMENT DATA														
Req	124	111	110	115	102	96	98	103	100	101	100	100	91	95
A-billets	119	100	95	93	88	75	80	95	80	92	76	86	72	50
B-billets	124	90	51	35	35	47	60	59	61	44	49	43	59	59

Figure 58. Comparison of OB to GAR and OB to A-billet Requirement for AH-1 Pilots

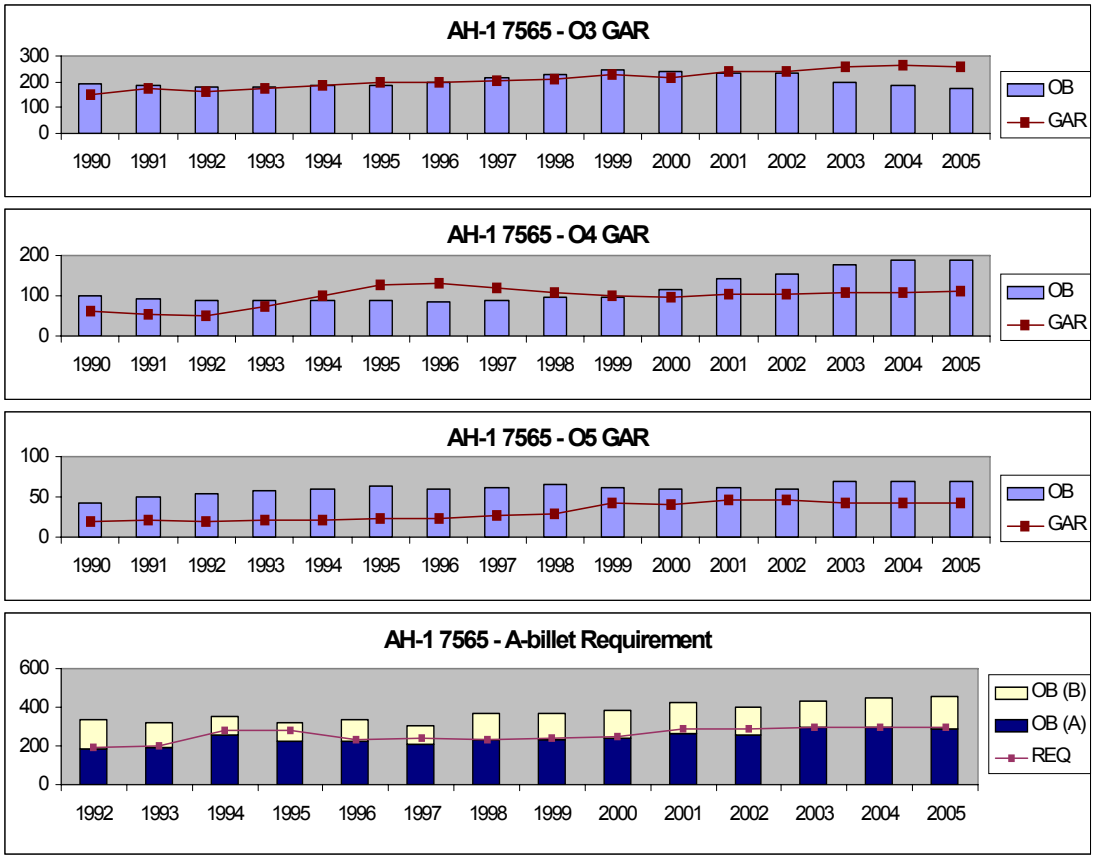

Table 52. Data for Comparison of OB to GAR and OB to A-billet Requirement for AH-1 Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	164	175	185	196	196	202	209	227	219	238	238	258	263	259
OB	178	181	185	189	200	215	231	244	239	237	232	198	184	173
O4 GAR	49	75	100	126	130	119	108	99	98	105	105	109	107	113
OB	88	88	88	88	83	90	97	97	117	141	154	177	187	188
O5 GAR	20	21	22	23	24	27	29	42	41	46	46	42	42	42
OB	54	57	60	63	59	62	65	62	60	61	60	69	69	70
A-BILLET REQUIREMENT DATA														
Req	191	199	279	279	236	242	235	240	246	291	292	300	300	295
A-billets	185	194	256	228	222	208	231	229	241	267	255	298	298	288
B-billets	148	127	93	92	112	100	140	138	145	161	145	133	154	165

Figure 59. Comparison of OB to GAR and OB to A-billet Requirement for CH-53E Pilots

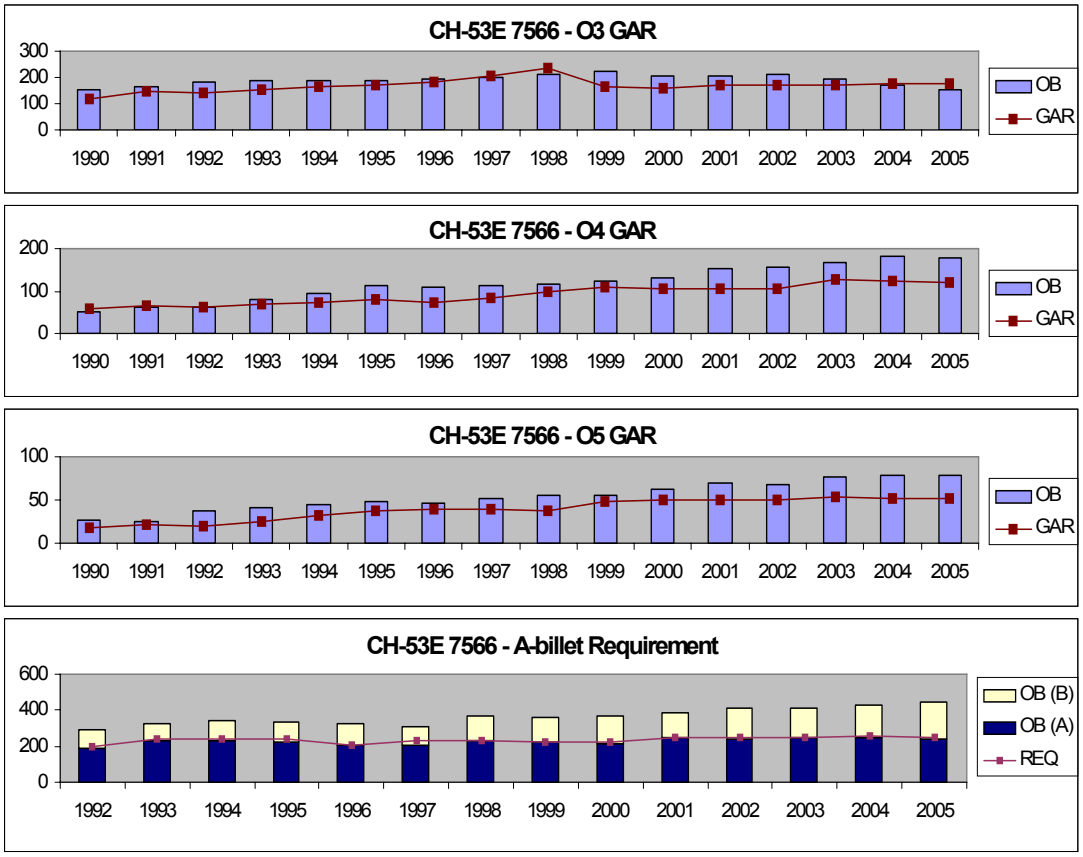

Table 53. Data for Comparison of OB to GAR and OB to A-billet Requirement for CH-53E Pilots

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
GAR DATA														
O3 GAR	144	153	162	171	180	207	234	163	157	169	169	173	175	175
OB	185	186	187	188	196	203	210	225	205	206	213	191	171	155
O4 GAR	62	68	73	79	71	84	98	107	106	104	104	127	123	122
OB	63	79	95	111	108	113	118	122	131	153	157	167	180	177
O5 GAR	19	25	32	38	40	39	37	49	50	50	50	53	52	51
OB	38	42	45	48	47	51	56	55	63	70	67	77	79	78
A-BILLET REQUIREMENT DATA														
Req	195	241	238	238	209	235	229	220	221	251	245	252	254	250
A-billets	191	232	235	226	208	210	233	219	216	246	241	252	249	239
B-billets	102	98	111	108	121	95	132	142	155	137	171	157	183	207

Appendix E: Deployed days by PMOS

This appendix shows deployed days for Marine Corps unrestricted commissioned officers by PMOS and grouped into O1-O3 and O4 and above (tables 54 and 55). The tables are arranged by the highest median deployed days (the 50th percentile point, where half of the officers in the PMOS have more deployed days and half have fewer deployed days). The tables are also organized from the most heavily deployed PMOS to the least heaviest deployed.

As an example, for officers in grades O3 and below, PMOS 7566 (CH-53E pilots) was the most heavily deployed PMOS. It is characterized as follows:

- 10 percent of its 189 officers had 16 or fewer deployed days (these pilots had probably just finished training and gotten their PMOS), 25 percent had 240 or fewer deployed days, half had 455 or more deployed days, 25 percent had 625 or more deployed days, and 10 percent had 700 or more deployed days.
- Average deployed days for these CH-53E pilots was 417 days.

Table 54. Days deployed for Marine Corps unrestricted officers (O3 and below), as of December 2005[a]

		Percentile for days deployed						
PMOS	Title	10th	25th	50th	75th	90th	Mean	# Marines
7566	Pilot HMH CH-53E Qualified	16	240	455	625	700	417	189
7565	Pilot HMA AH-1 Qualified	49	250	451	600	696	415	211
7563	Pilot UH-1 Qualified	44	245	424	560	655	388	140
7564	Pilot CH-53 A/D Qualified	184	285	414	519	596	397	61
7562	Pilot HMH CH-46 Qualified	92	236	401	538	652	386	348
7525	Qualified F/A-18D Weapons Systems Officer	190	248	387	524	654	394	102
0202	MAGTF Intelligence Officer	113	240	365	494	594	360	157

Table 54. Days deployed for Marine Corps unrestricted officers (O3 and below), as of December 2005[a] (continued)

PMOS	Title	Percentile for days deployed 10th	25th	50th	75th	90th	Mean	# Marines
0302	Infantry Officer	61	209	337	467	578	333	1,160
7557	Pilot KC-130 Aircraft Commander	204	254	335	430	550	351	67
7523	Pilot VMFA F/A-18 Qualified	54	197	325	478	624	336	256
7509	Pilot VMA-AV-8B Qualified	86	227	315	442	499	323	135
7588	Qualified EA-6B Electronic Warfare Officer	108	207	297	443	513	312	88
0802	Field Artillery Officer	30	187	289	428	533	301	461
0203	Ground Intelligence Officer	18	155	270	428	556	289	151
0206	Signals Intelligence/Ground Electronic Warfare Officer	20	97	269	409	526	273	107
7204	Low Altitude Air Defense Officer	52	180	267	344	471	271	48
1803	Assault Amphibious Vehicle (AAV) Officer	29	195	260	383	512	277	77
1802	Tank Officer	38	163	251	345	447	251	101
7543	Pilot VMAQ/EA-6B Qualified	12	186	249	347	550	285	37
0204	Human Source Intelligence Officer	16	174	246	436	505	277	44
7208	Air Support Control Officer	42	94	243	380	464	250	118
0402	Logistics Officer	25	113	240	358	474	247	738
7210	Air Defense Control Officer	28	98	238	367	460	245	76
1302	Combat Engineer Officer	21	100	234	343	426	229	270
0207	Air Intelligence Officer	17	98	234	337	466	237	109
2102	Ordnance Officer	25	155	232	291	481	239	18
0602	Communications Officer	17	87	215	311	423	221	525
7220	Air Traffic Control Officer	4	53	211	358	595	237	67
6002	Aircraft Maintenance Officer	8	56	184	295	391	191	165
3002	Ground Supply Officer	6	54	178	274	370	184	377
7556	KC-140 Co-Pilot (T2P/T3P)	10	79	168	264	333	174	107
4302	Public Affairs Officer	0	40	161	274	409	184	79
0180	Adjutant	0	27	137	247	383	161	320
6602	Aviation Supply Officer	1	37	129	248	312	149	119
5803	Military Police Officer	0	31	115	313	483	187	116
3404	Financial Management Officer	0	13	75	209	274	123	174
4402	Judge Advocate	0	5	43	194	223	92	179

a. Days deployed are tabulated since October 2000.

Table 55. Days deployed for Marine Corps Officers (O4 and above), as of December 2005[a]

PMOS	Title	Percentile for days deployed					Mean	# Marines
		10th	25th	50th	75th	90th		
7566	Pilot HMH CH-53E Qualified	56	206	361	493	619	359	234
7543	Pilot VMAQ/EA-6B Qualified	129	284	348	438	563	351	33
7509	Pilot VMA-AV-8B Qualified	95	187	327	435	500	311	212
7563	Pilot UH-1 Qualified	68	206	323	427	541	312	117
7588	Qualified EA-6B Electronic Warfare Officer	59	139	314	411	494	292	86
7565	Pilot HMA AH-1 Qualified	64	191	313	448	556	320	244
0302	Infantry Officer	37	176	302	434	540	307	694
7525	Qualified F/A-18D Weapons Systems Officer	25	138	302	444	596	310	109
7562	Pilot HMH CH-46 Qualified	75	172	298	432	525	306	374
7564	Pilot CH-53 A/D Qualified	54	127	294	403	552	288	54
7557	Pilot KC-130 Aircraft Commander	68	145	267	382	490	276	100
0202	MAGTF Intelligence Officer	33	122	261	402	529	274	212
7556	KC-140 Co-Pilot (T2P/T3P)	68	187	251	305	509	262	6
1302	Combat Engineer Officer	55	156	235	348	468	249	151
7532	Pilot VMM, V-22 Qualified	50	121	223	338	411	235	32
0802	Field Artillery Officer	27	111	223	336	442	234	290
1803	Assault Amphibious Vehicle (AAV) Officer	12	72	217	271	353	200	45
0402	Logistics Officer	20	97	212	345	470	229	381
0602	Communications Officer	6	57	194	295	424	202	266
3002	Ground Supply Officer	10	59	168	286	393	189	187
0206	Signals Intelligence/Ground Electronic Warfare Officer	12	24	167	347	395	185	4
1802	Tank Officer	18	47	154	307	415	197	67
7202	Air Command and Control Officer	12	52	150	273	375	180	176
5803	Military Police Officer	15	62	149	276	402	179	44
4302	Public Affairs Officer	0	77	147	228	361	158	38
6602	Aviation Supply Officer	8	31	77	202	304	123	63
4402	Judge Advocate	4	18	73	221	333	131	194
6002	Aircraft Maintenance Officer	7	17	66	190	247	104	71
3404	Financial Management Officer	3	13	47	196	264	109	80

a. Days deployed are tabulated since October 2000.

Bibliography

Asch, Beth J., and John T. Warner. *A Theory of Military Compensation and Personnel Policy,* 1994 (RAND, MR-439-OSD)

Hattiangadi, Anita U., Deena Ackerman, Theresa H. Kimble, and Aline O. Quester. *Cost-Benefit Analysis of Lump Sum Zone A, Zone B, and Zone C Reenlistment Study: Final Report*, 2003 (CRM D0009652.A1)

Hattiangadi, Anita U., Lewis G. Lee, and Aline O. Quester. *Deployment Tempo and Retention in the Marine Corps,* Oct 2005 (CNA Annotated Briefing D0013118.A1)

Holt, Michael S. *Evolution of the Marine Corps Officer Promotion System: A Re-Evaluation of the Current Marine Corps Officer Promotion System,* 2004 (United States Marine Corps Command and Staff College Master's Thesis, Quantico, VA)

Morgan, Jerry R. *A Study of Promotion and Attrition of Mid-Grade Officers in the U.S. Marine Corps: Are Assignments a Key Factor?* 2001 (Naval Postgraduate School Master's Thesis, Monterey, CA)

Quester, Aline O., Anita U. Hattiangadi, and Robert W. Shuford. *Marine Corps Retention in the Post-9/11 Era: The Effects of Deployment Tempo on Marines With and Without Dependents,* Jan 2006 (CRM D0013462.A1)

Quester, Aline O., Anita U. Hattiangadi, Lewis G. Lee, and Robert W. Shuford. *Marine Corps Deployment Tempo and Retention in FY05,* 2006 (CRM D0013786.A1)

Quester, Aline O., and Catherine M. Hiatt. *Final Report: Street-to-Fleet Study (Volume II: Street-to-Fleet for Commissioned Officers,* 2001 (CNA CRM D0003033.A2)

Quester, Aline O., Anton Jareb, William Lambert, Gary Lee, and Theresa Kimble, *Manpower Critical Indicators: Final Report,* 2002 (CNA Research Memorandum D0006494.A2)

Rostker, Bernard, Harry Thie, James Lacy, and others. *The Defense Officer Personnel Management Act of 1980: A Retrospective Assessment,* 1993 (RAND Report R-4246-FMP)

United States Marine Corps, Studies and Analysis Division, *Final Report: Critical Secondary Military Occupational Specialty (MOS) Study,* Dec 2002 *(*Quantico, VA)

Thie, Harry J., Margaret C. Harrell, and others. *A Future Officer Career Management System,* 2001 *(*RAND Report MR-788-OSD*)*

Vasquez, Scott, and Michael B. Williams. *Reengineering the Marine Corps Officer Promotion Process for Unrestricted Officers,* 2001 (Naval Postgraduate School Master's Thesis, Monterey, CA)

Wielsma, Ronald. *An Analysis of Factors Affecting Promotion, Retention, and Performance for USMC Officers: A Graduate Education Perspective,* 1996 (Naval Postgraduate School Master's Thesis, Monterey, CA)

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