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# Championing the Agile Air Force Officer Career

## Examining the Potential Use of New Career Management Flexibilities

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# Preface

The fiscal year (FY) 2019 John S. McCain National Defense Authorization Act introduced several new personnel policies that offer all U.S. military services greater flexibility in officer career management. The Air Force asked RAND Project AIR FORCE to examine the potential utility of five of these options: allowing the commissioning of candidates older than 42, enhancing the availability of constructive credit for officer candidates with skills desired by the Air Force, implementing merit-based promotion timing, allowing officers to opt out of promotion board consideration, and introducing new competitive categories (with the option of allowing alternative promotion authority in the categories).

Through semistructured interviews with officers in six career fields of particular interest to the Air Force, an extensive review of relevant literature, and simulations using the RAND Corporation's Military Career Model, we determined that most of these options have the potential to be useful in many career fields, and officers are open to their use. However, there is variation among career fields in how the options would best be implemented, and implementation must be carefully monitored to ensure that outcomes address Air Force goals.

The research reported here was commissioned by the Director of Military Force Management Policy, Deputy Chief of Staff for Manpower, Personnel and Services, Headquarters U.S. Air Force and conducted within the Manpower, Personnel, and Training Program of RAND Project AIR FORCE as part of a FY 2019 project called "Championing the Agile Military Career Path."

## RAND Project AIR FORCE

RAND Project AIR FORCE (PAF), a division of the RAND Corporation, is the Department of the Air Force's (DAF's) federally funded research and development center for studies and analyses, supporting both the United States Air Force and the United States Space Force. PAF provides the DAF with independent analyses of policy alternatives affecting the development, employment, combat readiness, and support of current and future air, space, and cyber forces. Research is conducted in four programs: Strategy and Doctrine; Force Modernization and Employment; Manpower, Personnel, and Training; and Resource Management. The research reported here was prepared under contract FA7014-16-D-1000.

Additional information about PAF is available on our website:

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# Summary

The 2018 National Security Strategy outlines the importance of recruiting and retaining an innovative and ready force and discusses the utility of force growth. However, existing human resource management practices can be inflexible, hindering the services' abilities to effectively manage their human capital. The fiscal year (FY) 2019 National Defense Authorization Act (NDAA) authorizes new options for officer career management that the military services could choose to execute. In this report, we examine the potential utility of five of the new flexibilities (Sections 501, 502, 504, 505, and 507 in the NDAA) for improving the management of Air Force officers.

## Approach

In conducting this research, the project team applied a mixed-method approach. Specifically, the team

- modeled the potential consequences to the workforce of select management flexibilities using the RAND Corporation's Military Career Model
- conducted semistructured interviews with a select number of officers in six career fields and a set of career field managers to gain insight into opinions about whether the flexibilities might be useful in certain career fields
- reviewed relevant literature to better understand trends in the civilian workforce.

## Findings

The project team found the following for each of the FY 2019 NDAA flexibilities:

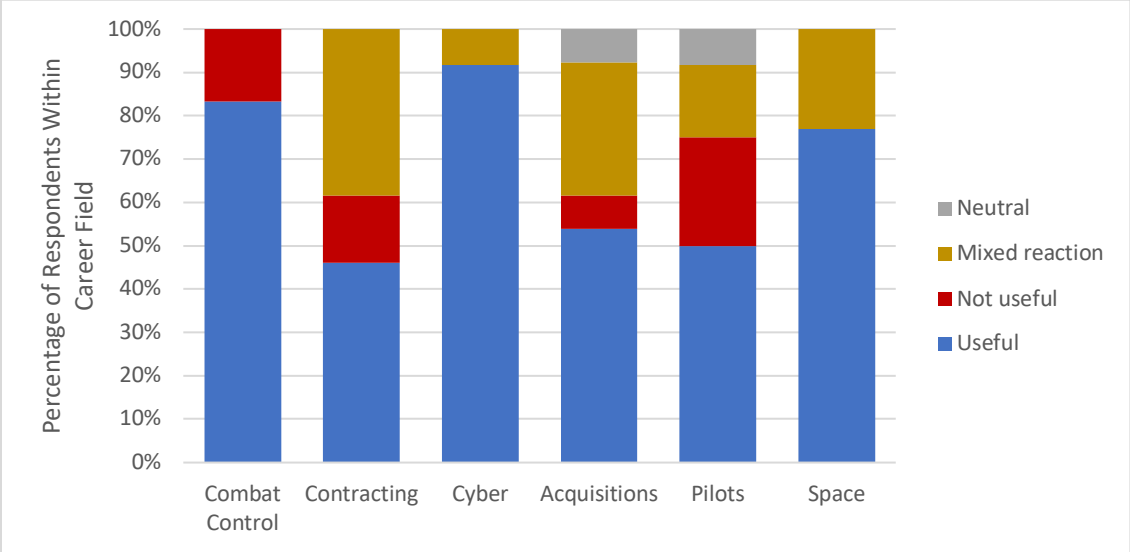
- **Sections 501 and 502 allow accessions older than 42 years of age and enhance constructive credit.** Allowing lateral entries at higher ranks might be effective in decreasing deficits for field-grade officers in some career fields. Airmen who were interviewed were generally positive about this flexibility, although some expressed concern about candidates meeting physical requirements. If implemented, the Air Force will need to determine whether there is a supply of available candidates for career fields of interest and what additional military training individuals might need when accessed.
- **Section 504 allows officers of particular merit to be placed higher on a promotion list.** Merit-based timing can accelerate promotions to higher ranks and—in some cases—can produce promotion results that are similar to those achieved using below-the-zone promotions. The majority of interviewees in all career fields had positive views about this flexibility. Clear communication about what constitutes higher merit will be necessary for successful implementation.
- **Section 505 authorizes officers to opt out of promotion board consideration.** The majority of officers that we interviewed felt that this flexibility could help encourage

risk-taking in seeking assignments. Implementation will require the development of opt-out criteria, process timelines, and data tracking to ensure that grade requirements are satisfied.

- **Section 507 allows alternative promotion paths for officers in particular competitive categories.** Although we were unable to model the impact of eliminating below-the-zone and above-the-zone promotions—two aspects of Section 507—we developed scenarios that suggest that, if promotion rates are made equal across the competitive categories, establishing such categories will increase promotion rates for some career fields and decrease them in others. However, application of different flexibilities, such as merit-based promotion timing, moderates these effects. The majority of interviewees supported the implementation of new competitive categories and this corresponding flexibility. If implemented, the Air Force will need to carefully monitor officer career development across the categories, including promotion results.

Figure S.1 illustrates the perceived utility of Section 507 among the Air Force officers we interviewed. Across career fields, most of the officers with whom we spoke perceived this flexibility to be useful.

**Figure S.1. Officer Perceptions of the Utility of Alternative Promotion Paths for Competitive Categories**




## Conclusions

Most of these new flexibilities have the potential to be useful in many career fields, but implementation must be carefully monitored to ensure that outcomes address Air Force goals.

# Acknowledgments

We are grateful for the support of our original sponsor, Maj Gen Robert D. Labrutta, director, Military Force Management Policy, Deputy Chief of Staff for Manpower, Personnel and Services, Headquarters U.S. Air Force (AF/A1P), and of his successor, Brig Gen Troy E. Dunn.

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Personnel data related to career field inventories, sustainment requirements, grade structure, and accession targets were very important for our analysis, and we are grateful to Jerry Diaz, chief, Human Resources Data Analytic and Decision Support Division (A1XD), and his team for providing detailed, up-to-date data.

This research would not have been possible without the willing participation of dozens of officers in hour-long interviews related to new officer career flexibilities. Their candid observations about the advantages and disadvantages of these flexibilities and important considerations related to their implementation will help the Air Force determine how best to use new management approaches to officer career development. Because we promised them anonymity, we can thank them only collectively, but we hope we represented their individual views adequately.

Finally, we thank Ray Conley, director of RAND Project AIR FORCE's Manpower, Personnel, and Training Program, for his support throughout the project. We also thank our reviewers, Darrell Jones, Pete Schirmer, and Maria Lytell, for extremely helpful comments that improved the report's presentation.

# Abbreviations

| | |
|---|---|
| ACS | American Community Survey |
| AF/A1XD | Headquarters Air Force, Human Resources Data Analytic and Decision Support Division |
| AFI | Air Force Instruction |
| AFOCD | Air Force Officer Classification Directory |
| AFSC | Air Force Specialty Code |
| ALO | air liaison officer |
| APZ | above the promotion zone |
| BLS | Bureau of Labor Statistics |
| BPZ | below the promotion zone |
| BRS | Blended Retirement System |
| BSC | Biomedical Sciences Corps |
| CBSA | core-based statistical area |
| CFM | career field manager |
| CGO | company grade officer |
| CHAP | chaplains |
| COA | course of action |
| CPS ASEC | Current Population Survey Annual Social and Economic Supplement |
| CRO | combat rescue officer |
| CSA | combined statistical area |
| DC | Dental Corps |
| DoD | U.S. Department of Defense |
| DoDI | Department of Defense Instruction |
| DOPMA | Defense Officer Personnel Management Act |
| DOR | date of rank |
| FGO | field-grade officer |
| FY | fiscal year |
| GS | General Schedule |
| IDE | intermediate developmental education |
| IPZ | in the promotion zone |
| IT | information technology |

| | |
|---|---|
| JAG | Judge Advocate General |
| LAF | Line of the Air Force |
| MC | Medical Corps |
| MCM | Military Career Model |
| MSA | metropolitan statistical area |
| MSC | Medical Service Corps |
| NC | Nurse Corps |
| NDAA | National Defense Authorization Act |
| O*NET | Occupational Information Network |
| O-1 | second lieutenant |
| O-2 | first lieutenant |
| O-3 | captain |
| O-4 | major |
| O-5 | lieutenant colonel |
| O-6 | colonel |
| OES | Occupational Employment Statistics |
| OPM | Office of Personnel Management |
| PAF | RAND Project AIR FORCE |
| ROPMA | Reserve Officer Personnel Management Act |
| SDE | senior developmental education |
| SME | subject-matter expert |
| SOC | Standard Occupational Classification |
| STO | special tactics officer |
| TIG | time in grade |
| YOS | years of service |

# 1. Introduction

The 2018 National Security Strategy outlines the importance of recruiting and retaining an innovative and ready force and discusses the utility of force growth. To address these priorities, the U.S. Air Force seeks to be competitive in attracting, acquiring, compensating, and retaining top talent. Human resource management practices that limit career flexibility, neglect and underuse individual talents, and fail to consider employee motivations might hinder the Air Force's ability to effectively manage its human capital. In addition, for some Air Force career fields, matching personnel inventory to personnel requirements using existing management practices can be challenging, so new approaches might be warranted. Congressional actions in fiscal year (FY) 2018 and FY 2019 have provided some options for such new approaches.

Section 572 of the National Defense Authorization Act (NDAA) for FY 2018 (Pub. L. 115-91) required the Secretary of Defense, in consultation with the secretaries of the military departments, to provide two reports to the Senate and House Armed Services Committees on policies for regular and reserve officer career management. These reports were to address sixteen topics in the broad categories of promotions, tenure, talent management, active and reserve permeability, and cross-cutting issues.[1]

The FY 2019 NDAA (Pub. L. 115-232), which was signed into law on August 13, 2018, anticipated some of the policy recommendations of those reports by authorizing the military services to exercise new options in seven areas of officer career management. This report addresses the potential usefulness of several of these options (or *flexibilities*, as we will refer to them) for the management of Air Force officers.

## Current Guidelines for Managing Active-Duty Officers

Since 1980, the management of active-duty officers in the U.S. military services has been governed by the Defense Officer Personnel Management Act (DOPMA), which was enacted as Pub. L. 96-513 and codified in various sections of Title 10 of the United States Code. According to an unpublished 2018 U.S. Senate Armed Services Committee staff report, DOPMA was meant to be a continuation of other post–World War II legislation, providing "a long-range management framework in which the officer corps could be successfully managed and through which the historical problem of unreadiness for war could be avoided."[2] Comparable provisions

[1] This categorization of topics was used in Robbert et al., 2019, a RAND Corporation report that provided the material developed by RAND's National Security Research Division for the reports to the Armed Services Committees.

[2] A copy of this unpublished staff report was provided to the authors during a meeting of the Manpower Roundtable on November 13, 2018.

pertaining to the reserve components are set out in the Reserve Officer Personnel Management Act (ROPMA), which was enacted in 1994 as part of the FY 1995 NDAA (Pub. L. 103-337).

DOPMA and ROPMA have the following five key features (Parcell and Kraus, 2010):

1. A closed personnel system: New officers generally enter the system at low grades, and positions in higher grades are filled by internal promotion.
2. A personnel pyramid: DOPMA grade structures are pyramid-shaped, with the number of officer positions declining as ranks increase. In turn, promotion opportunities decrease as officers move up the ranks.
3. A competitive, up-or-out career flow: Officers enter the system at low ranks, compete for promotion, and must separate if they are not selected after a certain number of opportunities (the number of which might vary).
4. Seniority-based promotion timing: Officers are eligible to be considered for promotion to each grade when they are within specific promotion zones, which are defined by years-of-service (YOS) windows and by seniority within each grade (i.e., time in grade) and might vary by competitive category.[3] This requires that officers be considered for promotion at certain points in their careers; they are not allowed to stay in a grade indefinitely.
5. Uniformity across services: In general, the DOPMA and ROPMA system is uniform across the services. DOPMA's provisions reflect how Congress and military leadership believed that officers should be best managed at the time it was passed: "DOPMA established a common officer management system built around a uniform notion of how military officers should be trained, appointed, promoted, separated, and retired."[4]

### *Drawbacks of DOPMA*

The services have developed their own management policies within the constraints of DOPMA but rarely take advantage of the flexibilities offered by the act. According to unpublished research shared with us during a November 2018 Manpower Roundtable discussion, DOPMA has become a closed and inflexible personnel management system. Table 1.1 lists eight specific drawbacks of the act that were identified in the unpublished research shared with us. As we discuss later, the flexibilities introduced in the FY 2019 NDAA can help services address the first five drawbacks listed in the table.

[3] A *competitive category* is a "separate promotion category established by the Secretary of a Military Department, pursuant to Sections 621, 574(b), and 14005 of Title 10, U.S.C., for specific groups of commissioned officers or warrant officers whose specialized education, training, or experience, and often relatively narrow career field utilization, make separate career management desirable" (Department of Defense Instruction [DoDI] 1312.03, 2018).

[4] Parcell and Kraus, 2010, quoting House Report No. 96-1462.

**Table 1.1. Defense Officer Personnel Management Act Drawbacks Identified by the Senate Armed Services Committee**

| Drawback | Impact |
|---|---|
| Officer careers and unique assignments are too short | • Breadth of experience is prioritized over technical depth of experience<br>• Frequent relocations harm officer retention<br>• Promotions are based on predetermined timelines, not performance |
| Each military service has limited flexibility to manage its unique officer population | • Promotion timing is standardized throughout the military<br>• Up-or-out policies force continued promotion, regardless of skill set or talent |
| Military services do not use the existing flexibility in law to improve personnel processes | • Promotion zones are unnecessarily restrictive<br>• There is little use of direct appointment authority for specialty skills<br>• Few changes are made in competitive categories to address emerging needs |
| Assignment and promotion mechanisms do not recognize individual skills or interests | • Officer assignments are preordained to build future general and flag officers<br>• Technical expertise and individual interests are not recognized by the assignment and promotion system |
| A closed personnel system prevents flexibility and rapid adaptation to emerging threats | • Officers must commission by age 42, which restricts midcareer accessions<br>• The majority of officers must enter at the lowest officer rank<br>• It takes decades to grow a new career field within the military (e.g., cyber) |
| The military cannot effectively influence performance or retention levels | • Compensation is determined solely by time in service |
| The personnel system is unable to adjust to rapid changes in the U.S. Department of Defense (DoD) topline | • Budget cuts bring reductions in force that often completely sever ties with trained, experienced troops<br>• When budgets increase, the military is unable to bring back those who were previously released |
| The Blended Retirement System (BRS) will force officer management reform[a] | • Officers will have more options for determining their preferred length of service<br>• The military has the flexibility to separate officers who are not needed |

NOTE: The last three drawbacks are shaded because they are not addressed by the flexibilities introduced in the FY 2019 NDAA.
[a] The BRS combines elements of traditional military retirement with benefits similar to those offered in civilian 401(k) plans.

## New Flexibilities in Officer Personnel Management

Title V of the FY 2019 NDAA, titled *Military Personnel Policy*, introduced several new personnel policies that offer greater flexibility in officer personnel management. These flexibilities, which align with the first five DOPMA drawbacks shown in Table 1.1, represent an effort to help the services mitigate the constraints inherent in DOPMA. The flexibilities are listed in Table 1.2 by the section of the FY 2019 NDAA in which they are introduced; the table describes the new personnel policy and highlights the problem it is meant to address. The focus of this report is on how the Air Force might make use of some of these management options.

**Table 1.2. Officer Management Flexibilities Introduced in the Fiscal Year 2019 National Defense Authorization Act**

| Flexibility | Intent |
|---|---|
| Section 501: Repeal of requirement for the ability to complete 20 years of service by age 62 as a qualification for original appointment as a regular commissioned officer | Expands the recruitment pool to older officer candidates who might bring more experience to the service |
| Section 502: Enhancement of the availability of constructive service credit for private-sector training or experience following original appointment as a commissioned officer | Enables the services to provide more incentive to experienced candidates by offering commissions at a higher pay grade |
| Section 503: Standardized temporary promotion authority across the military departments for officers in certain grades with critical skills | Expands to all services the authority to award temporary promotions to ranks O-3 through O-6 |
| Section 504: Authority for promotion boards to recommend that officers of particular merit be placed higher on a promotion list | Provides more incentive to high-quality officers: After promotion, they will pin on their new rank before others |
| Section 505: Authority for officers to opt out of promotion board consideration | Enables individuals in specified circumstances to delay meeting a promotion board if doing so would be in the interest of the service |
| Section 506: Applicability to additional officer grades of authority for continuation on active duty of officers in certain military specialties and career tracks | Officers in grades as low as O-2 can be considered for continuation in grade after being passed over twice. Previously, officers had to be at least an O-4 for such consideration. |
| Section 507: Alternative promotion authority for officers in designated competitive categories | This provision allows the services to establish different career or promotion paths for officers in different competitive categories |

## Research Objectives

With the introduction of the new management flexibilities authorized by the FY 2019 NDAA, the Director of Military Force Management Policy, Deputy Chief of Staff for Manpower, Personnel and Services, Headquarters U.S. Air Force, who is responsible for establishing military force-management policies that guide the accession, assignment, evaluation, management, and promotion of Air Force personnel, asked RAND Project Air Force (PAF) to examine the potential utility of the new flexibilities for improving the management of Air Force human capital.[5]

More specifically, RAND PAF was asked to

- review and describe recent research and practice addressing generational differences and similarities in work motivations and intentions

[5] Authorization to create more-competitive categories existed before the FY 2019 NDAA, but the Air Force made limited use of the option. As of FY 2019, the categories are Biomedical Sciences Corps (BSC), Chaplains (CHAP), Dental Corps (DC), Judge Advocate General (JAG), Line of the Air Force (LAF), Medical Corps (MC), Medical Service Corps (MSC), and Nurse Corps (NC). Most Air Force officers are in the broad LAF category (Air Force Instruction [AFI] 36-2501).

- examine Air Force personnel knowledge, perceptions, and recommendations for the use of human resource management flexibilities, including those introduced by the FY 2019 NDAA
- determine the potential impact of five flexibilities from the FY 2019 NDAA, specifically, Sections 501, 502, 504, 505, and 507. Sections 503 and 506 were not considered to be applicable to the career fields of interest to the sponsor.[6]

In addition, RAND PAF, in consultation with the sponsor, focused its evaluation on six career fields that are of great interest to senior leadership or where there are concerns about retention and promotions. Table 1.3 shows the career fields, the specialties included, and the reason for including them.

**Table 1.3. Career Fields Included in Our Evaluation of Personnel Management Flexibilities**

| Career Fields | Reason for Focus |
|---|---|
| Combat Control (STO [13CX], CRO [13DX], ALO [13LX])<br>Contracting (64PX) | Retention |
| Cyber (17XX)<br>Space (13SX)<br>Pilots (11XX and 18XX) | Great interest |
| Acquisition and Development Engineers (62EX, 63AX) | Promotions |

NOTES: ALO = air liaison officer; CRO = combat rescue officer; STO = special tactics officer. The multidomain command and control field did not have any assigned personnel at the time of this research.

## Research Approach

In conducting this research, the study team used a mixed-methods approach composed of modeling, semistructured interviews, and literature review.

### *Modeling*

We used RAND's Military Career Model (MCM) to assess the potential consequences to the workforce of some of the new management flexibilities—in particular, Sections 501, 502, 504, and 507—and the implications of introducing new competitive categories. MCM is a microsimulation model that tracks simulated officers over the course of their careers, beginning from accession and extending through promotions and separation. MCM was first developed to examine the effects of lengthening assignments and careers for active-duty officers (Schirmer et al., 2006) and has since been used in studies related to personnel management, including the evaluation of end-strength accounting rules (Schirmer, 2009) and the impact of institutional requirements on the health of the space career field (Rothenberg et al., 2017).

[6] We also were asked to examine the potential usefulness of increased cross-flow opportunities among some career fields. Because this is not a newly authorized flexibility, we discuss it in Appendix A.

Adjusting variables in the model, such as accessions, promotion board timing, and promotion opportunity, makes it possible to assess the potential consequences of some of the new management flexibilities and of introducing new competitive categories.[7]

### *Semistructured Interviews*

We also conducted 75 semistructured interviews with individuals in the rank of major (O-4) or lieutenant colonel (O-5) in the six career fields of primary interest to the sponsor to gain insight into their opinions about whether the flexibilities offered by the FY 2019 NDAA might be useful for their career fields.[8] Table 1.4 shows the ranks of the individuals in each career field that we interviewed.

**Table 1.4. Interview Demographics**

| | Rank | |
|---|---|---|
| **Career Field** | **Majors** | **Lieutenant Colonels** |
| Acquisition and Development Engineers (62EX, 63AX) | 11 | 2 |
| Combat Control (STO [13CX], CRO [13DX], ALO [13LX]) | 6 | 6 |
| Contracting (64PX) | 8 | 5 |
| Cyber (17XX) | 5 | 7 |
| Pilots (11XX and 18XX) | 5 | 7 |
| Space (13SX) | 6 | 7 |
| Total | 41 | 34 |

SOURCE: Descriptions of career fields were downloaded from Dedoose on August 14, 2019 (Dedoose, undated).

In addition to officers assigned to the career fields of interest, we also interviewed career field managers (CFMs) over the selected career fields.[9]

### *Review of Relevant Literature*

We also turned to the research literature to help assess the practicality of implementing some of the FY 2019 NDAA flexibilities and what experiences civilian organizations have had using similar policies. In addition, we reviewed recent research and practices addressing generational

[7] See Appendix C for more model details. The model is able to reproduce existing grade structures when actual values of these variables are used as inputs, giving us confidence that adjusting the variables to simulate the new flexibilities provides a reasonable estimate of their potential impact.

[8] Promotion rates from first lieutenant (O-2) to captain (O-3) and from O-3 to O-4 are virtually 100 percent, so changes in promotion practices likely would have little impact on O-2s and O-3s facing promotion. For this reason, we targeted O-4s and O-5s in our interviews.

[9] Appendix E has more information on sample selection, conduct of the interviews, and the interview protocol used for the interviews with the O-4s and O-5s in the six career fields of interest.

differences and similarities in work motivations and intentions to inform several aspects of the analysis. This allowed us to better understand what motivates civilian workers and the potential implications for Air Force policy decisions.[10]

## Organization of This Report

In the remainder of this report, we present the results of our analysis. Chapters 2 through 5 discuss the potential impacts of the five flexibilities of interest to the Air Force. In these chapters, we show, through our modeling efforts, the implications of these flexibilities on the size and grade distribution of the workforce and address the utility of these career-management options from the perspective of the Air Force officers who work in or manage these career fields. Each chapter presents insights from modeling and interviews. In Chapter 6, we summarize the findings across the prior chapters for each flexibility examined and outline important issues the Air Force must consider when implementing these career-management options.

Several appendixes add to these findings. Appendix A contains an analysis of the potential usefulness of increasing the use of an existing flexibility, specifically cross-flow opportunities. In Appendix B, we provide a framework for assessing the supply of candidates with the appropriate skills for career fields that are considering using lateral entries to address personnel deficits. Appendix C provides an overview of the MCM. In Appendix D, we summarize some additional officer comments about career flexibilities from our interviews, and in Appendix E, we describe our interview approach and include a copy of the interview protocol.

[10] This literature review provides insight into the attitudes of members of the civilian workforce. It includes some workforce flexibilities that were mentioned by officers we interviewed but are not among the flexibilities introduced by the FY 2019 NDAA. Because of the extent of the literature review, it will be published separately.

# 2. Sections 501 and 502: Allowing Older Accessions and Enhancing Constructive Credit

Allowing lateral entries is one way the Air Force might more flexibly manage officer careers and career fields. By law, regular commissioned officers of the Army, Navy, Air Force, and Marine Corps must retire at 62 years of age.[11] Because officers may retire after 20 years of service and receive retirement pay, one of the requirements for receiving an original officer appointment was that an individual be able to complete 20 years of service by age 62.[12] By implication, this restriction meant that the services could not access individuals older than 42 years of age into the officer corps. Section 501 of the FY 2019 NDAA repeals this requirement, making it easier for people to begin military service as an officer when older than 42.

In addition, in keeping with the idea of broadening the pool of potential officer candidates, Section 502 of the FY 2019 NDAA allows service secretaries to grant

> . . . [a]dditional [constructive] credit for special training or experience in a particular officer career field as designated by the Secretary concerned, if such training or experience is directly related to the operational needs of the armed force concerned.

Constructive credit is used

> . . . to provide grade and date of rank comparability for a person who begins commissioned service after obtaining the additional education, training, or experience required for appointment, designation, or assignment as a commissioned officer in a professional field relative to a contemporary who began commissioned service immediately after obtaining a baccalaureate degree. (DoDI 1312.03, 2006, paragraph 6.1.2)

Prior to the passage of the FY 2019 NDAA, constructive credit for private-sector training was capped at the amount required for original appointment in the grade of O-4 (i.e., 11 years).[13] Section 502 allows the services to award the constructive credit required for original appointment up to the grade of O-6 and removes restrictions on career fields. According to a

[11] Retirement can be deferred under certain circumstances (see 10 U.S.C. § 1251).

[12] See 10 U.S.C. § 3911, § 6323, and § 8911 for legislation governing retirement. Until the introduction of the BRS in 2018, if someone left the military before completing 20 years of service, they received no retirement pay. For information on the BRS, see Uniformed Services Blended Retirement System, undated.

[13] AFI 36-2005, Table 11.1, shows that a minimum of 11 years must be awarded for the rank of major and also notes that for BSC, MSC, and NC, the service credit awarded must be at least 14 years. Waivers are allowed. According to paragraph 11.2.1 of AFI 36-2005, "The SAF may waive the entry grade limit of major to permit appointment in the grades of lieutenant colonel or colonel to relieve manning shortfalls in a specialty, or prevent a serious inequity in the appointment action. In these cases, credit is limited to the minimum amount required for appointment in these grades."

recent RAND report, "[t]he increased grade flexibility will enable the services to offer more competitive rank and compensation to individuals with critical skill sets in order to meet service needs" (Robbert et al., 2019, p. 76).

Although the flexibilities addressed in Sections 501 and 502 are technically separate management tools, they could be used in tandem to allow lateral entry into the Air Force. That is, although it might be the case that commissioning older people would increase the potential pool of officers in general, it is likely that the older candidates the Air Force wants to attract are those with talents and experience in career fields in which the Air Force has difficulty attracting skills. Offering commissions at higher ranks and granting more constructive service credit not only could serve as an incentive for experienced people to join the military but also could allow the Air Force to place them in positions that warrant a rank higher than second lieutenant. In this chapter, we present the potential implications of using these flexibilities, based on modeling, and discuss officer perspectives about the potential usefulness of these flexibilities.

## The Potential Impact of Using Section 501 and 502 Flexibilities

As of 2019, CFMs for the cyber operations career field (17X) have had difficulty filling requirements for field-grade officers (FGOs; O-4 to O-6). This suggests that the career field might benefit from bringing in officers at a higher grade (i.e., lateral entries), so we used it to test the potential usefulness of the flexibilities introduced by Sections 501 and 502.[14] We used the MCM to address two questions:

1. Is it possible to satisfy cyber operations (17X) grade requirements given the career field's current structure and management practices?
2. Can Sections 501 and 502 help correct the imbalance of company and field-grade cyber operations (17X) officers?

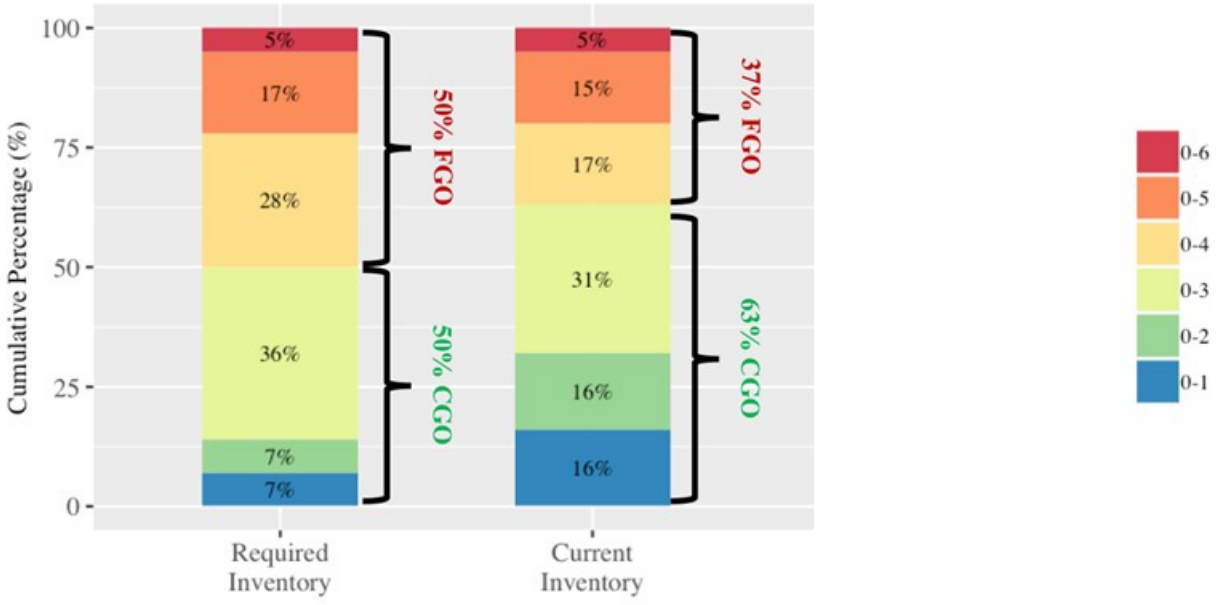
Problems with satisfying grade requirements for the cyber operations career fields are illustrated in Figure 2.1. As shown by the left bar in the figure, as of September 2018, officer distribution targets for the cyber operations career field were 50 percent company grade (second lieutenant [O-1], O-2, and O-3) and 50 percent field grade (O-4, O-5 and O-6). We refer to this as the *required inventory distribution* because it is the authorized grade structure the career field seeks to maintain. In contrast, the *current inventory* (shown in the right column of Figure 2.1) is composed of 63 percent company grade officers (CGOs) and 37 percent FGOs, which is out of balance with the requirements.[15] Given current structure and management practices, it appears

[14] The impact of allowing lateral entries was tested for other career fields as well (see Appendix C for more information).

[15] A baseline MCM simulation using historical promotion rates, phase points, and separation rates for cyber operations officers closely resembles the current inventory, which supports the use of the model for exploring the consequences of management changes. The MCM baseline simulation results in an inventory with 62 percent CGOs and 38 percent FGOs and shows a reasonable correspondence to the percentages for each rank.

that the Air Force faces challenges in satisfying cyber operations officer grade distribution requirements.

**Figure 2.1. Cyber Operations Career Field Imbalances Captured by the Military Career Model**




SOURCE: The targets shown in the left bar are from career field health charts provided by Headquarters Air Force, Human Resources Data Analytic and Decision Support Division (AF/A1XD) in September 2018. The process for establishing these requirements is described in AFI 38-201. We accepted the requirements as reported and used them to demonstrate the feasibility of the courses of action (COAs). The right bar shows RAND simulations using MCM.

In our baseline simulation reflecting the current inventory, 240 individuals are accessed annually at the grade of O-1 to maintain the total inventory of the career field. To test the usefulness of Sections 501 and 502 for addressing the imbalance in field-grade cyber operations officers, we simulated more than 175 scenarios. In all of the scenarios, 240 individuals were accessed each year, but the number of those accessions allowed to be lateral entries at O-2, O-3, and O-4 was varied.[16] We selected two example COAs, shown in Table 2.1, to illustrate potential trade-offs in the use of lateral entries.

COA 1 allows accessions at grades O-1 to O-3. It limits the maximum amount of constructive credit that any individual receives to that required to be a captain and it requires 160 lateral entries annually at the grade of O-3. COA 2 allows accessions at grades O-1 to O-4. It

[16] Fully crossing accessions at grades O-1 to O-4 while allowing the percentage of accessions at each grade to vary from 0 percent to 100 percent in ten equally spaced increments produces a total of 179 distinct scenarios. Appendix C contains the subsets of scenarios for two career fields (space operations [13S] and cyber operations [17X]) that came within 1 percent of producing the required ratio of FGOs to CGOs.

makes it possible to reduce the total number of lateral entries needed to 45 annually.[17] However, it increases the amount of constructive credit that any individual receives because all of the lateral entries enter the service as O-4s.[18]

**Table 2.1. Annual Accessions by Grade in Two Lateral Entry Simulations**

| Grade | COA 1 | COA 2 |
|---|---|---|
| O-1 | 80 annually | 195 annually |
| O-2 | 54 annually | 0 annually |
| O-3 | 106 annually | 0 annually |
| O-4 | N/A | 45 annually |
| Total lateral entry | 160 annually | 45 annually |

NOTE: N/A = not applicable.

The inventories produced by the two COAs are shown in Figure 2.2. As the figure shows, both COAs produce a 50-50 mix of CGOs and FGOs, as specified by the requirements (shown in the leftmost bar).[19] However, both COAs lead to a slight excess of officers at O-5—with COA 1 producing 20 percent O-5s and COA 2 producing 21 percent O-5s against an inventory requirement of 17 percent.[20] These results indicate that, in the case of cyber operations, the overall imbalance between CGOs and FGOs can be addressed using lateral entries at several grade levels. Additionally, the number of lateral accessions needed can be reduced if highly skilled individuals can be found to join the Air Force at higher ranks.[21]

[17] COA 2 was selected in this example because it had the minimum number of total lateral entries among the scenarios. COA 1 was selected because it showed the need for more lateral entries if they were allowed only at the grades of O-3 or below.

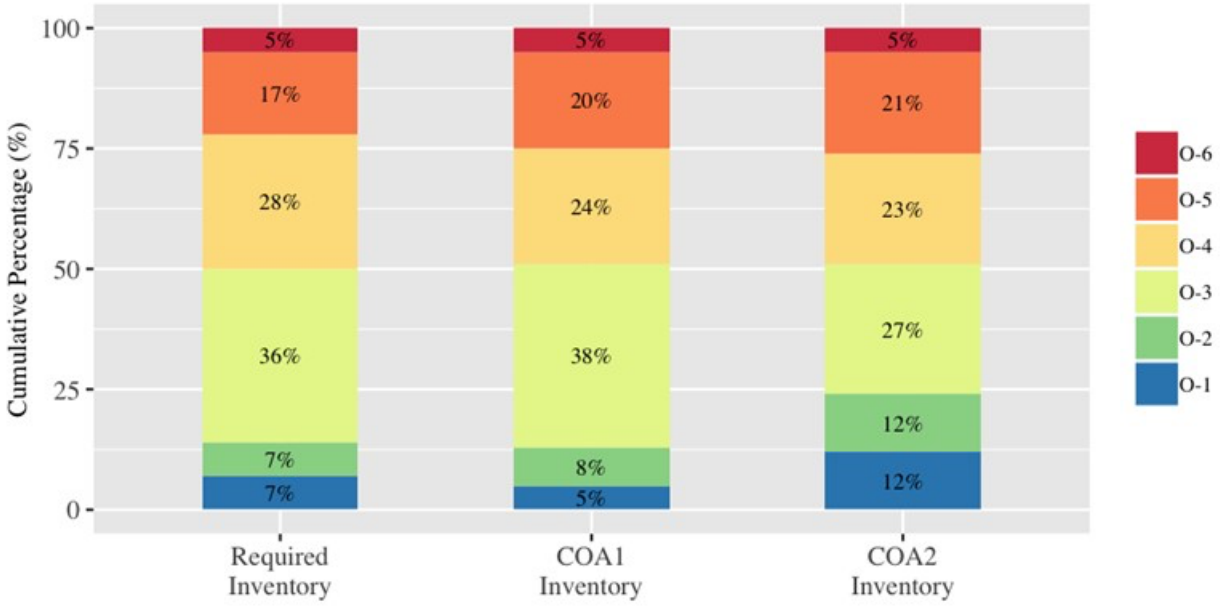
[18] This trade-off between the total number of lateral entries needed and the experience levels of lateral entries was observed for all of the scenarios. See Appendix C for more information.

[19] These simulations include the strong assumption that individuals entering the force above the grade of O-1 have similar retention profiles to those who enter at O-1. See Appendix C for a discussion of the effect of lateral entries on different retention rates.

[20] We will show in Chapter 5 (specifically, in our discussion of Section 507) that the imbalance of O-5s and O-6s can be addressed by treating lateral entries as a separate competitive category and modifying time-in-grade (TIG) requirements for promotion.

[21] The ability of the Air Force to use lateral entries—either large numbers of lower-skilled candidates or smaller numbers of more–highly skilled candidates—will depend on the existence of a supply of candidates with the appropriate skills. We discuss how the potential supply can be assessed in Appendix B.

**Figure 2.2. Effect of Two Approaches to Lateral Entry on Inventory**




To determine whether these results are applicable broadly across career fields, we examined whether lateral entries improved the ability to match inventory with requirements in a total of 11 career fields. We found that lateral entry benefited career fields among those 11 that required a higher percentage of FGOs (generally more than 40 percent)[22] and that it did not benefit those that required a lower percentage of FGOs.[23] This is because lateral entry *reduces* the time it takes to reach field-grade ranks; therefore, lateral entry can increase the size of the field-grade inventory but cannot decrease it.

## Officer Perspectives on the Potential Usefulness of Sections 501 and 502

We also spoke with CFMs and other Air Force officers to gain their perspectives regarding the potential utility of these flexibilities. In the following sections, we describe those perspectives.

### *Career Field Managers*

The CFMs with whom we spoke expressed some ambivalence regarding the utility of Sections 501 and 502. Addressing Section 501 (repeal of the requirement to complete 20 years of

[22] The MCM showed that this was true for acquisition management (63A), public affairs (35P), cyberspace operations (17D), cyber warfare operations (17S), contracting (64P), space operations (13S), and air battle manager (13B). All except 13B are authorized 40 percent or more FGOs, according to AF/A1XD career health charts from July 11, 2019.

[23] The MCM showed that this was true for tactical air control party officer (13L), pilot (11X), developmental engineering (62E), and combat rescue (13D). All except for 13L are authorized fewer than 40 percent FGOs. See Appendix C for more information.

service by age 62), CFMs in half of the career fields we surveyed discussed the advantages of this flexibility, and several focused on whether individuals who joined under this flexibility could meet physical requirements. For example, one individual stated that

> The assumption is that they meet physical standards and they're deployable. So I would be agnostic to it. As long as they meet physical standards and they're deployable, then it would be odd, but I wouldn't be against it.

In slightly more than half of the career fields (approximately 63 percent), CFMs discussed the advantages of Section 502 (the ability to grant additional constructive credit). Several CFMs indicated that implementation of this flexibility could increase the inventory of who could join. In the case of pilots, one person said,

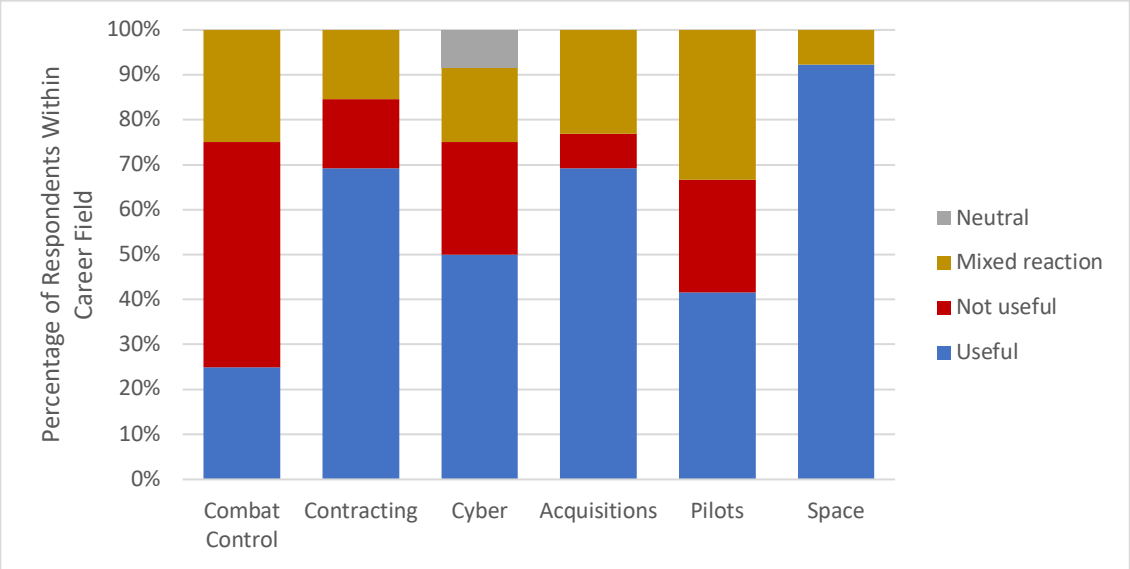
> I think in some smaller cases it would be helpful. . . . [The Air Force] can fast track folks who didn't have [the] opportunity to go through a commissioning source or who love to fly but weren't ready to sign up for the Air Force. For someone who flew 800 hours, maybe they can come on active duty. . . . That's where I see the usefulness—for those who have a pilot's license.

### *Air Force Officers*

#### Section 501

Overall, 59 percent of the officers with whom we spoke reported believing that the flexibilities offered in Section 501 would be useful. We provide additional information regarding the process used to code officer perceptions in Appendix E. A large majority of individuals in the space career field reported believing that the flexibility would be useful (see Figure 2.3). By contrast, a large majority of individuals in combat control career fields either thought that this flexibility would not be useful or had mixed reactions. These differences in views might be because of the different nature of the work required in different career fields and, in particular, the corresponding physical requirements.

**Figure 2.3. Officer Perceptions of the Utility of the Repeal of the Requirement to Complete 20 Years of Service by Age 62**




When discussing the utility of this flexibility, interviewees commented that its implementation would increase the maturity and experience levels within their career fields, increase the size of the candidate pool for their career fields, and improve Air Force diversity. Those in the space career field in particular focused on the maturity or experience that implementation of this flexibility could bring to their career field. For example, one space officer (O-5) noted that

> A late starter who has experience in civil or commercial space could definitely help our career field. . . . Bringing their experience and integration [from] those civil and commercial realms [is] very desired right now. I don't see having to serve 20 years as a big deal since we've gone to the blended retirement system.

The comments provided by those who believed that this flexibility would not be useful focused on fitness standards and deployability: Specifically, they perceived that older individuals would have difficulty meeting current physical fitness standards and would be less willing to deploy. Those in combat control in particular expressed concerns regarding the ability of older individuals to meet physical fitness standards. One combat control officer (O-4) commented, "I don't know that anyone older than late 30s would be physically capable of doing our job repeatedly on a daily basis."

When asked to comment on possible issues that could arise with the implementation of this flexibility, individuals focused on the potential physical issues, again discussing the difficulties that older individuals might face in meeting physical fitness standards. They also noted that implementation of Section 501 would require a cultural change within the Air Force, such that

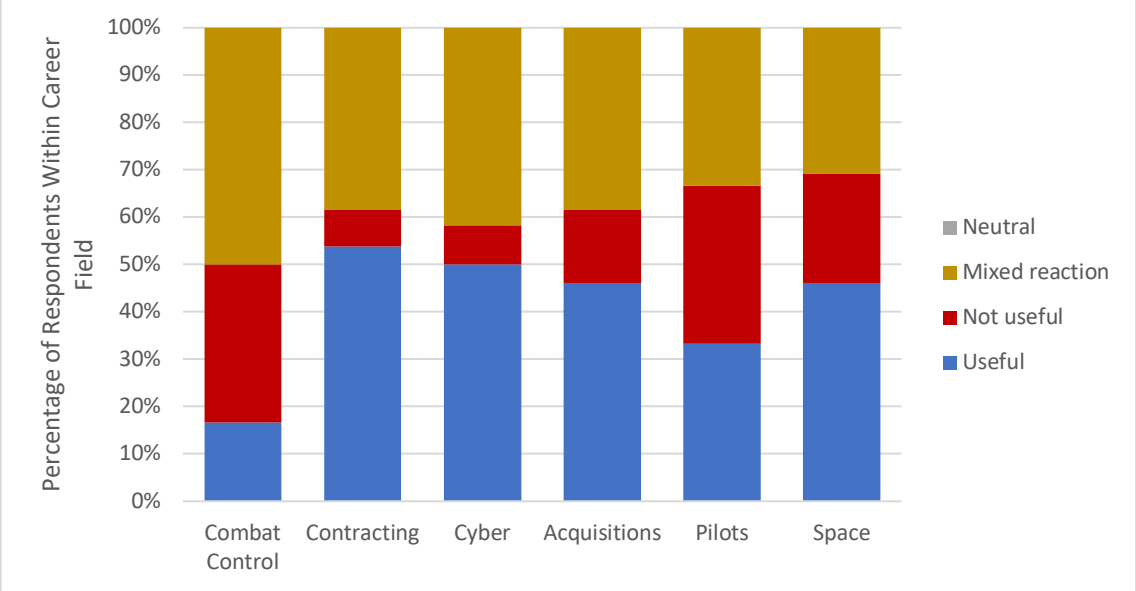
older entrants would not have the same employment experiences as those who joined the Air Force at a younger age. Addressing cultural change, an acquisitions officer (O-4) stated,

> From an optics standpoint, I think that's something that'll be a culture shift. . . . I could see there being issues for career fields where the leader has grown up in an environment where they've been leading younger individuals their entire career, or less experienced individuals. Not necessarily younger, but less experienced individuals, maybe maintenance or Security Forces or something like that. I could see there being an issue there.

### Section 502

Overall, 41 percent of the officers with whom we spoke reported believing that the Section 502 flexibility would be useful. A large majority of individuals in combat control career fields either believed that this flexibility would not be useful or had mixed reactions (see Figure 2.4).

**Figure 2.4. Officer Perceptions of the Utility of the Increased Use of Constructive Credit**




Those who focused on the utility of this flexibility indicated that it would allow the Air Force to hire people with management or technical experience and would provide incentives for individuals to join the Air Force. For example, a contracting officer (O-5) stated,

> The talent pool that we are really competing against is industry, and they get paid a lot of money. So, it's just like doctors or lawyers, people have gone to school for a long time. They've racked up a lot of school. We're looking for people that have some business savvy, and to get those folks, you have to pay a little bit of a premium.

Those who discussed reasons why this flexibility would not be useful noted that individuals to whom this flexibility would be applied would lack credibility as more-senior officers and

would lack the experience needed to understand military issues. Addressing this issue, an acquisitions officer (O-4) commented,

> There is a difference between a lieutenant and a captain and a major and a lieutenant colonel. If you just bring someone in, they may have 20 years industry experience being an engineer, but they do not have ten to 20 years military officer experience, having to deal with the family situations and the leave and [permanent change of station orders] and just deployment and everything that goes with being a military officer. They would not have that, and I think the minute you say industry or career experience replaces that experience, I don't think that's right. I think that would be disastrous. I would rather work for a really great military officer than the world's best engineer.

When asked to discuss—or further discuss—possible issues that could arise with implementation of this flexibility, many interviewees indicated that individuals who joined the Air Force under this flexibility would lack military credibility and an understanding of military life and culture. For example, a cyber officer (O-4) stated,

> I also think there's some risk with, I guess, people who would come in under that program kind of taking a while to get accustomed to everything. . . . So that learning curve, there's definitely a chance for that to adversely affect culture because now you're going to look at a lieutenant colonel and it's not going to mean a lieutenant colonel anymore.

To address this, interviewees indicated that the Air Force would need to restrict command authority among those who joined the Air Force under this flexibility, modify the promotion process for these individuals, or require that they receive training on military life and responsibilities.

## Summary

Two of the flexibilities outlined in the FY 2019 NDAA can be used in conjunction to promote lateral entry into the Air Force. Specifically, Section 501 repeals the requirement to complete 20 years of service by age 62, and Section 502 allows service secretaries the ability to grant additional constructive credit. Using modeling, we found that lateral entry might benefit career fields that require a higher percentage of FGOs but would not benefit those requiring a lower percentage of FGOs. In addition, our interviews with Air Force officers suggested variation across career fields in perceptions of the utility of Section 501 and negative or mixed reactions across career fields with regard to the utility of Section 502.

# 3. Section 504: Adjusting Promotion Lists Based on Merit

An additional path the Air Force might pursue to more flexibly manage Air Force officer career fields and careers is to make adjustments to the officer promotion process. Currently, the sequence of officers on promotion lists is determined by time in grade. That is, once a group of officers is selected for promotion, the first officers to pin on the next rank are those who have served the most time in their current rank.

Section 504(a) of the FY 2019 NDAA grants the following authority to promotion boards to change how the order of pinning on a new rank is determined:

> In selecting the officers to be recommended for promotion, a selection board may, when authorized by the Secretary of the military department concerned, recommend officers of particular merit, from among those officers selected for promotion, to be placed higher on the promotion list established by the Secretary under section 624(a)(1) of this title.

To make use of this flexibility, a service secretary must authorize the use of a merit-based promotion list. To be placed higher on the promotion list based on merit, an officer must receive the recommendation of at least the majority of the board members unless a service secretary establishes an alternate requirement. An assumption is that the prospect of earlier pin-ons will assure officers that superior performance is recognized and rewarded.

In this chapter, we consider how merit-based promotions could affect promotion timing in general, the potential impact of such promotions on the distribution of promotions for pilots, and the opinions of officers on the usefulness of this flexibility.

## The Potential Impact of Merit-Based Promotions on Promotion Timing

By statute (10 U.S.C. 645(1)(B)), service secretaries establish the promotion zone for a promotion board by identifying the most-junior officer eligible for in-the-promotion-zone (IPZ) consideration by the board. Under current Air Force policy, field-grade promotion boards are held approximately annually for each grade, with the promotion zone defined so as to maintain the integrity of each commissioning year group so that officers who commission in the same year group are considered for promotion reasonably close to the same time.

Officers are selected IPZ (with their year-group peers), below the promotion zone (BPZ; earlier than their year group), or above the promotion zone (APZ; later than their peer group).

In any given year, IPZ candidates will, for the most part, include all eligible officers who were commissioned in the same calendar year. However, there also might be some candidates from earlier calendar year groups who had been selected APZ and some from later calendar groups who had been selected BPZ.

If there were no previous selections BPZ, the junior officer identified by the secretary would be the last officer commissioned in the year group entering the promotion zone. If there were previous BPZ selections, it would be the most-junior officer previously promoted BPZ with the commissioning year group entering the promotion zone.

Because boards generally are held once per year, high-quality officers' gains in promotion timing depend on their relative seniority within their commissioning year group. If they are selected BPZ, officers are considered for promotion along with IPZ and APZ selectees from an earlier year group. If sequencing is by date of rank (DOR)—or the date an individual pinned on the current rank (as under current Air Force policy)—BPZ selectees are junior to IPZ selectees and will thus be sequenced at the end of the promotion list. High-quality officers who are commissioned near the beginning of a commissioning year, if selected one year BPZ, will be promoted only one or two months earlier than would have been the case if they were promoted IPZ by the next promotion board.

Officers commissioned late in the same year who are selected one year BPZ would be promoted perhaps 12 months earlier than would be the case if they were promoted IPZ by the next promotion board. Similarly, if merit-based promotion list sequencing is used, high-quality officers at the senior end of a commissioning cohort gain little or nothing, while those at the junior end might be promoted as much as a year earlier than they otherwise would have been. Because many officers are commissioned after graduation in May or June, we focus on the midpoint cases as the most representative.

Modeling promotion timing alternatives is relatively straightforward when year-group integrity is maintained.[24] It becomes more complex if the Air Force exercises its latitude to set a promotion zone boundary that does not maintain year-group integrity. Because the Air Force is considering the use of this alternative for line officer developmental categories and has already used it in the case of nurse promotions to O-6, we include several cases to demonstrate its potential effects on high-quality officer promotion timing.[25]

These various policy permutations give rise to many possible cases. To keep our analysis tractable, we consider a limited number of bookend and intermediate cases, which we describe in Table 3.1.

[24] The results in this report are from a simple Microsoft Excel spreadsheet developed by our RAND colleague Albert Robbert.

[25] As with competitive categories, changing promotion zone boundaries is not a management option that was newly authorized in the FY 2019 NDAA, but it could be used in conjunction with the new flexibilities to further shape promotion outcomes.

**Table 3.1. Policy Permutations Used to Examine the Potential Impact of Merit-Based Promotions**

| Policy Permutation Label | Policy Permutation Description |
|---|---|
| DOR: no BPZ | This base case reflects the timing of a "due-course" officer (all promotions IPZ) with<br>• promotion lists sequenced by DOR<br>• promotion zones that maintain year-group integrity<br>• average phase points for promotion to O-4, O-5, and O-6 at ten, 15, and 21 years of service, respectively. |
| DOR: one-year BPZ for O-5 and O-6 | This case shows how a high-quality officer would fare using DOR if selected for BPZ promotion one year early to both O-5 and O-6. |
| DOR: two-year BPZ for O-5 and O-6 | This case illustrates how a high-quality officer would fare using DOR if selected for BPZ promotion two years early to both O-5 and O-6. |
| Merit: no BPZ<br>Merit: one-year BPZ for O-5 and O-6<br>Merit: two-year BPZ for O-5 and O-6 | These three cases introduce merit-based promotion list sequencing in combination with the previous three cases. |
| Merit zone widened at O-5 and merit zones widened at O-5 and O-6 | With merit-based promotion list sequencing, high-quality officers will have been placed at the beginning of a promotion list sequence when selected for promotion to O-4. If O-5 promotion zones are subsequently defined to be a little wider than would be the case if maintaining year-group integrity (by shifting the DOR cutoff in a more-junior direction), a slice of high-quality O-4s promoted at the beginning of their promotion cycle could enter the O-5 promotion zone a year earlier than would be the case if maintaining strict year-group integrity. This would have an impact on their promotion timing that would be similar to a BPZ selection.<br>One case depicts widening of the zone at O-5 and another depicts widening the zones at both O-5 and O-6. |
| DOR: two-year BPZ for O-5 and one-year BPZ for O-6 | If promotions are made by DOR and allow two-year BPZ for O-5 and one-year BPZ for O-6, the result closely replicates the case where merit zones are widened at O-5 and O-6, so we include it for comparison. |

In all cases, we made the following simplifying assumptions:

- Promotion phase points (average years of service at pin-on) are held constant by varying promotion opportunity. For due-course officers, these phase points will be at ten, 15, and 21 years of service for O-4, O-5, and O-6 promotions, respectively.
- Promotion cycles (the periods of time during which selectees from a given board are promoted) are exactly 12 months long.
- For cases involving DOR-based promotion list sequencing, the distribution of monthly promotion increments within a promotion cycle matches the distribution of commissioning dates among the IPZ cohort (i.e., an officer commissioned in the *n*th month of the commissioning year, if selected IPZ, will be promoted in the *n*th month of the promotion cycle).

In actual practice, variations in year-group sizes, patterns of losses, changes in grade ceilings as a result of changes in overall officer strength, redistribution of grade ceilings across

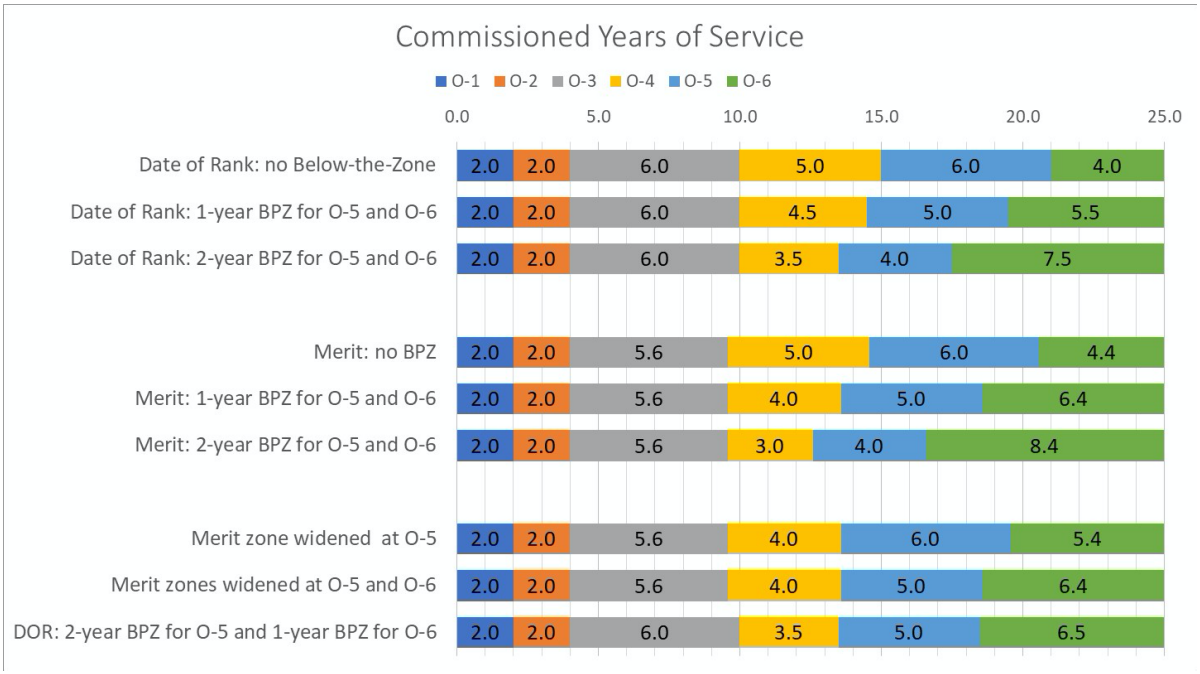
developmental categories, additions and subtractions from a year group because of BPZ selections, and variations in targeted promotion opportunity can cause promotion cycles to be accelerated, decelerated, lengthened, and/or shortened, or affect the relative seniority of officers in the cohort. The distribution of monthly increments can be skewed toward the beginning or end of a cycle for fiscal reasons, or monthly increments might be set to be approximately equal in number across a promotion cycle. These phenomena will make the absolute magnitude of promotion timing gains by high-quality officers vary somewhat from those shown in our analysis, but the direction and relative magnitude of the changes we depict would be largely unaffected by them.

### *Impact on Officers at the Midpoint in Their Commissioning Year Group*

Figure 3.1 illustrates time spent in each grade in the nine cases discussed earlier for high-quality officers who start out at the midpoint in their commissioning year group (we based our calculations on a June commissioning date). For ease of comparison (and because we do not focus on promotions beyond O-6), we cut off all time lines at 25 years of service. The bars in the figure are grouped by cases: The first three bars show the cases with promotion timing based on DOR, the second three show the cases with promotion timing based on merit, and the last three address widening the promotion window.

With DOR promotion list sequencing, if high-quality officers are promoted BPZ to O-5, they would be sequenced after the officers selected IPZ on the same board. If such officers are selected one year BPZ, they would be promoted six months earlier—at about 14.5 years of service, as shown in the DOR: one-year BPZ for O-5 and O-6 case—than if promoted IPZ in the next promotion cycle. If such officers are selected two years BPZ, they would be promoted about 18 months earlier—at about 13.5 years of service—than if they had been promoted IPZ. Because these officers are at the junior end of a new cohort (i.e., those commissioned one or two years earlier than them), subsequent BPZ promotion to O-6 one or two years early will advance their promotion another 12 or 24 months ahead of when they would be promoted IPZ. They would be promoted to O-6 at about 19.5 years of service in the DOR: one-year BPZ for O-5 and O-6 case and 17.5 years of service in the DOR: two-year BPZ for O-5 and O-6 case.

**Figure 3.1. Simulated Promotion Timing of High-Merit Officers at the Midpoint in Their Commissioning Year Group**




Merit-based promotion list sequencing with no BPZ promotions results in midcohort high-quality officers gaining about one-half of a year of promotion timing following promotion to O-4 (reaching the rank at 9.6 years of service instead of ten), with this gain persisting but not growing in subsequent promotions. Because these officers are already at the senior end of their promotion cohorts after their O-4 promotions, being advanced to the senior end of the promotion sequence list in subsequent promotions provides no additional gain in promotion timing. However, the half-year gain at promotion to O-4 means that these officers would reach O-5 and O-6 at about the same point as an officer with a one-year BPZ promotion to O-5 and conventional DOR-based promotion list sequencing.

On the other hand, combining merit sequencing with BPZ selections does have compounding effects. In the DOR: one-year BPZ for O-5 and O-6 case, promotion to O-5 is at 13.6 years of service, almost as early as the 13.5 years of service in the DOR: two-year BPZ for O-5 and O-6 case. The fastest timeline in all of the nine cases is the merit: two-year BPZ for O-5 and O-6 case, which yields promotion to O-5 at 12.6 years of service and to O-6 at 16.6 years of service for midcohort officers.

The case with the merit zone widened at O-5 arises if there are no BPZ promotions but the promotion zone is widened to include slightly more than one commissioning year group. The most-senior officers previously promoted to O-4 (i.e., highly qualified officers advanced to the beginning of the promotion list sequence) would be included in the fourth rather than the fifth promotion cycle after promotion to O-4. They would go to the beginning of the promotion list

sequence again and pin on O-5 a year earlier than if they had been promoted along with their O-4 commissioning year group. A similar effect can be achieved by slightly widening the O-6 zone, as is depicted in the merit zone widened at O-5 and O-6 case. As discussed earlier, the latter case produces results in O-5 and O-6 promotion timing that are similar to the DOR: two-year BPZ for O-5 and one-year BPZ for O-6 case, with which it is juxtaposed in the figure. Widening the promotion zone, with phase points and the promotion cycle held constant, would require a reduction in promotion opportunity similar to the virtual reduction in promotion opportunity for IPZ when BPZ promotions are allowed.

There is a statutory requirement (10 U.S.C. 619) for officers to have three years TIG before IPZ consideration for a field-grade promotion. Service secretaries can waive the three-year TIG requirement to permit BPZ considerations, but that waiver authority would not apply if widened promotion zones are used as a substitute for BPZ consideration. By our calculations, the widened promotion zone would result in high-quality officers pinning on O-5 about four years after pinning on O-4. At both grades, they would be pinning on in the first month or two of a promotion cycle. If the O-5 board were held too far in advance of the beginning of its promotion cycle, the TIG requirement could come into play and prevent the high-quality O-4s in the widened window from being considered.

If the promotion zone boundary shifts in the other direction (toward a more-senior DOR cut-off) by less than 12 months, high-quality officers would still be considered for promotion to O-5 five cycles after selection for promotion to O-4. They would be joined by a senior portion of their O-4 promotion cohort and a junior portion of the cohort selected for O-4 one cycle earlier than them. The high-quality officers would again rise to the beginning of the promotion list sequence, resulting in promotion at about the same point as if there were no shift in promotion zone boundaries. If the promotion zone boundary shifted in a more-senior direction by more than 12 months and annual cycles were maintained, these officers would not be considered for promotion to O-5 until the sixth cycle after selection for O-4, adding a year to their O-5 promotion date. This is the rough equivalent of skipping a board in the current system. Because this is an unlikely case, we have not depicted it.

### *Summary of the Impact of Merit-Based Promotions on Promotion Timing*

Both BPZ selections and merit-based promotion list sequencing can affect the timing of a high-quality officer's promotion. The size of the shift depends on the officer's relative seniority within their original commissioning year group, with officers at the junior end of the year groups (i.e., commissioned late in the year) receiving the most benefit. In most cases, high-quality officers at the junior end pin on field-grade promotions with about one year less time in service than officers at the senior end.

Merit-based promotion list sequencing can advance high-quality officers to the grade of O-5 and O-6 at about the same YOS point as officers with one-year BPZ selection to O-5. It can

replicate deeper BPZ selections (two years BPZ to O-5 and one year BPZ to O-6) if promotion zones are widened to include slightly more than a commissioning year group.

The full effects of merit-based sequencing would not emerge immediately. Some of the timing gains for high-quality officers competing for O-5 and O-6 depend on the officers' having been given low line numbers when selected for O-4. Thus, the O-5 effects would not fully emerge until the first merit-sequenced O-4 selectees compete for O-5. Effects for officers at the grade of O-6 would not fully emerge until those same merit-sequenced O-4 selectees compete for O-6. Over that period, combinations of merit sequencing and BPZ selections would be needed to provide whatever degree of promotion acceleration is deemed appropriate.

We now consider the potential impact of merit-based promotions on the distribution of colonels in the pilot career field. We specifically focus on pilots because the Air Force has been concerned about a shortage of pilots for several years. Therefore, the potential impact on retention of any changes in promotion processes is a concern of senior leadership. That concern, along with the historically high promotion rates of pilots compared with other career fields, led us to use pilots as a modeling example.

## The Impact of Merit-Based Promotions on Pilots

Historically, pilot promotion rates have exceeded LAF averages and pilots have received a disproportionate share of BPZ promotions.[26] We adjusted an MCM parameter in a way that reproduced historical pilot promotion rates over the past ten years and also allowed what was essentially a ranking by merit of pilots who had been promoted.[27]

We show the results of this adjustment to the MCM and retained BPZ promotions in Figure 3.2. The left bar in Figure 3.2 shows the number of pilots promoted to O-6 annually if promotion timing is based on seniority (TIG), broken down by years of service: Of 120 individuals promoted, 42 have 20 or fewer YOS and 78 have more than 20 YOS.

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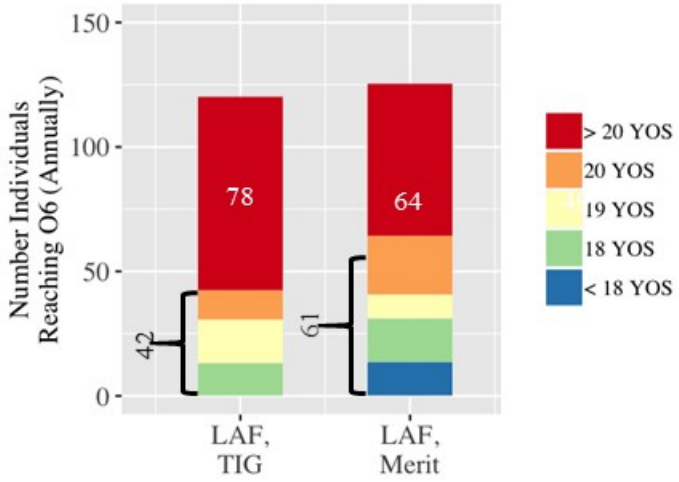
[26] As mentioned in Chapter 1, a *competitive category* is a group of officers who compete among themselves for promotion. In the Air Force, the established categories are: LAF, JAG, MC, DC, CHAP, MSC, BSC, and NC (see AFI 36-2501, p. 90). LAF includes the majority of career fields, and pilot promotion rates have historically been higher than the overall LAF averages.

[27] As part of the MCM simulation, each simulated individual is given a promotability value drawn from a random distribution. Intuitively, the value reflects invariant characteristics that directly and indirectly contribute to the individual's promotability over the course of their career. The default in the model is that all individuals, regardless of career field, draw the promotability value from the same distribution. However, historically, pilot promotion rates to field grade ranks have exceeded LAF averages, and pilots have received a disproportionate number of BPZ promotions. To reproduce this result, we added a career-specific promotability parameter to MCM and varied the mean of the promotability distribution based on the individual's career field. By setting the mean for pilots to a higher value than for other career fields that make up the LAF, we were able to reproduce outcomes from promotion boards from the past ten years.

**Figure 3.2. The Potential Impact on O-6 Pilots of Adjusting Promotion Lists Based on Merit**




The right bar in Figure 3.2 shows the simulated results if promotion timing is based on sequencing by merit. The overall quality of candidates for promotion and the promotion opportunity has not changed, so the overall number of officers promoted to O-6 is nearly the same—in this case, 125.[28] However, by adjusting promotion timing based on merit, the distribution of those selected for promotion changes: Sixty-one of those promoted have 20 or fewer YOS, reflecting the advantage that promoting by merit affords those promoted BPZ.[29] Officers with a history of BPZ promotions have an advantage when they are considered for promotion to general officer, so merit-based promotions could have an effect on the distribution of the career fields represented at higher grades.

In the next section, we present the reactions of those we interviewed to the advantages and disadvantages of changing promotion timing in this way.

[28] Merit-based sequencing allowed pilots to reach the minimum TIG for promotion to O-6 with fewer YOS on average, thereby reducing the number of pilots who separated before being considered for promotion. The slight increase in the number of pilots promoted under merit-based sequencing was offset by a slight decrease in the number of officers from other LAF career fields promoted in that case.

[29] Because the MCM assigns characteristics to individuals (one of which is the promotability value), once the MCM selects individuals for promotion, those individuals can be ranked by their promotability value and those with the highest values can be promoted first instead of promoting the most-senior individuals first. For officers selected IPZ, sequencing by order of merit would result in higher-merit officers being promoted at or near the beginning of the promotion cycle. On average, this would allow those individuals to pin on 5.5 months earlier than with seniority-based sequencing (Robbert et al., 2018). The effects are more dramatic for individuals selected BPZ. With a two-year-early BPZ selection to O-5, an individual might jump ahead by two grade-year cohorts, and with another two-year-early BPZ selection to O-6, the individual might jump ahead by another two grade-year cohorts. Under seniority-based sequencing, the individual instead would be promoted at or near the end of the promotion cycle, causing them to jump ahead by fewer grade-year cohorts.

## Officer Perspectives on the Potential Usefulness of Section 504

### *Career Field Managers*

Across our discussions, CFMs expressed mixed reactions when addressing Section 504, with approximately half focusing on the advantages of this flexibility and half expressing neutral opinions or focusing on concerns. When speaking to the advantages of Section 504, CFMs reported believing that this flexibility would address limitations in the current promotion system. For example, one CFM stated,

> Yeah, I think that could be useful for all career fields. Currently, some of the higher-performing folks, if promoted early, they get promoted at the end of the [current promotion] list and wait longer than everyone else. Those might be the people you want promoted at the beginning of the list. It kind of makes sense. Before I knew how line numbers worked, I assumed it was order of merit, so it makes sense to me that based on how you do on the board should be how you promote.

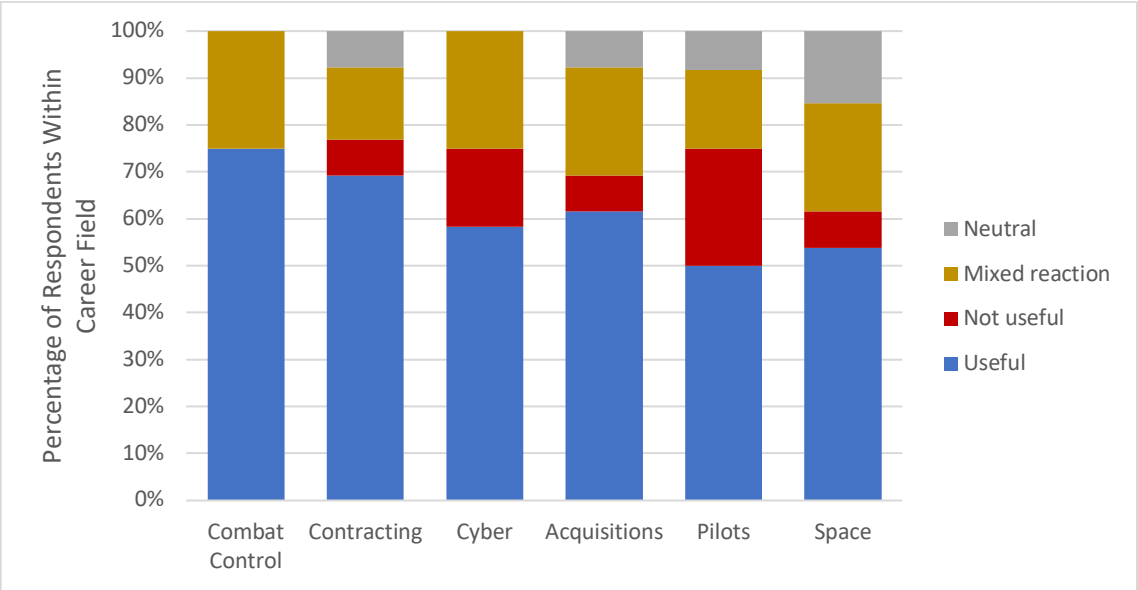
When CFMs addressed issues with the flexibility, they focused on how those not placed higher on the promotion list might perceive being passed over. For example, one CFM said, "I think it can be demoralizing for the rest of [the officers] that are affected by it." Another commented, "I'd say [it depends] on how board scores go. . . . [You] could have a hierarchical system that people don't look kindly on. 'He got promoted before me because he was an exec[utive officer].[30] I was out there flying and now he's pinning ahead of me.'"

### *Air Force Officers*

Overall, 61 percent of the officers with whom we spoke reported believing that the flexibility provided by Section 504 would be useful. There were approximately equally positive opinions expressed across the career fields (see Figure 3.3).

[30] Executive officers, who are commonly known as *execs*, advise the commander or senior leader of their unit and manage front office staff.

**Figure 3.3. Officer Perceptions of the Utility of Implementation of Merit-Based Promotion Lists**




Among officers who thought that the flexibility would be useful, the most common reason discussed for this utility was that it would allow promotions to be provided to those who most deserved them. For example, one officer (O-4) in a combat control career field stated,

> I mean, if someone's package is higher than someone else's, theoretically they're better than them, right, or that's what the Air Force is saying. Or they value that individual more, so yeah, they should be promoted first or sooner. As far as usefulness, yeah, I think it could be useful for identifying our top performers and [ensuring that] they're getting promoted sooner than other individuals who aren't as high performing. Then, they're going to be put in leadership positions sooner, and hopefully, we can feel the benefits of that sooner. So, yeah, I think it's useful.

Similarly, a contracting officer (O-4) commented, "It's simple meritocracy. If you're better, you should get promoted faster. It's simple."

Additional reasons that officers provided for the utility of this flexibility were that the current system is outdated or arbitrary and that this new flexibility would incentivize individuals to perform better. For example, when addressing the current promotion system, a pilot (O-5) noted, "Using people's graduation date or their commissioning date as the determining factor of when you pin on, I think that's outdated. I don't think it brings anything to the Air Force. So I think that's really positive doing something like that." A space officer (O-4), commenting on the idea that this flexibility would incentivize performance, stated, "It would reward top performers, I think. I think it's always good to incentivize performance."

Among those who reported believing that the flexibility would not be useful, the most frequently expressed concern centered on how individuals would be rated and ranked by promotion boards. For example, one pilot (O-5) stated,

> The problem is the way it's going to work out in the end. The way I foresee it, at least, is that the group exec, the wing exec is going to get those pushes. The people who work in those higher positions that have more visibility within the higher ranks are the people who are going to be pushed for that bump. It's not going to go to the dude on the line who's flying three times a week and instructing and evaluating. It's not going to go to those people when it all comes down. It's going to go to the people who work for "the man" who get that push, and they'll be the ones who are going to get paid early is the way I foresee it happening.

When asked to address potential issues with this flexibility, officers most frequently raised concerns over fairness in how individuals would be chosen and who would be chosen. In particular, they expressed concerns regarding potential favoritism in prioritizing certain individuals. For example, a space officer (O-4) stated, "There's always the potential for favoritism in terms of stratification or ranking or prioritization." They noted that the new flexibility might overvalue high performers and—similar to comments received from CFMs—indicated that those not moved higher in the promotion list might feel discouraged. For example, a pilot (O-5) stated, "[It] may affect the sense of fairness. Say my rank was optimal—a distinguished student, work hard—then later I'd be surpassed by others. I might not like that."[31]

## Summary

Section 504 of the FY 2019 NDAA provides flexibility in the timing of officer promotions, such that officers of particular merit can be placed higher on the promotion list. In considering how implementation of this flexibility might influence promotion timing, our results suggest that, if used without BPZ selections, high-quality officers will pin on O-4 about six months earlier than under DOR-based sequencing. Merit-based sequencing at O-5 and O-6 promotions would maintain that gain without increasing it. However, the half-year gain at promotion to O-4 means that these officers would reach O-5 and O-6 at about the same point as an officer with a one-year BPZ promotion to O-5 and conventional DOR-based promotion list sequencing. Additional modeling suggests that the use of this flexibility would diversify the experience level of higher ranks, such as by increasing the number of individuals with less than 20 YOS who are promoted to O-6. In addition, although CFMs expressed mixed reactions regarding this flexibility, most of the other Air Force officers with whom we spoke reported believing that implementation of this flexibility would be useful.

[31] A reviewer noted that one reason BPZ promotions to major were eliminated in the Air Force was the detrimental impact on morale and subsequent retention. Recognizing the potential negative impact of a public release of rank order of merit, the Army decided that only a "top tier" of officers will be identified by a promotion board for promotion by merit, with the pin-on timing of the rest of the officers determined by DOR. The percentage of top-tier officers will vary (see U.S. Army, 2019).

# 4. Section 505: Authority for Officers to Opt Out of Promotion Board Consideration

An additional option for increasing flexibility in the management of officer careers is to allow some officers to opt out of promotion board consideration. Section 505 of the FY 2019 NDAA allows officers to request that they be excluded from consideration for promotion to the next grade. The secretary of the military department might approve the request if the following three conditions are met:

- the basis for the request is to allow an officer to complete a broadening assignment, advanced education, another assignment of significant value to the department, or a career progression requirement delayed by the assignment or education
- the secretary determines that exclusion from consideration is in the best interest of the military department concerned
- the officer has not previously failed selection for promotion to the grade for which the officer requests the exclusion from consideration.

The situations under which an officer can opt out of promotion board consideration imply that there are certain assignments that are beneficial to individual officers or important for the service (or DoD as a whole) but provide officers with less opportunity to be promoted. This new opt-out provision might encourage individuals to accept certain assignments without fear of negative promotion consequences because they would be able to delay their consideration until they move on to a new assignment. In this chapter, we use historical data and regression models to examine the potential impact of this flexibility and describe officer perceptions of its potential utility.

## Insights from Historical Promotion Data

### *Factors Potentially Affecting O-5 and O-6 Promotion Rates*

Drawing from historical promotion data, we developed a logistic regression model that uses 36 indicators of officer characteristics to predict the probability that an individual will be promoted.[32] The model has been found to provide good estimates of the impact of these characteristics on the probability of promotion. The model is useful in examining the potential

[32] This model has been evolving since 2007, and the predictors used in the model are considered sensitive by the Air Force. Analyses using the model are seen by the director, Military Force Management Policy, Deputy Chief of Staff for Manpower, Personnel and Services, Headquarters U.S. Air Force (AF/A1P) and AF/A1P staff and sometimes are shared with the Secretary of the Air Force and other members of the Air Staff. Versions of the model exist for O-4, O-5, and O-6 promotion boards, as well as all Air Force competitive categories; each version has different predictor variables and different numbers of predictors. The LAF O-5 model has 36; some models have only ten.

impact of the opt-out provision because it makes it possible to estimate the probability of promotion if certain factors were not known to the promotion board. For example, one of the variables in the model is a dummy variable indicating that the individual is a Ph.D. student. If the probability of an individual being promoted is calculated using all variables except the Ph.D. variable, the result can be interpreted as indicating the impact of this variable on a board's decision to promote them.[33]

The next two tables show the results of this type of analysis for a variety of officer characteristics that are statistically significant predictors and might qualify an officer to opt out of consideration by their next promotion board.[34] Table 4.1 provides the results of ten O-5 promotion boards from 2009 to 2018, and Table 4.2 shows results from 19 O-6 promotion boards from 2001 to 2018.

[33] A reviewer raised the question about correlation versus causation for the model's results. For example, having a Ph.D. might be associated with other factors that reflect qualities needed for promotion. We use the model to identify statistically significant factors that have been associated with lower promotion rates in the past and that might therefore be considered by individuals as reasons to opt out of promotion board consideration.

[34] From 2009 to 2018, there were 14,785 individuals considered for promotion to lieutenant colonel. From 2001 to 2018, there were 15,787 individuals considered for promotion to colonel.

**Table 4.1. Factors That Affect Promotion to O-5: Ten O-5 Boards from 2009 to 2018**

| Factor | Percentage of Officers Eligible with Factor | Number with Factor | Actual Select Rate (%) | Predicted Select Rate if Factor Is Not Known to Board (%) | Disadvantage (–) or Benefit of Having Factor (%) |
|---|---|---|---|---|---|
| No intermediate developmental education (IDE) | 3.70 | 543 | 0.60 | 19.70 | –19.20 |
| Current inspector general | 0.10 | 20 | 45.00 | 63.50 | –18.50 |
| No meritorious service medals (MSMs) | 6.10 | 903 | 43.10 | 51.60 | –8.60 |
| Currently assigned to a CGO billet | 14.30 | 2,120 | 53.50 | 57.30 | –3.80 |
| Assignment limitation code | 18.60 | 2,755 | 68.10 | 70.70 | –2.60 |
| Student, not IDE | 2.20 | 323 | 84.80 | 76.20 | 8.60 |
| Current executive officer | 1.50 | 229 | 88.20 | 75.90 | 12.30 |
| IDE student | 13.50 | 1,995 | 99.20 | 86.60 | 12.60 |
| Ph.D. student | 2.40 | 357 | 88.20 | 75.30 | 12.90 |

NOTE: All of the estimates in this table were statistically significant. Assignment limitation code addresses restrictions on the selection of airmen for assignment to or from specified duties or areas.

In the first row of Table 4.1, we show that, of the people who were considered for IPZ promotion over this period, 543 (3.70 percent) had *not* completed IDE, and only three of these individuals (0.60 percent) were promoted.[35] If this factor is not included, the regression model predicts that the promotion rate for these individuals would be 19.70 percent (more than 100 individuals would have been promoted). This suggests that there is a significant negative impact of an individual's record showing that IDE has not been completed. Similar model results for other factors show that serving in an inspector general position, not having any MSMs, and currently being assigned to a CGO position also have a negative impact on the probability of being promoted to O-5. Interestingly, in several conversations with CFMs, we found that there was a perception that facing a promotion board while a student (for an Air Force–sponsored Ph.D. program, for example) was a disadvantage. However, both historical data and the regression model indicate that this is not the case. In fact, promotion chances for such individuals increase by almost 9 percentage points, as shown by the "Student, not IDE" factor in Table 4.1 (this category includes master's degree students, Ph.D. students, and students in other

[35] According to the Air Force, regular officer developmental education is "central to the continuum of learning that spans an officer's professional career" (AFI 36-2656). IDE is generally accomplished as an O-4 or O-4 select.

educational programs for which an officer is in student status but the program is not considered equivalent to IDE).[36]

With the new Section 505 flexibility, an O-4 who is aware of the potential negative impact of a factor on their promotion to O-5 could request to opt out of promotion consideration until the next board. However, if they misperceive that a factor has a negative impact on their promotion potential, then opting out might be detrimental.

Table 4.2 shows several factors that affect promotions to O-6. As was the case for O-5s, professional education appears to be important for promotion to O-6. The first row of Table 4.2, for example, indicates that failing to complete senior developmental education (SDE) reduces promotion probability by 14 percent.[37] Like the case for promotion to O-5, serving in an executive officer position increases the chances of promotion to O-6 by 13 percentage points.

[36] Modeling did hint that *failing* to complete a Ph.D. program lowers the chance of promotion to O-5 by 6 percentage points. However, this result was not statistically significant.

[37] Meeting an O-6 board while a student is not a statistically significant predictor of promotion chances. Failing to complete a Ph.D. program lowers the chance of promotion to O-6 by nearly 11 percentage points, all other things being equal.

**Table 4.2. Factors That Affect Promotion to O-6: 19 O-6 Boards from 2001 to 2018**

| Factor | Percentage of Officers Eligible with Factor | Number with Factor | Actual Select Rate (%) | Predicted Select Rate if Factor Is Not Known to Board (%) | Disadvantage (–) or Benefit of Having Factor |
|---|---|---|---|---|---|
| No SDE | 17.60 | 2,780 | 0.10 | 14.20 | –14.10 |
| Current command and control or operations management | 0.30 | 44 | 6.80 | 18.70 | –11.90 |
| Current inspector general | 0.50 | 77 | 14.30 | 21.60 | –7.30 |
| Current instructor | 7.80 | 1,236 | 17.50 | 20.70 | –3.20 |
| No advanced academic degree | 2.00 | 314 | 1.60 | 4.60 | –3.00 |
| Assignment limitation code | 12.90 | 2,040 | 40.60 | 41.90 | –1.30 |
| Two or fewer MSMs | 11.40 | 1,805 | 22.80 | 23.80 | –1.00 |
| Currently assigned to an O-4 billet | 18.50 | 2,916 | 22.90 | 24.00 | –1.00 |
| Ph.D. | 4.20 | 670 | 42.20 | 35.60 | 6.70 |
| Current executive officer | 1.00 | 159 | 79.20 | 66.10 | 13.20 |

NOTE: All of the estimates in this table were statistically significant.

### *The Potential Impact of Officers Opting Out*

As noted earlier, these analyses can contribute to understanding the potential implications of individuals opting out of consideration by promotion boards for the reasons allowed by Section 505. We provide a broad example in Table 4.3.

The first row of Table 4.3 shows the number of IPZ promotion-eligible officers for O-5 and O-6 in 2018: 1,493 and 716, respectively. The table also shows the number of individuals selected for promotion (select opportunity) and the selection rate. The third row of the table shows the number of individuals with at least one of the factors that, according to the regression models, has a negative impact on promotion probability (as shown in Table 4.1 for O-5s and Table 4.2 for O-6s).[38]

We cannot know how many individuals with negative factors would request to opt out of consideration by a promotion board. However, assuming that 20 percent of the individuals with

[38] It might not be the case that all of the negative factors in Table 4.1 and Table 4.2 would be allowable reasons for an officer to opt out; we included all of them to show the potential impact of officers opting out.

negative factors receive permission to opt out of consideration by a promotion board—an arbitrary value selected for the purpose of illustrating the potential impact—we also show how many would face the promotion boards: 1,370 for O-5 and 639 for O-6.[39] If the same selection opportunity were applied to this population, 105 fewer people (1,165 instead of 1,270) would be promoted to lieutenant colonel and 46 fewer people (384 instead of 430) would be promoted to colonel. To promote the same number of officers with the smaller eligible population, the selection rates would have to be increased. Thus, if officers were allowed to opt out of consideration by promotion boards, the Air Force might need to adjust promotion opportunities (as shown by the higher rates in the last row of the table) to produce enough senior officers to satisfy its needs. Another way to adjust these opportunities is to abandon year-group integrity and go deeper into the DOR list to add more-eligible officers.[40]

**Table 4.3. The Potential Impact of Officers Opting Out of Promotions for 2018**

| | Lieutenant Colonel (O-5) | Colonel (O-6) |
|---|---|---|
| 2018 IPZ eligible | 1,493 | 716 |
| 2018 number selected (IPZ, APZ, and BPZ) | 1,270 | 430 |
| Selection opportunity | 85% | 60% |
| Number of IPZ individuals with at least one of the negative factors affecting statistically significant factors | 619 | 388 |
| IPZ eligible if 20 percent with negative factors opt out | 1,370 | 639 |
| Number selected if officers opt out and original selection opportunity is used | 1,165 | 384 |
| Percentage opportunity needed to achieve number selected in 2018 | 92.7% | 67.3% |

The potential adjustments to promotion rates suggested by the example in Table 4.3 might not always be needed: Over time, the number of people who opt out could balance out, with the result that each promotion board might face a "wider" effective promotion board in the sense that more-senior officers who opted out in the past will be up for promotion. Because the numbers in Table 4.3 are speculative, we did not attempt to use the MCM to model this possibility.

### *Additional Considerations for Officers Opting Out*

In addition to adjusting promotion rates in response to individuals opting out of consideration by promotion boards, additional management challenges might arise if this flexibility were implemented. For example, the number of opt-out volunteers would have to be known prior to the 150-day accountability date for promotion recommendation forms. This is the date by which eligible officers are identified and assigned to the senior raters who are responsible for writing

[39] Even if only 10 percent of those with negative factors opted out in this example, promotion opportunity would have to increase to 89 percent for O-5s and 64 percent for O-6s to promote the number of officers needed.

[40] This was done for O-6 promotions in the nursing competitive category in 2019.

their promotion recommendation form, and the master eligibility list is what determines the number of officers allowed to be designated definitely promote (DP; which virtually guarantees promotion) and promote (P) for each senior rater and management level.

Another management challenge would be the development of a process to approve opt-out requests. The Secretary of the Air Force might decide to delegate approval authority to commanders or to the Air Force Promotion, Evaluation, Fitness and Recognition Policy office in the A1 staff at the Pentagon (AF/A1PPP) but, if so, there must be a process to ensure that the application includes a valid reason for opting out and the application must be completed in time to make adjustments for the board.

## Perspectives on the Potential Usefulness of Section 505

Our interviews with CFMs and other officers highlight officer perceptions regarding this flexibility.

### *Career Field Managers*

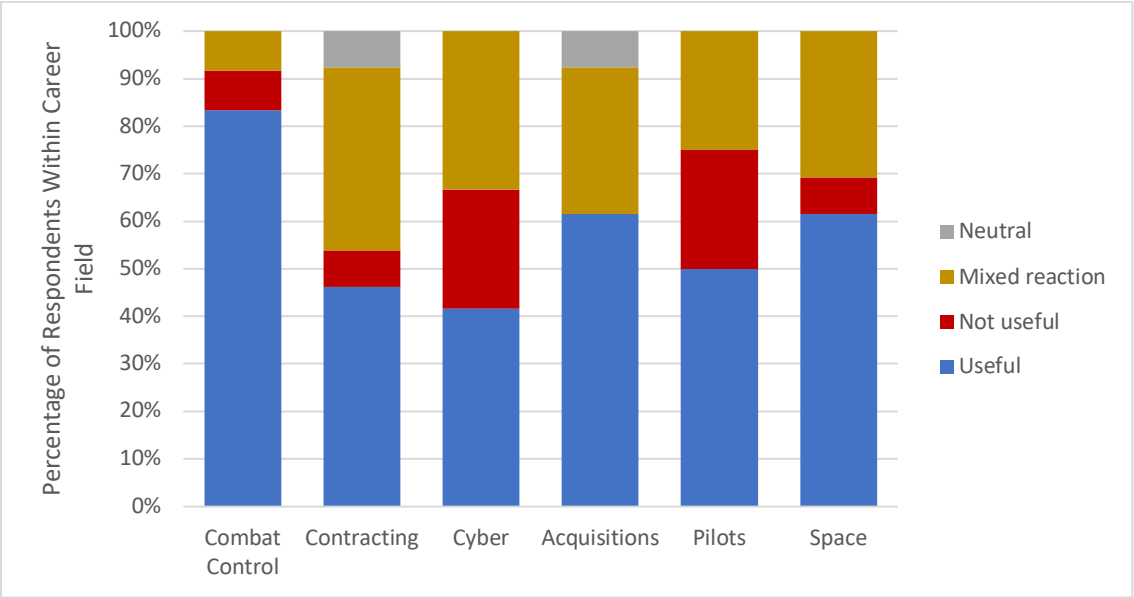
The CFMs with whom we spoke tended to focus on the potential advantages of opting out of promotion boards, commenting on the possible utility of this flexibility in retaining individuals and allowing individuals to pursue advanced education and training. For example, one CFM stated, "We would have a better chance of retaining these individuals if they can opt out." Another noted, "Taking time to get an advanced degree would be a good time to opt out. . . . That could be beneficial to our tech career fields."

### *Air Force Officers*

Across officers within the various career fields, interviewees also tended to believe that this flexibility would be useful (see Figure 4.1). Overall, 57 percent indicated that the ability to opt out of consideration by promotion boards would be useful for those in their career fields, and those affiliated with combat control specifically tended to focus on the utility of this flexibility. The most-commonly discussed reasons why this flexibility might be useful were that it would allow a person to remain in a job to improve their technical or management skills, it would encourage risk taking by allowing individuals to try a new job or remain in a job that required their assistance, and it would allow individuals to decide when they are ready for promotion. Those in the combat control and space career fields in particular pointed out the advantages of remaining in a job to improve technical or management skills.

Some individuals also discussed reasons why this flexibility might not be useful. Commonly discussed reasons for the lack of utility of this flexibility were that it was unclear why anyone would want to opt out of consideration by a promotion board and that opting out might be misinterpreted as a desire to leave the Air Force.

**Figure 4.1. Officer Perceptions of the Utility of Opting Out of Promotion Boards**




When asked to consider what potential issues might arise if this flexibility were implemented, individuals often noted that implementation would require a cultural change within the Air Force, and if it were implemented, the Air Force would need to ensure that those who opted out of consideration by a promotion board were not punished for doing so. For example, one contracting officer (O-5) commented,

> I think it could be useful, but I think there's a lot of danger with it because institutionally, we have to change our culture. . . . It cannot be seen as a negative somewhere down the road. Right now, in our culture, it would be. You would have to change specific recommendations to the board, or specific instructions to the board that [say] if this person has [opted out of a promotion board], that will not be used against them. That will not be considered. I'm sure that the Air Force would do that, it's just easier to say than it is to do in practice.

Many individuals also commented that the implementation of this flexibility could increase the difficulty of overall force management and of managing individual officer careers. For example, one acquisitions officer (O-4) stated,

> Yeah, I think it makes personnel management more complex. . . . You already see where, to make the command list, a lot of times they select twice as many, because some people decline that. If you don't have anybody in the pipe that goes "I can fill that role," you could be in trouble. . . . If your personnel system and your personnel organization is not managed, and they're taking big bites of that elephant on a routine basis, then all of a sudden now, where you just had to match people on a spreadsheet and then tell them what to do and where to go, that's a lot more work.

## Summary

Section 505 of the FY 2019 NDAA allows service secretaries the option to permit officers to opt out of promotion board consideration if certain requirements are met. Our analyses of historical promotion data suggest that there are several factors that can negatively affect an officer's promotion potential. If those with negative factors request to receive permission to opt out of a promotion board, then the Air Force might need to adjust promotion opportunities so it can produce enough senior officers to satisfy its needs. Additionally, the service might have to address other management challenges associated with this flexibility, such as the process for reviewing and approving opt-out requests. Our discussions with officers suggested that they tended to perceive some potential utility in the implementation of this flexibility.

# 5. Section 507 and Related Considerations: Alternative Promotion Authority for Officers in Designated Competitive Categories

Section 507 of the FY 2019 NDAA gives service secretaries the authority to designate one or more competitive categories that will have alternative promotion paths for officers in the category. Sixty days prior to establishing a new competitive category, a service secretary must submit a report to Congress that describes officer requirements for the category, the number of opportunities for consideration for promotion to each grade (not to exceed five), and an estimate of promotion timing within the category. According to Robbert et al., 2019,

> Under the alternate promotion authority, standard tenure management considerations do not apply. Within a competitive category, there are no BPZ or APZ promotions. Time-in-grade requirements do not apply within a competitive category under the alternative promotion authority. However, a selection board for the competitive category may recommend that an officer be excluded from future considerations for promotion. If the secretary of the military department reduces the number of opportunities for promotion consideration, an officer within the competitive category will be afforded one more opportunity for consideration after the reduction. An officer is not considered "twice deferred" until nonselected on the last of this series of considerations. In that event, the officer may be selectively continued (pp. 78–79).

Furthermore, according to Robbert et al., 2019,

> The new authority provides pathways for technical-track careers, such as the Air Force "fly-only" pilot track or a more technically focused cyber career. Under the new authority, these career paths would focus on developing and maintaining technical depth, with few or none of the broadening assignments and professional military education opportunities associated with the traditional leadership track. Further, the broad language used to establish the authority provides the service secretaries the flexibility to target specific career fields or grades as the need arises (p. 79).

In this chapter, we use the MCM to explore the potential impact of establishing more competitive categories on promotions. Although MCM limitations meant that we could not simulate the elimination of BPZ and APZ promotions as authorized by Section 507, we do show how other NDAA flexibilities can be used in conjunction with new competitive categories to help adjust career field–grade structure.[41] We then present interviewee opinions of the usefulness of Section 507 flexibilities.

[41] The Air Force had the authority to establish more competitive categories before new flexibilities were introduced by the FY 2019 NDAA, but the law is now more explicit about how the categories can be established and how promotions in them can be managed. Modifying the MCM to eliminate BPZ and APZ promotions is possible, but project resources did not allow the time needed to do so.

## Modeling the Potential Consequences of Increasing the Number of Competitive Categories

### *Splitting the Line of the Air Force into Six Categories*

In May 2019, the Air Force released a draft proposal to divide the LAF competitive category, which contains 87 percent of the officer corps, into six new categories.[42] In Table 5.1, we provide a list of the proposed categories. The memorandum announcing the proposal directed commanders to solicit and provide feedback from officers to major command commanders by July 31, 2019, and a final recommendation to the Secretary of the Air Force and the Chief of Staff of the Air Force no later than August 2019.

[42] The 87 percent figure comes from an *Air Force Magazine* article that released information about the proposal (McCullough, 2019). Air Force Public Affairs also issued a press release (Secretary of the Air Force Public Affairs, 2019).

**Table 5.1. Proposed Air Force Competitive Categories**

| Competitive Category | Composition (Career Field Air Force Specialty Code [AFSC] and Title) |
|---|---|
| Air operations and special warfare | • 11X: pilot<br>• 12X: combat systems<br>• 28X: remotely piloted aircraft pilot<br>• 13B: air battle manager<br>• 13C: special tactics<br>• 13D: combat rescue<br>• 13L: tactical air control party |
| Space operations | • 13S: space operations<br>• 13A: astronaut |
| Nuclear and missile operations | • 13N: nuclear and missile operations |
| Information warfare | • 17X: cyber operations<br>• 14N: intelligence<br>• 61A: operations research analyst<br>• 15W: weather<br>• 71S: special investigations<br>• 14F: information operations<br>• 35X: public affairs |
| Combat support | • 13M: airfield operations<br>• 21A: aircraft maintenance<br>• 21M: munitions and missile maintenance<br>• 21R: logistics readiness<br>• 31P: security forces<br>• 32E: civil engineering<br>• 38F: force support<br>• 64P: contracting<br>• 65X: financial management |
| Force modernization | • 61C: chemist<br>• 61D: physicist/nuclear engineering<br>• 62E: developmental engineering<br>• 63A: acquisition management |

SOURCE: Adapted from Secretary of the Air Force Public Affairs, 2019.

### *The Potential Impact of New Competitive Categories on Promotions*

Using such simulation tools as MCM to model the proposed competitive categories can provide some insight into their potential impact on officer careers. Modeling the potential impact of these new competitive categories on all Air Force officer career fields is outside the scope of this project. However, to illustrate potential impacts on career fields, we consider two populations: pilots (11X) and space operations officers (13S).[43]

#### Competitive Categories and Pilot Promotions

Historically, pilot promotion rates to field-grade ranks have exceeded LAF averages, and pilots have received a disproportionate number of BPZ promotions. Splitting the LAF into these

[43] Both of these career fields are of particular interest to the Air Force, and we provide examples of one case for which competitive categories might decrease promotions and one for which they increase them.

new competitive categories reduces the number of career fields that pilots compete against. However, if promotion opportunities are distributed evenly across the competitive categories, then the total number of promotions available for pilots would be reduced. Consequently, pilots could continue to receive a disproportionate share of promotions, but from a smaller pool. This could result in a net loss of promotions compared with when they were competing against LAF.

Table 5.2 shows the MCM model results for three scenarios: retaining the current LAF competitive category (Scenario 1), implementing the new Air Operations and Special Warfare competitive category with promotion rates equivalent to those of the other categories (Scenario 2), and, as a bounding condition, placing pilots in their own competitive category (Scenario 3).[44] Promotion rates are shown by board and zone.

**Table 5.2. Pilot Promotion Rates in Three Scenarios**

| | | Pilot Selection Rate, by Scenario (%) | | |
|---|---|---|---|---|
| Board | Zone | Scenario 1 (Pilots in Current LAF) | Scenario 2 (Pilots in the Air Operations and Special Warfare Category) | Scenario 3 (Pilots in Their Own Competitive Category) |
| O-6 | BPZ | 2.4 | 2.2 | 1.0 |
| | IPZ | 57.3 | 58.6 | 51.3 |
| O-5 | BPZ | 5.9 | 4.7 | 3.2 |
| | IPZ | 72.2 | 72.3 | 69.6 |
| O-4 | IPZ | 98.7 | 98.6 | 97.8 |

NOTE: This table shows selected or eligible pilots, averaged over a 100-year simulation period.

As shown in Table 5.2, BPZ selection rates drop for O-5 and O-6 from Scenario 1 (LAF) to Scenario 2 (Air Operations and Special Warfare). In Scenario 2, pilots still receive more than their pro rata share of BPZ and IPZ selections, but fewer total selections are available because the Air Operations competitive category is made up of a small number of career fields. Awarding a smaller number of promotions to the same number of pilots causes the selection rates to decrease. Selection rates drop further in Scenario 3. In Scenario 3, pilots can only receive their pro rata share of selections because they do not compete against other career fields. This causes selection rates to decrease further because pilots no longer receive any additional selections that could have gone to other career fields.

[44] To simulate the outcomes of splitting the LAF into separate competitive categories, we added a career-specific promotability parameter to MCM. In these analyses, each simulated individual is given a promotability value drawn from a random distribution. Intuitively, the value reflects invariant characteristics that directly and indirectly contribute to the individual's promotability over the course of their career. The center of the promotability distribution is based on the individual's career field. By setting the center of the distribution higher for pilots than for other career fields that make up the LAF, we were able to reproduce the above-average pilot selection rates from promotion boards from the past ten years.

The Air Force can implement these new competitive categories flexibly, which could include modifying promotion opportunities across different competitive categories. Increasing promotion opportunity in the Air Operations and Special Warfare competitive category would help restore the numbers of pilots selected BPZ and IPZ. In adjusting the promotion opportunities for the entire competitive category, the effects would be nonspecific, such that all career fields in the competitive category would benefit from increased opportunity. Notably, an increase in the promotion opportunities allotted to one competitive category would require decreasing promotion opportunity proportionately in one or more of the other competitive categories.

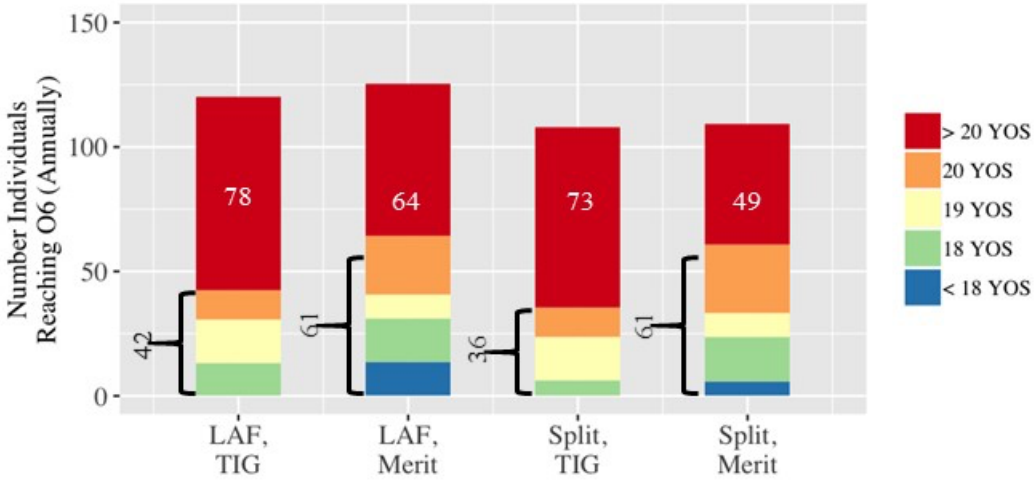
### Merit-Based Ordering for Pilots

If reduced promotions for pilots as a result of introducing more competitive categories is considered undesirable, reordering promotion lists based on order of merit might be a more targeted way to restore the number of pilots reaching O-6 before 21 years of service than allocating different promotion opportunities to different competitive categories. For example, by promoting officers with highest merit at or near the beginning of the promotion cycle, the number reaching O-6 with fewer than 21 YOS could be made to match the number under LAF. This could be achieved by using Section 504 of the FY 2019 NDAA and without changing promotion opportunity.

To simulate the outcomes of merit-based ordering, we added a mechanism to MCM to allow reordering of promotion lists based on merit rather than TIG. This allowed individuals with the highest promotability values to be promoted at or near the beginning of the promotion cycle. Figure 5.1 shows the number of pilots promoted annually under each of the scenarios described thus far. The leftmost bar of the figure shows the number of pilots promoted annually to O-6 under Scenario 1 (the current LAF). The third bar, labeled "Split, TIG," shows the projected number of pilots promoted under Scenario 2, an Air Operations and Special Warfare competitive category with promotion rates similar to those of the other competitive categories. Under Scenario 2, fewer pilots will reach O-6 annually (109 versus 120), reducing the size of the senior pilot inventory. In addition, fewer pilots will reach O-6 with less than 21 years of service (36 versus 42), making the career field less competitive for promotion to brigadier general.

The results of applying merit-based ordering to pilots in the Air Operations and Special Warfare competitive category are shown in the rightmost bar of Figure 5.1, labeled "Split, Merit." Although the total number of pilots reaching O-6 is still less than under LAF, the number reaching O-6 in fewer than 21 YOS exceeds the number under LAF and is the same as the number when LAF pilots are promoted based on merit (shown in the second bar in the figure, labeled "LAF, Merit").

**Figure 5.1. The Potential Impact of Competitive Categories on the Number of O-6 Pilots**




In the context of Section 507, these results indicate that, if the potential changes in distribution of field-grade positions are considered undesirable, then the Air Force will need to consider defining promotion opportunities differently for the different categories. Additionally, application of Section 504 can restore the number of highly qualified individuals reaching O-6 ahead of due course.

### Competitive Categories and Space Operations Promotions

The MCM simulations show that, if flexibility in promotion rates across the new competitive categories is not implemented, then introducing these new competitive categories might reduce promotion rates for some career fields. Alternatively, the competitive categories will increase promotion rates for other career fields. This is the case for the space operations (13S) career field. Table 5.3 shows simulated space operations promotion rates by board and zone under LAF (Scenario 1) and for the proposed space operations competitive category, which is predominantly made up of space operations (13S). All BPZ and IPZ selection rates increase when space operations officers are placed in the space operations competitive category, reflecting the fact that the career field now receives its pro rata share of promotions because it no longer competes with other career fields, as it did under the LAF. The implications of the differential impact of the proposed competitive categories on various career fields, and the appropriate responses and corrective measures, fall to Air Force leadership to develop.

**Table 5.3. Space Promotion Rates in Two Scenarios**

| | | Space Selection Rate by Scenario (%) | |
|---|---|---|---|
| Board | Zone | Scenario 1 (LAF) | Scenario 2 (Competitive Category) |
| O-6 | BPZ | 1.2 | 1.8 |
| | IPZ | 44.9 | 50.6 |
| O-5 | BPZ | 2.1 | 3.4 |
| | IPZ | 63.3 | 69.5 |
| O-4 | IPZ | 96.7 | 97.6 |

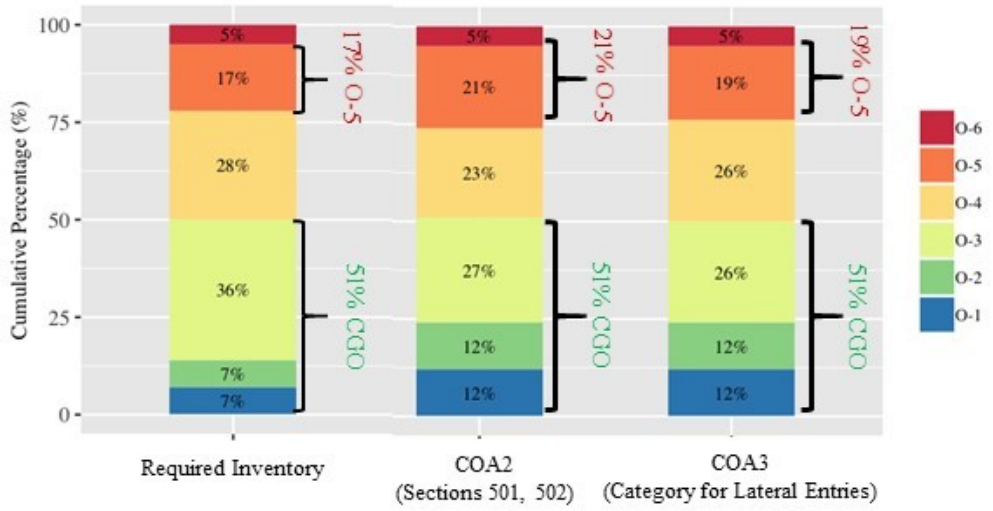
NOTE: This table shows selected or eligible space operations officers, averaged over a 100-year simulation period.

## Introducing a Separate Category for Lateral Entries

In Chapter 2, we used the MCM to show that increasing lateral entries had the potential to alleviate imbalances in CGOs and FGOs for some career fields—the basic example being the cyber operations (17X) career field. However, the modeling showed that lateral entries alone also resulted in undesirable distributions between the O-4 and O-5 grade levels, characterized by a higher percentage of O-5s and a lower percentage of O-4s than required. Although perhaps it was not envisioned for this purpose, designating new competitive categories for the promotion of lateral entries could be used to address the negative side effects of lateral entry. If an individual enters the military in the grade of major, for example, it might be reasonable to assume that, because they have less military experience than someone who enters the service as an O-1, they should remain at that rank for a longer period before being considered for promotion to O-5. Lateral entrants in a career field could be placed in a separate competitive category with increased minimum TIG for promotion to O-5 relative to individuals who enter at O-1. This would give lateral entrants more time to accumulate military experience and reduce O-5 overmanning at the same time.

In Chapter 2, we described different COAs for using lateral entries in the cyber operations career field, one of which included 45 lateral entries annually at the O-4 level (i.e., COA 2). Figure 5.2 shows the required grade distribution for the cyber operations career field in the first bar and the simulated grade distribution after allowing for lateral entry in this manner in the middle bar. COA 2 produces the desired 50-50 CGO and FGO mix but also yields a higher percentage of O-5s than required (21 percent versus 17 percent).

**Figure 5.2. The Potential Impact of Modifying Time-in-Grade for Lateral Entries**




NOTE: Percentages in the figure might not sum to the labels because of rounding.

DoD policy is that an officer must serve as an O-4 for three years before being considered for promotion to O-5, and the Air Force stays within this constraint.[45] If this requirement is increased in the MCM to six years for individuals who entered the Air Force laterally as majors, the result is the distribution shown in the last bar of Figure 5.2 (labeled COA 3). The 50-50 CGO-FGO distribution is maintained, but the percentages of O-4s and O-5s are slightly improved relative to the requirements when compared with the case of lateral entries alone: O-4s increase slightly compared with COA 2 and O-5s decrease to a percentage closer to the career field requirement. Thus, we conclude that, at least for some career fields, new competitive categories could be used in combination with lateral entries to help achieve desired grade distributions.

We now turn to officer perceptions of new competitive categories and Section 507 flexibilities from our interviews.

## Officer Perspectives on the Potential Usefulness of Competitive Categories and Section 507

### *Career Field Managers*

Most of the CFMs with whom we spoke expressed positive opinions regarding both the creation of new competitive categories and the Section 507 flexibility.

[45] DoD restrictions are in DoDI 1320.12 and DoDI 1320.13; Air Force guidance is in AFI 36-2501. The time from pinning on O-4 to pinning on O-5 tends to be longer than four years.

### Competitive Categories

When addressing the advantages of creating new competitive categories, several CFMs highlighted the utility of individuals competing against their peers rather than the entire LAF. For example, one CFM commented, "I do think it would be useful. One of the main utilities I see out of it is, with the across-the-line promotion, we're promoting to the requirement at the top of that level. If we break into competitive categories . . . we promote to requirements in those AFSCs." Similarly, another CFM stated, "I think it would be fantastic. . . . For smaller competitive categories you can focus on what makes their field important. It allows you to be a better practitioner because you're not focusing on checking the boxes of how to make command, just how to best add value to the Air Force."

Although most CFMs focused on the advantages of the competitive categories, they also noted possible issues that might arise with these new categories. For example, one CFM commented on issues associated with evaluating and promoting officers based only on how they compare with their peers in the same competitive category. He stated, "The con is . . . you have these competitive lists with different numbers, and so the best in list A are chosen. But the worst in list A might be better than the best who are promoted in list B." Another CFM expressed concern regarding how the new competitive categories might limit the integration of career fields across the Air Force. He stated,

> I have some concern about stovepipes. My biggest concern . . . is we get too niche in how we write [officer performance reviews] and utilize officers, and [we] forget there are other parts of the Air Force. We need to understand and know what they do. [This] was always a thing with writing [officer performance reviews, making] sure other fields know what it is we do. . . . If only in our own community, we might get away from that and talk to ourselves too much.

### Section 507

When discussing the advantages of the flexibility provided within Section 507, CFMs focused on the utility of being able to adjust the number of promotions needed within each category. For example, one CFM stated, "If structured correctly, I could see that being beneficial. . . . It would provide another authority . . . to impact the potential community to support promotion, whatever is needed for that community." Another commented, "Yes, it would be useful. . . . I think, if there was a way to control that faucet [of promotions], that would be a good thing."

When discussing possible issues associated with the implementation of this flexibility, CFMs focused on how to address officers' concerns with this flexibility. One CFM said, "Consistency of message would be the hardest thing. . . . We need a consistent message that you can progress on a specific track or on a traditional track without some kind of quota for those tracks." Another addressed concerns about perceived reductions in promotion opportunities for pilots, saying, "[We] need to be careful about rolling this out, because pilots are cynical. [We] need to make

sure [to address] how we message, [so we can] show [pilots that] it's still the same opportunity. . . . You haven't lost out."

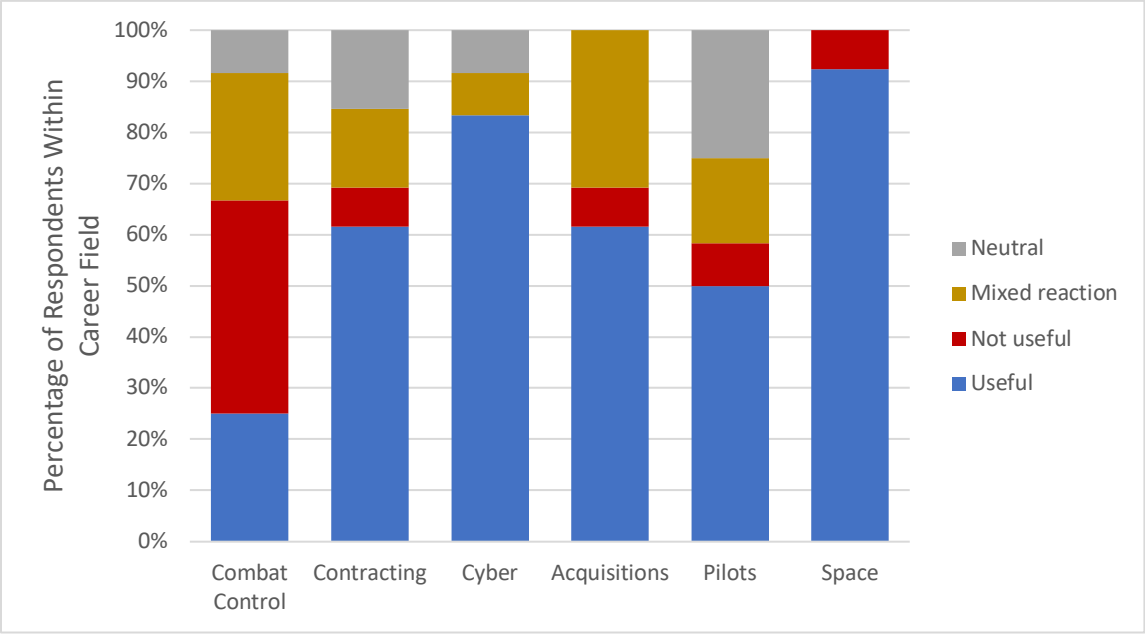
### *Air Force Officers*

Like CFMs, the officers with whom we spoke tended to focus on the usefulness of both the new competitive categories and the Section 507 flexibility.

#### Competitive Categories

Overall, 63 percent of the officers with whom we spoke reported believing that the implementation of new competitive categories would be useful. When we review variability in opinions across career fields, a large majority (92 percent) of those in space reported believing that new competitive categories would be useful. However, only 25 percent of those in the combat control career field indicated that these categories would be beneficial (see Figure 5.3).

**Figure 5.3. Officer Perceptions of the Utility of the Development of New Competitive Categories**




When addressing why they believed that the competitive categories would be useful, officers most commonly indicated that new competitive categories would allow officer reviews to be more tailored to each competitive category. Commenting on tailored reviews, a cyber officer (O-5) said, "[Promotion] board members who read the different [performance reviews] and [officer performance reviews] will have a better understanding of what's being written, so they can better understand the impact of what [those being reviewed] did." Similarly, a space officer (O-5) noted, "[At promotion boards], it would be much better to compare apples to apples versus

apples to oranges. I've seen how quickly you have to review records, so comparing different career fields is very difficult, problematic in my opinion."

Officers also frequently mentioned that the implementation of the categories would reduce current perceived bias toward certain career fields, specifically toward pilots.[46] Officers in space in particular focused on the benefits of reductions in perceived bias. For example, one space officer (O-4) said,

> A pilot and I don't speak the same language. We don't do the same job. . . . I'm not out flying sorties and dropping bombs. So what [pilots] deem as good things to do for their job and what a space operator deems is a good thing for their job, they'll compete. So when you lump us all under the same category on a [promotion] board and we're being scored, then there is an inherent skewing towards the pilots.

Those who indicated that new competitive categories would not be useful focused on the potential for reductions in promotion opportunities. Combat control officers, in particular, focused on this possible issue. For example, one combat control officer (O-5) stated, "No, I think it would be maybe more detrimental. We usually perform pretty well among the line of the Air Force, and if we're just competing amongst ourselves at that point, we might be limiting our promotion pool talent."

When they were asked to address potential issues with the competitive categories, officers most frequently indicated that new competitive categories would limit integration across Air Force communities. For example, an acquisitions officer (O-5) commented,

> I do value the fact that if you can compete in that big pool. It does drive officers to be more focused on being competitive. I think, sometimes, if you break off into your own section, your competitive pool is different, and your thought process could change. You maybe focus more on "what do I need to be competitive with these individuals," versus the Air Force at large. So I like competing in a big pool, I think that's good for the Air Force. I think that keeps us all focused on the same values and same performance standards and drives us to be one Air Force, as we go and do that.

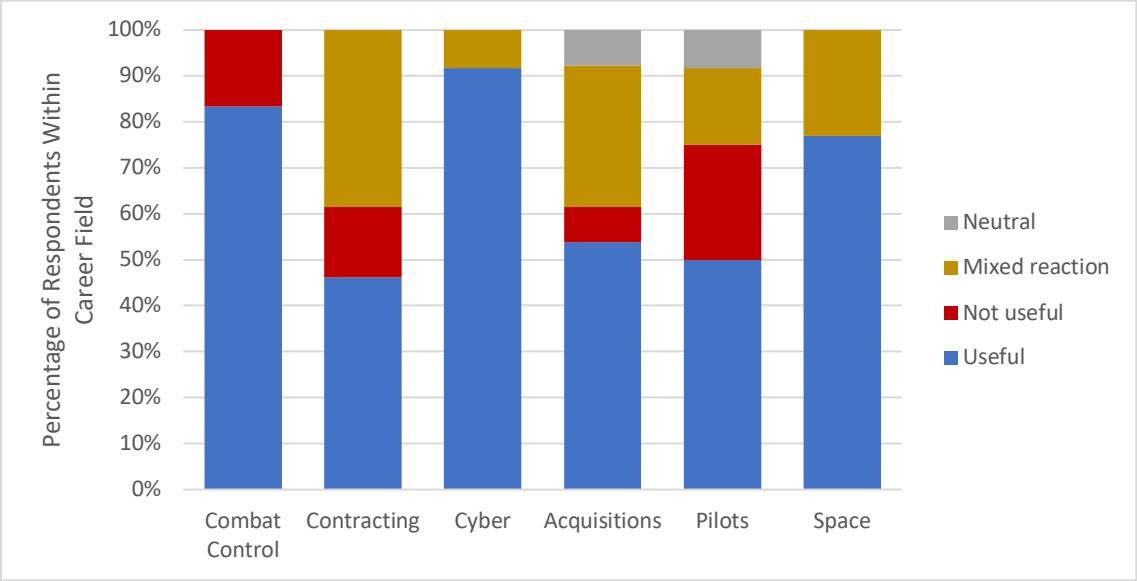
Other frequently mentioned issues were that top performers might not get promoted because of increased competition for promotion opportunities within a competitive category, and the Air Force would have to address potential issues with quotas within and between competitive categories. For example, a cyber officer (O-5) stated, "So I think the Air Force will just have to watch closely as they go through the first couple years of [the new competitive categories] to see what the different promotion rates are across all of the boards and make sure that the overall rates are kind of in line across the different categories. Make sure the percentages line up."

[46] With regard to perceived bias (and as noted earlier in this chapter), pilot promotion rates to field-grade ranks have historically exceeded LAF averages, and pilots have received a disproportionate number of BPZ promotions.

Section 507

Overall, 67 percent of the officers with whom we spoke reported believing that the flexibility provided by Section 507 would be useful. When we look at opinions across career fields, cyber, space, and combat control officers were particularly likely to believe that the flexibility would be useful (see Figure 5.4).

**Figure 5.4. Officer Perceptions of the Utility of Implementation of Alternative Promotion Paths for Competitive Categories**




When discussing the utility of Section 507, officers frequently mentioned that its implementation would provide flexibility with managing career fields, assist with force shaping (e.g., ensuring that positions are filled), and ensure that promotions are based on merit. Those who indicated that the flexibility would not be useful believed that the current promotion timing is acceptable and implementation of this flexibility would limit promotion opportunities.

Given the limited number of combat control officers who reported believing that new competitive categories would be useful, the large number of these officers who reported believing that the application of the Section 507 flexibility would be useful is noteworthy. Combat control officers in particular focused on the utility of having flexibility in managing career fields and in ensuring that promotions are based on merit. For example, one combat control officer (O-5) stated, "The career demands are at odds with the technical demands, and in my view, that's only going to increase as warfare becomes more complicated, especially in multi-domains and stuff. So I think being able to adjust those things as needed for different career fields is probably good." When addressing the ability to ensure that promotions are based on merit, another combat control officer (O-4) stated, "When you're hard and fast with, okay, you got to be a captain for five or six years and you got to be a major for five or six years, you're

bypassing some of the more qualified [officers]. . . . So I think there are opportunities to promote people faster with something like that when they're showing that experience level."

When asked to consider possible issues with implementation of Section 507 flexibilities, officers frequently indicated that implementation would require transparency regarding promotions and that there could be concerns regarding fairness. For example, one cyber officer (O-5) commented, "I could see potential resentment for other career fields if they saw that there was a special thing that was carved out for the cyber folks. But if they, again, going back to transparency, if you tell the airmen why you're doing it and what the benefits of doing it [are], to the Air Force as a whole, then those people will go, 'Okay, got it.' They'll accept it."

## Summary

Section 507 of the FY 2019 NDAA allows alternative promotion paths to be applied to different competitive categories. Although MCM limitations prevented us from developing scenarios that eliminated BPZ and APZ promotions, our analyses suggest that, if promotion opportunities are distributed evenly across the competitive categories, then the total number of promotions available for pilots would be reduced and the opportunities for space officers would increase. Notably, however, the Air Force can implement these new competitive categories flexibly, which could include modifying promotion opportunities across different competitive categories. Our discussions with CFMs and other Air Force officers suggest that most individuals believe that there is utility in implementing new competitive categories and allowing flexibility in how these competitive categories are managed.

# 6. Summary and Conclusions

RAND PAF was asked to examine the potential utility of several newly authorized career-management flexibilities from the FY 2019 NDAA. In this chapter, we summarize our observations about the usefulness of these management tools using the results of our simulations and interviews with FGOs. Rather than make recommendations about whether the Air Force should implement these flexibilities, we highlight important considerations that should be taken into account if the Air Force decides to pursue the use of these flexibilities. We summarize these observations in Table 6.1 at the end of this chapter.

## Sections 501 and 502: Allowing Older Accessions and Enhancing Constructive Credit

Section 501 of the FY 2019 NDAA repeals the requirement to complete 20 years of service by age 62, and Section 502 enhances the ability of the services to grant constructive credit. Our modeling shows that allowing lateral entries at higher ranks can be effective in decreasing deficits at the FGO grade level for some career fields, specifically those whose structures require a higher percentage of FGOs. Furthermore, lateral entries can be targeted in many ways—that is, different distributions of lateral entries can satisfy the same CGO and FGO distribution goal. Notably, the potential utility of these flexibilities depends on a steady supply of candidates. Therefore, the availability of lateral-entry candidates would need to be considered before these flexibilities are implemented. In addition, our results suggested that the use of Sections 501 and 502 alone can lead to other imbalances of specific grades, such as too many O-5s.

When addressing perceptions of these flexibilities, most of the officers with whom we spoke felt that there was some utility in allowing older candidates to be commissioned into the Air Force, but fewer felt that it would be useful to award more constructive credit. They noted that older candidates might bring knowledge and experience with them to the Air Force but such candidates might have difficulty meeting physical requirements. They also expressed concern about the lack of military credibility that might be attached to an individual with limited familiarity with Air Force policies and culture and who had not risen through the ranks.

In implementing these flexibilities, the Air Force will need to address not only the availability of a supply of candidates but also the potential need for additional training related to military culture for officers who receive substantial constructive credit (or a policy that limits the command authority of those officers).

## Section 504: Adjusting Promotion Lists Based on Merit

Section 504 of the FY 2019 NDAA allows officers of particular merit to be placed higher on a promotion list. We found that merit-based promotions could be an alternative to using BPZ promotions. Specifically, merit-based sequencing can advance high-quality officers to the grades of O-5 and O-6 at about the same YOS point as officers with one-year BPZ selection to O-5. However, if merit-based promotion timing is used in combination with BPZ promotions, the distribution of officers promoted ahead of due course can change significantly, with more people being promoted ahead of their peer groups. This could have an impact on the population of officers considered as candidates for promotion to general officer ranks.

Most of the officers we interviewed (63 percent) expressed positive feelings about introducing this flexibility. They noted that officers of higher merit should pin on rank earlier than others as a matter of fairness. However, they also expressed concerns regarding how officers were determined to be of higher merit, suggesting that clear communication about how and why individuals are determined to be of higher merit would be needed.

If implementation of this flexibility is pursued, then consideration will need to be given to whether to use this flexibility in conjunction with the current BPZ, IPZ, APZ promotion system. In addition, officers will need to be well informed about the factors that would contribute to individuals being considered to have higher merit.

## Section 505: Authority for Officers to Opt Out of Promotion Board Consideration

Section 505 of the FY 2019 NDAA allows officers to request that they be excluded from consideration by a promotion board for promotion to the next grade. The majority of officers we interviewed (57 percent) found the ability to opt out of promotion consideration to have potential benefit. In particular, they suggested that this flexibility might encourage individuals to take more risks, such as remaining in a position longer to improve technical or managerial skills or taking an assignment outside a "normal" career path without fear that it will damage promotion chances.

Although our example in Chapter 4 using the results of 2018 promotions to O-5 and O-6 showed the potential impact of this flexibility, it is difficult to predict how many people would be interested in opting out of consideration by a promotion board. Therefore, if this flexibility is implemented, the Air Force will need to

- develop a process to approve opt-out requests
- establish timelines for opt-out decisions (at least before the 150-day "accountability date" for promotion recommendation forms)
- be prepared to adjust promotion rates to maintain promotion numbers if significant numbers of candidates opt out.

## Section 507: Alternative Promotion Authority for Officers in Designated Competitive Categories

Section 507 of the FY 2019 NDAA allows the designation of alternative promotion paths for officers in particular competitive categories, and it might be used in conjunction with new Air Force competitive categories. Although MCM limitations prevented us from examining the impact of eliminating BPZ and APZ promotions, if overall promotion opportunities are kept the same across competitive categories, our modeling shows that the establishment of competitive categories will increase promotion rates for some career fields and decrease the rates in others. Varying promotion opportunities by competitive category might help better address the grade-structure needs of different career fields in the Air Force, and the service likely will consider various options when implementing these categories. One option the service might consider is the use of merit-based promotion timing with the new competitive categories. For example, if promotion opportunities are held constant across competitive categories, the number of pilots promoted under the new competitive categories could decrease. However, the use of merit-based promotions could result in an increase in the number of pilots promoted before due course, providing the career field with an advantage when candidates are considered for promotion to flag officer ranks. Although we use pilots as an example, similar considerations could be given to other career fields.

The majority of officers we interviewed felt that establishing new competitive categories would be useful (63 percent) and that alternative promotion authority would be as well (67 percent). Common reasons for these opinions were that competitive categories would allow officer reviews to be tailored to specific career fields and alternative promotion authorities would enable career fields to structure officer advancement in ways that are appropriate for the skills required in each field.

The Air Force will need to carefully monitor promotion results if new competitive categories are introduced. If grade-structure requirements for some career fields are not met, the service might need to allow promotion opportunities to vary among competitive categories or make use of merit-based flexibilities allowed by Section 504.

## Summary

The management flexibilities introduced by the FY 2019 NDAA were meant to address some of the recognized drawbacks in the current DOPMA system. As shown in Table 6.1, our modeling and interviews indicate that these flexibilities have the potential to be useful in many career fields. Generally, these new officer-management flexibilities might allow greater diversity in how Air Force officer careers advance, thereby permitting more-tailored career development. However, the potential issues associated with these flexibilities must be carefully monitored if these flexibilities are implemented.

**Table 6.1. Summary of Observations Related to Implementing New Officer Career-Management Flexibilities**

| Flexibility | Modeling and Interview Results | Implementation Issues |
|---|---|---|
| Section 501: allowing older accessions | • Results suggested that lateral accessions can alleviate CGO/FGO imbalances<br>• Interviewees were generally positive about this flexibility; pilots and combat control officers expressed concern about candidates meeting physical requirements | • It is likely that these two flexibilities would be used together—attracting older, experienced candidates by offering military positions with management authority and salaries appropriate for their skill levels<br>• Before implementation for a given career field, appropriate analysis of the supply of potential candidates should be accomplished<br>• The Air Force will need to consider limiting military command authority, providing additional cultural training to potential candidates, or doing both |
| Section 502: enhancing constructive service credit | • Results showed that the number of lateral accessions needed declined if more constructive credit is granted<br>• Interviewee reactions were mixed regarding this flexibility, with concerns expressed about the military credibility of granting higher rank to people without military experience | |
| Section 504: adjusting promotion timing based on merit | • It appears that merit-based timing can accelerate promotions to higher ranks and can, in some cases, produce promotion results similar to those achieved using BPZ promotions<br>• The majority of interviewees in all career fields had positive views of this flexibility | • Pin-on timing based on merit could substantially affect the distribution of officers who are promoted ahead of due course. The Air Force must be aware of this when considering its potential effect on flag officer promotions<br>• The Air Force should clearly communicate what career attributes contribute to an officer being placed higher on the promotion list |
| Section 505: allowing officers to opt out of promotion board consideration | • Anecdotes about the detrimental impact of some assignments were not borne out by our analysis of historical data<br>• Except for cyber, the majority of interviewees in each career field had positive responses to this flexibility | • It is difficult to predict how many people would request permission to opt out of promotion boards<br>• The Air Force will need to establish strict timelines for requests and standards for approval<br>• The Air Force will need to be prepared to adjust promotion opportunities based on the number of approvals for opting out |
| Section 507: Creating an alternative promotion authority for officers in designated competitive categories | • For each career field, the majority of interviewees felt that this flexibility would be useful to tailor individual career field progression | • The Air Force will need to carefully monitor promotion results if new competitive categories are introduced<br>• If grade-structure requirements for some career fields are not met, the Air Force might need to allow promotion opportunities to vary among competitive categories |
| Increasing the number of competitive categories | • Implementation of more competitive categories that each have equal promotion rates might result in lower promotion rates than currently exist for some career fields and higher promotion rates for others<br>• Most officers perceived utility in the implementation of new competitive categories. Combat control was the only group that had more negative responses than positive responses | |

# Appendix A. Increasing Opportunities for Cross-Flow

In addition to the new flexibilities allowed by the FY 2019 NDAA, the Air Force has existing capabilities that allow flexibility in the management of officer careers. One of these is cross-flow. *Cross-flow* is the ability of personnel to move from one career field to another, and its use is described in AFI 36-2626:

> As [Air Force] requirements evolve, changes in requirements create career field manning imbalances in affected career fields. The [Air Force] has a variety of tools available to correct these imbalances including formal crossflow programs and Initial Skills Training eliminee reclassification. Together these programs help address career field manning imbalances within authorized, funded end-strength.[47]

The Air Force has used cross-flow to help balance the force by allowing people to move from overmanned career fields to undermanned career fields. For example, in 2012, the nonrated line officer cross-flow program allowed officers in specific year groups (2005–2008) in the munitions and missile maintenance, behavioral science, and a few other AFSCs to apply to cross-flow into the intelligence and public affairs career fields (Gildea, 2012). In 2016, another effort was made to encourage personnel to cross-flow into cyberspace operations, space operations, and other career fields. The ability to change career paths might be one way to improve career agility by increasing personal satisfaction and aiding Air Force personnel management, so we were asked to consider the recruiting and career implications of allowing increased cross-flow.

## Modeling Cross-Flow

To evaluate the potential to use increased cross-flow to address personnel-management challenges, we compared FY 2018 inventories with requirements as provided by AF/A1XD. By identifying career fields that were overmanned at company-grade or field-grade ranks, and by identifying those undermanned at company- or field-grade ranks, we could find opportunities to address imbalances through cross-flow. Figure A.1 shows FY 2018 company- and field-grade manning levels (as a percentage of sustainment requirements) for career fields that make up the line of the Air Force. Each point is a career field, and the size of each point is proportional to the career field's size. Career fields offset to the left or right are undermanned or overmanned at company-grade ranks, respectively, and career fields offset to the bottom or top are undermanned or overmanned at field-grade ranks, respectively. For example, the intelligence officer (14N)

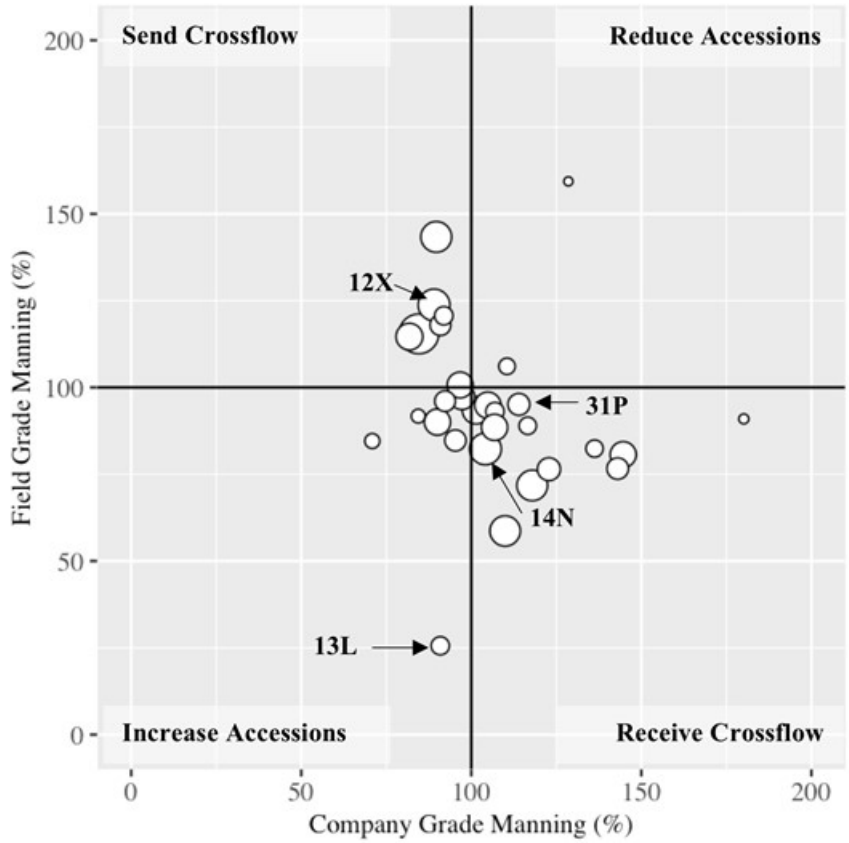
[47] AFI 36-2626 authorizes cross-flow, but announcements that a program is being initiated are released through the Air Force Personnel Center in such memoranda as Personnel Services Delivery Memorandum 18-04, (Deputy Director, Personnel Operations, Department of the Air Force, 2018).

career field in the lower-right quadrant of Figure A.1 is overmanned at the company-grade level (with about 115 percent of its required CGOs) and undermanned at the field-grade level (with about 75 percent of its required FGOs).

Career fields in the four quadrants likely would benefit from the following officer management practices:

- Career fields that are overmanned at company- and field-grade ranks would benefit from reduced accessions. This would decrease CGO and FGO inventories.
- Career fields that are undermanned at company- and field-grade ranks would benefit from increased accessions. This would increase CGO and FGO inventories.
- Career fields that are undermanned at company-grade ranks and overmanned at field-grade ranks would benefit from increased cross-flow out at the FGO level. This would reduce the number of FGOs without reducing the number of CGOs.
- Career fields that are overmanned at company-grade ranks and undermanned at field-grade ranks would benefit from increased cross-flow in at the FGO level. This would increase the number of FGOs without increasing the number of CGOs.

**Figure A.1. Percentage of Company- and Field-Grade Manning Levels, by Career Field**




SOURCE: Data are from Career Health Charts provided to the authors by AF/A1XD on July 11, 2019.
NOTES: 12X = combat systems officer; 31P = security forces; 14N = intelligence officer; 13L = tactical air control party officer.

A summary of the career fields represented in Figure A.1 (not all of which are labeled in the figure) and the corresponding management practices are provided in Table A.1.

**Table A.1. Manning Levels and Cross-Flow and Accession Strategies, by Air Force Specialty Code**

| Company Grade | Field Grade | Strategy | Career Fields |
|---|---|---|---|
| Overmanned | Overmanned | Reduce accessions | 61C, 61D |
| Overmanned | Undermanned | Increase FGO cross-flow in | 13M, 13S, 14F, 14N, 17X, 21A, 21M, 21R, 31P, 35P, 38F, 63A, 64P, 65X |
| Undermanned | Undermanned | Increase accessions | 13C, 13D, 13L, 13N, 32E, 52R, 61A |
| Undermanned | Overmanned | Increase FGO cross-flow out | 11X, 12X, 13B, 15W, 51J, 62E, 71S |

To better understand the effects of increased cross-flow, we conducted two sets of MCM simulations with career fields that historically have allowed cross-flows among them. The first simulation used tactical air control party officers (13L) and security forces (31P). Given the quadrants where they fall in Figure A.1, the tactical air control party officer (13L) career field would benefit most from increased accessions, and the security forces (31P) career field would benefit most from increased cross-flow in at the FGO level. However, 31P has almost three times as many officers as 13L,[48] the 31P was overmanned at company grades in FY 2018, and the Air Force historically has allowed cross-flow from 31P to 13L. Accordingly, to explore the consequences of increased CGO cross-flow, we allowed a small number of O-1s to flow annually from 31P to 13L in the first simulated condition.[49] We contrast this with a baseline simulation (i.e., no cross-flow), and a simulation that, instead of allowing cross-flow, reduced 31P accessions and increased 13L accessions.[50]

Figure A.2 shows the difference between the required inventories of CGOs and FGOs and the simulated inventories. In the baseline simulation, 13L is undermanned at company and field grades and 31P is overmanned at company grades and undermanned at field grades (shown in the leftmost panel of Figure A.2). In other words, the MCM captured the imbalances seen in the actual inventories (shown in Figure A.1). In the cross-flow simulation, allowing CGOs to move from 31P to 13L reduces the excess number of 31P CGOs while increasing the number of 13L CGOs and FGOs (shown in the middle panel of Figure A.2). However, reducing the number of 31P CGOs also reduces the number of FGOs, which was already below the required number. Finally, in the accession simulation (shown in the right panel of Figure A.2), increasing the

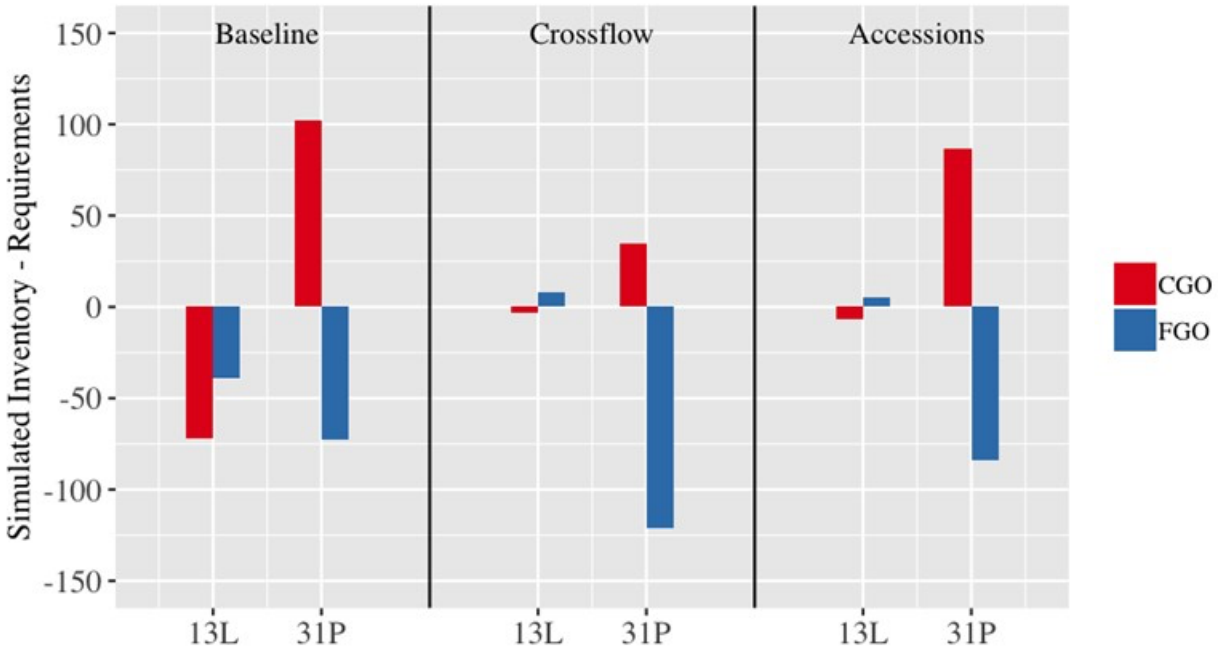
[48] This number is based on Career Health Charts received from AF/A1XD on July 11, 2019.

[49] We conducted simulations across a range of values. Allowing 9.5 O-1s to flow annually from 31P to 13L came closest to meeting 13L requirements.

[50] We conducted simulations across a range of values. Increasing 13L accessions by two individuals and decreasing 31P accessions by eight individuals annually came closest to meeting 13L and 31P requirements.

number of 13L accessions eliminates CGO and FGO undermanning in that career field, and decreasing the number of 31P accessions slightly reduces CGO overmanning in that career field (while slightly increasing FGO undermanning). These simulations show that increased CGO cross-flow from 31P to 13L can largely address imbalances in the 13L career field. However, adjusting accession targets is at least as effective and it avoids the costs associated with retraining.

**Figure A.2. Differences Between Simulated Inventories and Requirements: 13L and 31P**




In the second set of simulations, we focused on combat systems officers (12X) and intelligence officer (14N) career fields. The 12X career field was overmanned at field grades in FY 2018 and historically has been a source of cross-flow into the 14N career field. Therefore, to explore the effects of increased FGO cross-flow, we allowed a small number of O-4s to move annually from 12X to 14N.[51] We did not simulate a case that changed accessions because no change to accession targets could address the FGO imbalances in the two career fields without creating new CGO imbalances.[52]

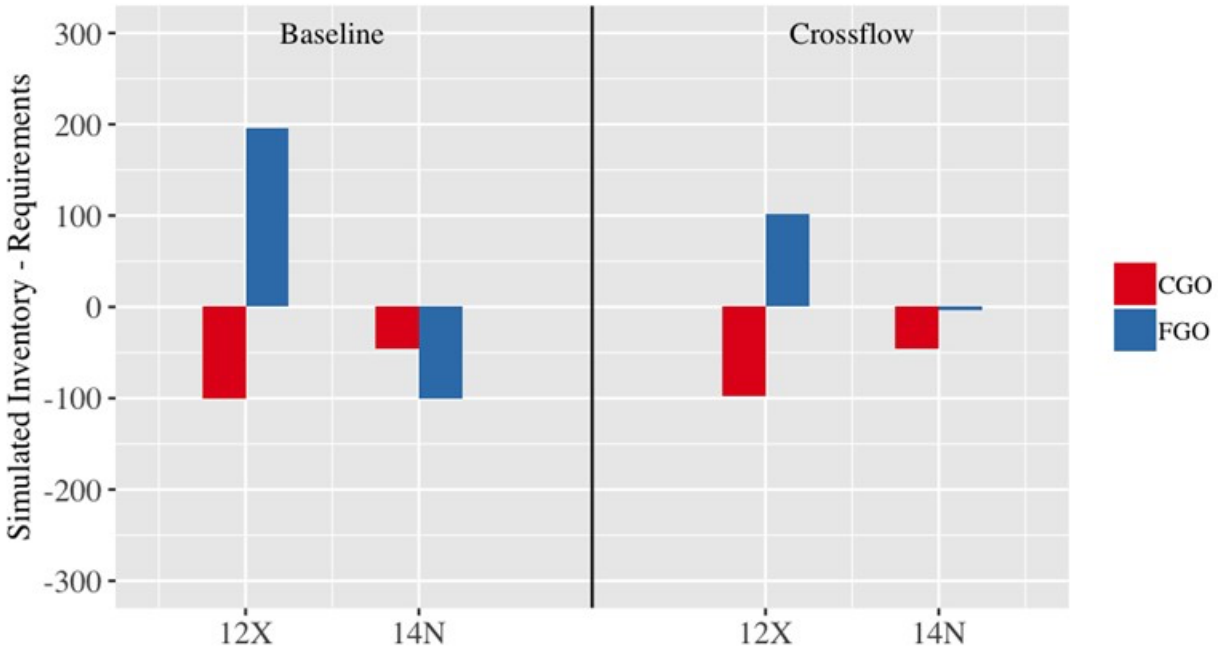
Figure A.3 shows the difference between the simulated inventory of CGOs and FGOs and the required inventory for the 12X and 14N career fields. In the baseline simulation, 12X is

[51] We conducted simulations across a range of values. Allowing 12.5 O-4s to flow annually from 12X to 14N came closest to meeting requirements in both career fields.

[52] In other words, increasing 14N accessions to meet field-grade requirements would cause overmanning at company grades, and decreasing 12X accessions to meet field-grade requirements would cause undermanning at company grades.

significantly overmanned at field grades and undermanned at company grades, and 14N is significantly undermanned at company grades, again matching imbalances seen in the actual inventory (shown in Figure A.1). Allowing FGOs to cross flow from 12X to 14N aligns excess supply in the 12X career field with the unmet demand in the 14N career field. The beneficial effects are isolated to the FGO inventories and do not alter the CGO inventories.

**Figure A.3. Differences Between Simulated Inventories and Requirements: 12X and 14N**




The results of these simulations support two points. First, allowing cross-flow from overmanned to undermanned career fields at company-grade ranks (e.g., 31P to 13L in Figure A.2) might improve the match of inventory to requirements, but that match also could be improved by adjusting accession targets in those cases. Addressing imbalances through accession goals rather than cross-flow eliminates the costs associated with retraining individuals. Second, allowing targeted cross-flow at field-grade ranks (e.g., 12X to 14N in Figure A.3) might improve the match of inventory to requirements. Cross-flow might be more suitable than changing accession targets in these cases because the imbalances exist only at field-grade ranks. Notwithstanding this technical demonstration of the potential application of cross-flow to field-grade ranks, relatively few career fields contain excess FGO supply (see Figure A.1), and even fewer career fields are suitable sources for cross-flow to career fields with unmet FGO demand. Additionally, FGO cross-flow traditionally has been the exception because of technical, political, and social challenges associated with becoming established in a new career field at such a late point in an officer's career.

We now discuss officer perceptions of the potential of increased cross-flow options to improve career flexibility.

## Officer Perspectives on the Potential Usefulness of Cross-Flow

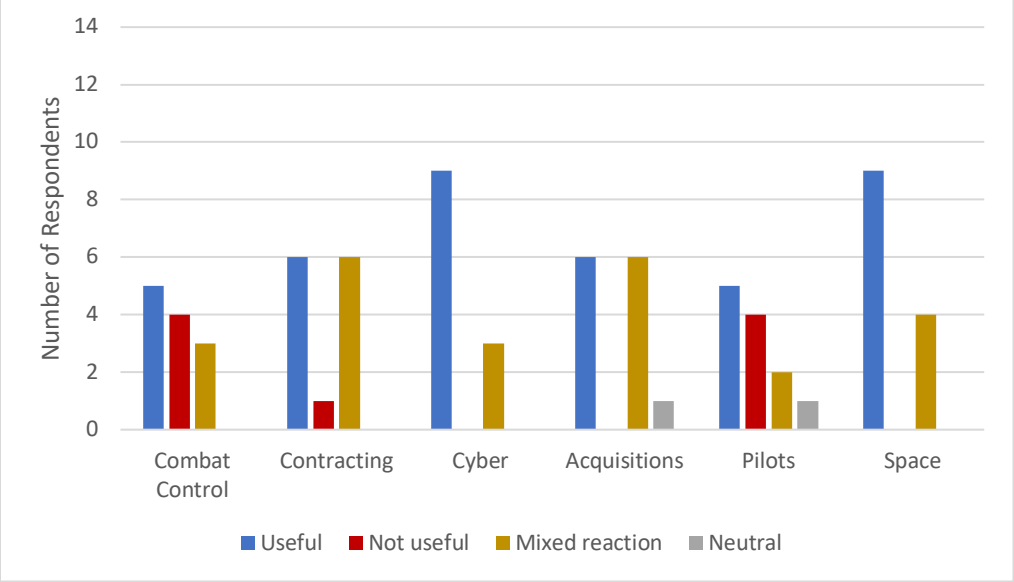
### *Career Field Managers*

When discussing cross-flow, few of the CFMs with whom we spoke focused on the advantages of this flexibility. Instead, most either provided neutral responses or focused on negative consequences associated with cross-flow. More specifically, although they were open to allowing officers to pursue temporary career-broadening assignments, most CFMs were concerned about permanently losing individuals from their career field(s) who cross-flow into another career field. For example, one CFM addressed the costs associated with training an individual in one career field, commenting, "I am open to career broadening, but not a permanent swap. It is brutal, but right at inception, we decide what you are going to be the rest of your career. We need a return on the investment of training."

### *Air Force Officers*

Overall, 53 percent of the Air Force officers with whom we spoke believed that increasing cross-flow would be useful—a more positive perspective than that of CFMs. When we examine variation in opinion across career fields, those in cyber and space career fields were somewhat more likely than those in other career fields to report believing that this flexibility was useful (see Figure A.4).

**Figure A.4. Officer Perceptions of Increasing Cross-Flow**




Among officers who reported believing that cross-flow would be useful, the most common reason for its utility was that it would provide individuals with a well-rounded perspective about their career fields and the Air Force more broadly. For example, one space officer (O-5) stated,

> [Those who cross flow] bring that experience back to the career field, but also as an organization as a whole, you're just growing a more versatile officer that kind of understands not just the lane that they've been put in but also understand[s] other components that are needed to operate within that domain or that mission area.

Other commonly discussed reasons for the utility of this flexibility were that it would bring new knowledge or expertise into career fields and might help retain individuals in the Air Force. Among those who reported believing that cross-flow would not be useful, common responses were that some career fields cannot lose people to cross-flow and cross-flow would have limited impact on other career fields.

When asked to address issues with cross-flow, officers most frequently noted that cross-flow could result in talent or manpower imbalance across career fields or put an individual behind their peers—in both the career field they cross-flow out of and the one they cross-flow into. When addressing imbalances, one space officer (O-5) commented, "Obviously, you've got the stress on the career field. . . . I doubt there's any career field that's 100 percent manned. If you are spreading people out to other career fields, you're losing not only that person, but you're losing a couple years of their development cycle." Relatedly, a pilot (O-5) stated, "The problem that already exists is that we don't have enough people to sustain the squadrons while these people are cross-flowing. Anytime you cross-flow, there's a gap, so there's going to be training gaps."

Addressing comparisons with peers in the career field one cross-flows out of, a cyber officer (O-4) commented,

> The only issue that I see with cross-flowing people at different points is that we grow officers from commissioning and there's that career field pyramid that we have that you get experience doing different types of jobs. And if you cross-flow someone in, then they may have missed a growth opportunity. But that expectation from them at whatever level they are—we'll pick a major—if they cross-flowed in as a major, then they missed those formative opportunities to be a flight commander in Cyber. So they may be lacking some of the experience that otherwise they would have gained.

Focusing on comparisons with peers in the career field one cross-flows into, an officer in a combat control (O-5) career field stated, "So if you're coming in later in the career and you haven't necessarily proven yourself, you haven't developed the reputation. You're not going to have the same impact as folks that have grown up, standing beside each other in deployed locations and making things happen. So there's certainly a reputation aspect to it."

## Summary

Cross-flow is an existing human resource management flexibility that allows officers to move from one career field to another. Our modeling results suggest limited utility in increasing cross-flow across career fields. In addition, few of the CFMs with whom we spoke focused on

the advantages of increasing cross-flow, and only about half of the other Air Force officers with whom we spoke reported believing that increasing cross-flow would be useful.

# Appendix B. Assessing the Supply of Potential Lateral-Entry Candidates

Modeling results in Chapter 2 showed that lateral entry could be useful in addressing personnel deficits in some Air Force career fields and maintaining the desired balance of CGOs and FGOs. However, using this approach requires a sufficient supply of civilian candidates for lateral entry at the desired pay grades with the appropriate skills for the AFSCs in question. In this appendix, we provide a framework for assessing the availability of such candidates and the trade-offs associated with recruiting from such a candidate pool.

This basic framework can be split into the following three components:

1. identifying the skills necessary for a specific AFSC and determining whether these skills are available and observable in nonmilitary data sources (and if so, which sources)
2. using these data sources to estimate the number, labor-market mobility, compensation, prior-service experience, and fitness of potential candidates, where possible
3. determining whether the size and composition of the candidate pool—and the compensation required to meet lateral-entry targets at specific pay grades—overcome the trade-offs associated with lateral entry in lieu of traditional Air Force training and promotion, specifically the costs of incentives, negative impacts on military culture, and mismatch of skills requiring additional training.

In discussing these components further, we provide an example that follows this process—identifying potential O-4 lateral entrants for the network operations (17D) specialty. This example is not intended to be an actionable analysis of the feasibility or design of lateral entry for this AFSC, but instead provides an illustration of the issues involved in determining whether lateral entry would be appropriate.

## Identification of Relevant Skills

An extensive body of literature within labor economics is devoted to defining and measuring worker skills, the availability of these skills and their returns in the labor force, and trends in demand or supply of these skills over time (Acemoglu and Autor, 2011). Although earlier analyses focused entirely on broad measures of educational attainment (Juhn, Murphy, and Pierce, 1993), more-recent advances have broken down specific educational, skill, knowledge, and training requirements, such as the U.S. Department of Labor's Occupational Information Network (O*NET) detailed job descriptions (Handel, 2016; Rothwell, 2015).[53]

[53] One of our reviewers made us aware of the 2010 National Research Council report, titled *A Database for a Changing Economy: Review of the Occupational Information Network (O*NET)* (National Research Council, 2010). The report notes that the U.S. Department of Labor has demonstrated the usefulness of the database, and in a chapter

However, these analyses are focused primarily on private-sector employment, so with the growth of the sophistication of measuring specific job descriptions, another problem arises for those seeking to compare private-sector job requirements with public-sector work and military service members: how to cross-walk Office of Personnel Management (OPM) or service-specific occupational descriptions with these rich O*NET measures. Increasingly, the standard practice to develop matches between different occupational coding schemes is to follow one of the following two approaches (Bethmann et al., 2014; Ikudo et al., 2018; Tijdens, 2014):

1. Consult with subject-matter experts (SMEs) in the position in question to assess its skill requirements at each pay grade level.
2. In concert with SMEs, develop a text-matching algorithm by drawing on machine-learning techniques of natural language processing to match the textual descriptions from O*NET descriptions with the government position in question.

The second approach acts as an extension of the first, whereby SMEs are used to provide a training data set for a machine-learning algorithm; this training data set is one that SMEs develop that matches a subset of the input the algorithm will use (e.g., textual descriptions from a government position) to the output (e.g., the corresponding skills in O*NET). SMEs also provide another data set with a different subset of matches to be used as a test set. The algorithm then "learns" on the training data set, and its learning is evaluated by applying the algorithm to the test set. The advantage of SMEs is accuracy; the advantage of algorithms is scale. Therefore, to develop a mapping for an individual occupation with only a small number of potentially comparable nonmilitary occupations, SMEs likely are the most effective approach. However, if a large number of military occupations are being considered for lateral entry, or if there are many potential nonmilitary occupations with necessary or useful skills, then the advantages of using a machine-learning technique in concert with SMEs grow.[54]

Conducting a SME or SME-assisted mapping of the AFSCs to nonmilitary occupations as delimited in O*NET or OPM descriptions is beyond the scope of this analysis. However, as an illustrative example of the materials available for such mapping approaches, we start with the description of AFSC 17D (cyberspace operations) from the October 31st, 2016, version of the Air Force Officer Classification Directory (AFOCD) in the first column of Table B.1. The second column of Table B.1 includes the description from the OPM handbook for the information technology management series, for which we also include the security subsection. The descriptions about the development and implementation of information systems security between OPM and AFOCD are similar, as are the knowledge requirements. A SME or set of SMEs with experience in both federal information security employment and the 17D AFSC

on workforce and career development, it notes that O*NET could be used to improve the alignment of occupational information systems across the military services.

[54] The machine-learning example described in Ikudo et al., 2018, was based on the job descriptions of a sample of almost 79,000 individuals. Comparing dozens of—or even a few hundred—O*NET descriptions with AFSCs would probably not require the effort to develop a machine-learning approach.

could determine whether these positions are, in fact, sufficiently similar, what pay grade level would be an appropriate candidate for a specific officer pay grade (e.g., General Schedule [GS] 12 or 13 for O-4 entrants), and what additional training a lateral entrant might require.

**Table B.1. Potential Mapping of Air Force Specialty Code 17D to Civilian Job Descriptions**

| AFSC 17D: Network Operations | OPM Occupation 2210: Information Technology Management Series | Standard Occupational Classification (SOC) Code 11-3021: Computer and Information Systems Managers |
|---|---|---|
| 1. Specialty summary: operates cyberspace weapon systems; employs cyberspace capabilities; and commands crews to accomplish cyberspace, training, and other missions. | This series covers two grade-interval administrative positions that manage, supervise, lead, administer, develop, deliver, and support information technology (IT) systems and services. IT includes computers, network components, peripheral equipment, software, firmware, services, and related resources. | Plan and direct the installation and maintenance of computer hardware and software. Negotiate with vendors to get the highest level of service for the organization's technology. Learn about new technology and look for ways to upgrade the organization's computer systems. |
| 2. Duties and responsibilities | | |
| 2.1. Plans and prepares for mission. Reviews mission tasking, intelligence, terrain, and weather information. Supervises mission planning, preparation, and crew briefing and debriefing. Ensures that equipment and crew are mission-ready prior to execution or deployment. | | |
| 2.2. Operates weapon system(s) and commands crew. Performs, supervises, or directs weapon system employment and associated crew activities. | N/A | N/A |
| 2.3. Conducts or supervises training of crew members. Ensures operational readiness of crew by conducting or supervising mission-specific training. | N/A | Plan and direct the work of other IT professionals, including computer systems analysts, software developers, information security analysts, and computer support specialists. Determine short- and long-term personnel needs for the department. |
| 2.4. Translates operational requirements into architectural and technical solutions. Works with commanders to deliver complete capabilities that include technical and procedural components. Researches or oversees research of technologies and advises commanders on associated risks and mitigation factors in conjunction with meeting requirements. | This series covers only those positions for which the paramount requirement is knowledge of IT principles, concepts, and methods (e.g., data storage, software applications, networking). IT refers to systems and services used in the automated acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, assurance, or reception of information.<br><br>Security: work that involves ensuring the confidentiality, integrity, and availability of systems, networks, and data through the planning, analysis, development, implementation, maintenance, and enhancement of information systems security programs, policies, procedures, and tools. | |
| 2.5. Directs the extension, employment, reconfiguration, adaptation, and creation of portions of cyberspace to assure mission success for combatant commanders. This includes both deliberate and crisis-action scenarios. | | Analyze the organization's computer needs and recommend possible upgrades for top executives to consider. Assess the costs and benefits of new projects and justify funding on projects to top executives. |
| 2.6. Develops plans and policies, monitors operations, and advises commanders. Assists commanders and performs staff functions related to this specialty. | | |
| 3. Specialty qualifications | | N/A |
| 3.1. Knowledge is mandatory, including electronics theory; IT; telecommunications; and supervisory and control systems, including cryptography, vulnerability assessment, and exploitation techniques. Additional knowledge will include operational planning, governing cyberspace operations directives, procedures, and tactics. | | Ensure the security of an organization's network and electronic documents. |

SOURCE: Adapted from Bureau of Labor Statistics, 2020; Department of the Air Force, 2007; O*NET, undated; and OPM, 2001, pp. 7–22.

One nonfederal occupation with high potential for cyberspace operations (17D) O-4 lateral entrants is the computer and information systems manager, corresponding to SOC code 11-3021. The third column in Table B.1 includes a description of this occupation from the Bureau of Labor Statistics' (BLS's) Occupational Outlook Handbook, specifically, the duties of this occupation (Bureau of Labor Statistics, 2020).

Many parts of this description are similar to the AFOCD description, including coordinating with superiors, managing other IT professionals, and ensuring network security. In addition to the BLS description, the O*NET profile of SOC 11-3021 records 17 tasks, 54 technology skills, eight knowledge areas, 22 skills, 18 abilities, 31 work activities, and 22 detailed work activities associated with this occupation. All of these areas can be used to judge the appropriateness of this occupation for the AFSC in question. An SME or group of SMEs with experience with the AFSC in question and the position in the private sector can provide guidance as to how appropriate this occupation might be as a match for O-4 lateral entrants, which private-sector industries might be stronger matches for recruitment, and what additional training would be required for lateral entrants from these backgrounds.

As an illustrative example, we assume that these positions—OPM code 2210 and SOC code 11-3021—would be potential sources of lateral entrants for AFSC 17D (cyberspace operations). Next, we seek to measure the nature of labor supply and demand within these positions. For OPM, data on employment, accessions, and separations for federal employment are publicly available. Estimates of total employment and pay by SOC code are publicly available from the BLS's Occupational Employment Statistics (OES) data series. The U.S. Census Bureau's annual American Community Survey (ACS) is a large survey that also can provide information on the education, age, functional impairment status, and prior service background of workers by occupation.[55] We drew on these three data sources to provide insight as to the employment circumstances of workers in these positions; general characteristics of each data set are provided in Table B.2. The table also lists characteristics of two other potential data sources: the Current Population Survey and the National Health Interview Survey. Additionally, proprietary data sources, such as that from Burning Glass Technologies, can provide estimates of job postings by skill content, location, and time until the position is filled (Burning Glass Technologies, 2015).

[55] The American Community Survey is sent to households—not individuals—and the primary person in the household is asked to answer questions about other household members (see U.S. Census Bureau, undated).

**Table B.2. Characteristics of Five Labor Data Sources**

| Data Source | BLS OES | American Community Survey | OPM FedScope Data | Current Population Survey, Annual Social and Economic Supplement | National Health Interview Survey, Sample Adult |
|---|---|---|---|---|---|
| Individual-level | No | Yes | Yes | Yes | Yes |
| Types of employee | Non-farm; not self-employed | Civilian, noninstitutionalized | Civilian federal employees | Civilian, noninstitutionalized | Civilian, noninstitutionalized |
| Prime-working-age sample size | N/A | 1,177,289 | N/A | 70,940 | 11,636 |
| Health measures | None | Functional impairment status | None | Self-reported health | Yes |
| Sociodemographic measures | None | Yes, many | Age, education | Yes, many | Yes |
| Geographic measures | State, MSA | State, MSA, public use microdata area | State | State, CBSA/CSA | Census region |
| Primary strength | Wage and salary distribution by detailed occupation grouping | Large annual sample with rich measures of individual and household characteristics and detailed occupation | Universe of civilian federal employment, with occupation, pay grade, salary, length of service, accessions, and separations | Largest sample with detailed occupations and a self-reported health measure | Detailed health information |

NOTES: CBSA = core-based statistical area; CSA = combined statistical area; MSA = metropolitan statistical area.

However, there are AFSCs for which it is difficult to match existing occupational categories that are well represented in large data sets. For example, space operations (13S) does not have a clear SOC code match, given the limited and more-recent involvement of the private sector in this field. Therefore, tailored market research and recruitment approaches likely would be required to ascertain the size of the lateral-entry candidate pool for this area, guided by SMEs and focused on the few nonmilitary employers requiring space operations qualifications.

Additionally, traditional officer lateral-entry programs have focused on occupations with specific certification programs, such as medical and legal professions (see Levy et al., 2004, for a review of lateral-entry programs). To the extent that knowledge and occupational standing can be relatively easily measured for potential lateral entrants in a specific AFSC, as it can in these professions, the evaluation of the potential candidate pool can be focused on individuals with such a standing.

For example, nongovernmental workers in research environments typically have strongly defined roles arising from their educational attainment, funding success, and publication history, all of which typically are publicly observable and would allow for the observation of the size and composition of potential lateral entrants for scientific research AFSCs. Such lateral entrants might include operations research analysts (61A), behavioral scientists and human factors scientists (61B), chemists and nuclear chemists (61C), and physicists and nuclear engineers

(61D). Moreover, the current number of nonmilitary government employees in these areas is available by pay grade, length of service, specialty, and government agency through OPM records.

## Using These Data Sources

Table B.3 shows employment in March 2018 for information technology management (series 2210) workers across the federal government by pay grade and provides annual salary information by percentile of the salary distribution within those pay grades. If GS-12/13 within series 2210 is an appropriate skill match for O-4 lateral entrants in 17D, then the more than 40,000 employees represent a very large potential pool from which to draw. However, these are measures of only the *stock* of employees, not the *flow*; that is, how many might be looking to change employment.

Table B.4 shows the annual number of hires and separations for each pay grade, averaged over 2011 to 2017. These figures are shown both as counts and as a percentage of current employment for series 2210 workers in each pay grade. Because separations include a wide variety of outcomes (e.g., death, retirements, termination for cause), we also show the number of workers who quit employment. Indeed, with nearly 1,500 new hires per year into pay grades GS-12/13 and nearly 600 who left, there appears to be a large number of potential candidates for lateral entry into O-4 for cyberspace operations (17D). However, additional research likely would be needed to determine the fitness of these workers, the percentage with a security focus, and, as we discuss in the next section, whether the compensation offered by the Air Force would be sufficiently attractive to hire the targeted number of lateral entrants.

**Table B.3. Employment and Salary Data for Information Technology Management Employees in the Federal Government**

| | | Annual Salary, by Percentile, in dollars | | |
|---|---|---|---|---|
| **Pay Grade** | **Total Employees** | **25th** | **Median** | **75th** |
| GS-09 | 3,755 | 57,014 | 62,716 | 68,418 |
| GS-11 | 11,594 | 68,875 | 73,050 | 79,313 |
| GS-12 | 20,380 | 83,159 | 89,703 | 95,991 |
| GS-13 | 21,002 | 103,435 | 111,201 | 119,597 |
| GS-14 | 11,281 | 126,049 | 133,703 | 145,148 |
| GS-15 | 3,540 | 152,760 | 161,746 | 164,200 |

SOURCE: OPM FedScope Data.

**Table B.4. Annual Hires and Separations for Information Technology Management Employees in the Federal Government**

| Pay Grade | Average Annual Hires | Percentage of Hires Over Current Employees | Annual Separations | Separations as a Percentage of Current Employees | Annual Quits | Quits as a Percentage of Current Employees |
|---|---|---|---|---|---|---|
| GS-09 | 746 | 14.8 | 463 | 9.2 | 150 | 3.0 |
| GS-11 | 1,131 | 9.0 | 1,085 | 8.6 | 338 | 2.7 |
| GS-12 | 1,322 | 6.1 | 1,550 | 7.1 | 347 | 1.6 |
| GS-13 | 1,143 | 5.6 | 1,322 | 6.5 | 244 | 1.2 |
| GS-14 | 595 | 6.2 | 661 | 6.8 | 119 | 1.2 |
| GS-15 | 179 | 5.8 | 278 | 9.0 | 53 | 1.7 |

SOURCE: OPM FedScope data.

However, these statistics pertain only to federal employment. The first few rows of Table B.5 provide estimates of employment and pay for computer and information systems managers from the BLS OES. The statistics presented in Table B.5 are over all industries, although the largest single industry that employs these managers is computer systems design, accounting for one-quarter of employment. As of May 2017, there were more than 360,000 such managers in the U.S. economy, with pay levels comparable with the top three pay grades of federal employment.

**Table B.5. Employment and Pay Estimates for Computer and Information Systems Managers, Bureau of Labor Statistics, May 2017**

| | |
|---|---|
| Number of employees | 365,690 |
| Annual salary | |
| 25th percentile | $107,740 |
| Median | $139,220 |
| 75th percentile | $175,890 |

SOURCE: BLS OES.

However, the OES provides estimates for specific occupations only at the state, national, or industry levels. Table B.6 provides estimates of prime-working-age employment in the U.S. Census Bureau's American Community Survey from 2017, which is microdata containing individual- and household-level characteristics of respondents. There are two example tabulations of this employment: by veteran status and by educational attainment (specifically, by bachelor's degree or by master's degree or higher). Because individuals with prior service experience might be particularly attractive candidates for lateral entry programs because of their history with military culture, the American Community Survey's estimates of the percentage of workers with such experience can indicate the extent to which a greater amount of lateral entry is

feasible.[56] Table B.7 provides these breakdowns but is limited to computer and information systems managers between the ages of 30 and 34.[57] Further analysis as to the geographic location or other characteristics of these workers can facilitate additional feasibility studies, as can the prevailing salaries for each occupation.

**Table B.6. Employment and Pay Estimates for Computer and Information Systems Managers, Prime Working-Age ACS Respondents, 2017**

| | |
|---|---|
| Non-veteran employment | 248,662 |
| With bachelor's | 119,331 |
| With masters | 70,670 |
| Veteran employment | 18,053 |
| With bachelor's | 6,406 |
| With masters | 4,718 |

SOURCE: BLS OES.
NOTE: Data are scaled by OES estimates.

**Table B.7. Employment and Pay Estimates for Computer and Information Systems Managers, ACS Respondents Ages 30 to 34, 2017**

| | |
|---|---|
| Non-veteran employment | 25,216 |
| With bachelor's | 17,165 |
| With masters | 8,051 |
| Veteran employment | 792 |
| With bachelor's | 276 |
| With masters | 517 |

SOURCE: BLS OES.
NOTE: Data are scaled by OES estimates.

One additional issue for quantifying the potential number of candidates for lateral entry is determining how many workers with the requisite skills are also sufficiently fit to satisfy accession standards. Unfortunately, although the American Community Survey asks questions about functional impairments, they are limited in their ability to measure underlying health or fitness. The next-largest data set with detailed occupational information that also contains a health measure is the Current Population Survey, which is conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. Specifically, the Current Population Survey Annual Social and Economic Supplement (CPS ASEC), which is conducted every March, elicits respondents' self-reported health on a five-point scale.

[56] Levy et al., 2004, focused on lateral entry into enlisted active duty occupations by non–prior service personnel. Golfin, Parcell, and Wenger, 2007, considered lateral entries into U.S. Navy enlisted active duty occupations of individuals with prior service and those without prior service.

[57] This age range would roughly correspond to officers at the rank of major, so it might be targeted if the Air Force seeks lateral entries to fill mid-level management positions.

Characteristics of these data are included earlier in this chapter in Table B.2. One issue to note is that the CPS ASEC has a substantially smaller sample than the American Community Survey, interviewing approximately 6 percent of the prime-working-age interviewees of the ACS. Of the 29 computer and information systems managers ages 30 to 34 in the CPS ASEC, 48 percent reported being in excellent health, which is the highest rating. Not all of those reporting excellent health might be sufficiently fit to satisfy accession standards, but this calculation indicates that the potential candidate pool might be substantially smaller because of fitness requirements. Additional analyses could be conducted with the National Health Interview Survey, which contains much more in-depth health measures and could be used to construct a more-accurate measure of physical fitness. However, the National Health Interview Survey has an even smaller sample than the CPS ASEC and has much less detailed measures of occupation, limiting the ability to measure the pool of appropriately skilled civilian workers.

## Compensation

Tables B.3, B.5, B.6, and B.7 provided recent estimates—from May 2017 and March 2018—of the salaries and numbers of workers in our comparison occupations for cyberspace operations (17D). However, the extent to which military compensation will induce this potential supply of lateral entrants is a vital question for judging how large the feasible supply of lateral candidates is. For example, as a thought experiment, if all potential lateral entrants for 17D were currently highly paid technology workers with substantial stock options as part of their compensation, then Regular Military Compensation might not induce many to join the Air Force. Some of this difference in compensation structure can be mediated by examining the OPM records, but if lateral entry options are introduced, the insights gleaned from the overall employment, year-over-year turnover, and compensation statistics in the OES, American Community Survey, and OPM analyses likely will be insufficient to understand the compensation requirements to meet pay grade–specific lateral entry targets.

Additionally, lateral entry goals, and the associated compensation required to achieve them, will need to vary with the labor market for the specific skill set required for lateral entrants and with the economy more broadly. For example, although BLS projects that average employment growth across all occupations between 2016 and 2026 will be 7 percent, it also projects that the computer and information systems managers occupation will grow by 12 percent between 2016 and 2026, driven primarily by increasing demand for cybersecurity professionals. As a result, the compensation packages required to recruit cybersecurity lateral entrants might be insufficient in the near future. Conversely, compensation for lateral entrants might not need to be as generous amidst general economic downturns, allowing for a larger supply of candidates for lateral entry

across all AFSCs. Tailoring both compensation and the structure of lateral entry targets to changes in economic conditions would allow for substantial cost savings as a result.[58]

## Summary

After identifying the skills needed in a career field for which it is considering using lateral entries to address personnel deficits, the Air Force can use the data sources described earlier to estimate the number, labor-market mobility, compensation, prior-service experience, and fitness of potential candidates. The Air Force also can determine whether the size and composition of the candidate pool—and the compensation required to meet lateral entry targets at specific pay grades—make lateral entries a viable option when compared with traditional entries in light of the potential costs of incentives, negative impacts on military culture, and mismatch of skills requiring additional training.

[58] Nonmonetary factors also might attract IT personnel to the military. See Schmidt et al., 2015, for a discussion of some of these factors.

# Appendix C. Military Career Model and Baseline Simulations

To determine where the flexibilities authorized by the 2019 NDAA would be most useful to the Air Force, we conducted a series of simulation studies to explore the ability of different career fields to meet requirements, given current management practices and the newly available flexibilities. In this appendix, we describe the MCM and the procedures used for these simulations and provide additional details related to simulations summarized in the main text.

## Summary of Mismatches Between Personnel and Requirements

To introduce the challenge of meeting officer manning requirements, we begin by explaining how those requirements are set. At a high level, the Air Force personnel management practices establish manpower requirements for mission accomplishment expressed by the manpower authorization structure, and then use those requirements as a target for the rest of the personnel life cycle (e.g., recruiting, training, assignments, retention).[59] Each authorization provides information on the skills and experience needed in the particular job (captured by AFSCs and required grade levels). In theory, if requirements accurately capture the mission needs for personnel, and if managers succeed in matching personnel to requirements, then all missions will have the needed level of resources.

In practice, CFMs might struggle to match personnel to requirements, given existing management practices and authorization limits established by Congress. For example, authorization structures often have an unsustainable number of FGO positions (O-4 through O-6) given the number of CGO positions (O-1 to O-3). Aside from being difficult—if not impossible—to fill, authorizations might not be suitable for sustaining the total number of individuals in a career field.

In light of this dilemma, AF/A1XD in the Manpower, Personnel and Services office creates a sustainment profile that determines the number of accessions needed to produce the right number of total personnel in a career field, irrespective of grade levels in the authorizations. The sustainment profile uses historical retention rates to estimate the number of officers in each year of service over the course of a 30-year career. The sustainment profile is then used to determine the number of accessions needed to produce the desired manning level in the career field.[60]

Table C.1 shows the authorized grade structure (i.e., requirements) for the cyber operations (17X) career field and the actual inventory during FY 2018. These are shown as the percentage

[59] The process is described in AFI 38-201. The U.S. Congress establishes the maximum number of officer and enlisted authorizations (AFI 38-201, paragraph 4.2.2).

[60] How the introduction of the BRS will affect retention rates is an open question, but the new system could have an impact on sustainment profiles in the future.

of the total career field in each grade. The primary difference between the structures is the greater percentage of CGOs (total of O-1 through O-3) in the current inventory (62 percent) versus the required percentage (51 percent). Table C.1 also shows requirements and the current grade structure for the space operations (13S) career field. The percentage of CGOs in the current inventory (56 percent) slightly exceeds the required percentage (54 percent). In both cases, producing and retaining enough FGOs is difficult, given the authorized number of CGOs.

**Table C.1. Fiscal Year 2018 Grade Structure for Cyber Operations and Space Operations**

| | Cyber Operations (17X) | | Space Operations (13S) | |
|---|---|---|---|---|
| Grade | Requirements | Inventory | Requirements | Inventory |
| O-1/O-2 | 14% | 31% | 24% | 27% |
| O-3 | 37% | 31% | 30% | 29% |
| O-4 | 28% | 17% | 25% | 20% |
| O-5 | 17% | 15% | 17% | 17% |
| O-6 | 5% | 5% | 3% | 6% |

SOURCE: Data are from Career Health Charts from FY 2018 provided to the authors by AF/A1XD.

We anchored our analyses to authorized grade structures by comparing steady-state personnel grade distributions produced by MCM with requirements. However, authorizations almost always contain too few O-1 and O-2 positions because most officers begin their careers as students in training rather than in authorized positions.[61] We chose to follow AF/A1XD processes and set accessions at the sustainment level rather than at the requirement level, accepting that this might produce more O-1 and O-2s than required. We then compared the steady-state distributions produced by the simulation model with requirements, paying closest attention to grades O-3 to O-6.[62]

## Overview of Military Career Model

Our primary tool for simulating promotion flexibilities was RAND's MCM. MCM is a microsimulation model that tracks simulated officers over the course of their careers, beginning from accession and extending through promotions and separation. MCM was first developed to examine the effects of lengthening assignments and careers for active-duty officers (Schirmer et

[61] Positions for students are handled as a separate account that is subtracted from the total number of positions allowed. The student, transient, personnel account "is used by Air Force budget programmers to determine the number of authorizations to allocate for the total number of military personnel who are not available for duty and not authorized on the [Unit Manning Document]" (AFI 38-201, paragraph 4.10.2).

[62] AF/A1XD specifies requirements in terms of the percentages of officers from O-1 to O-6 (see Table C.1). To convert percentages to counts, we multiplied by the cumulative sustainment requirement—that is, the sum of permanent party; core; student, transient, personnel; and institutional requirements per career field.

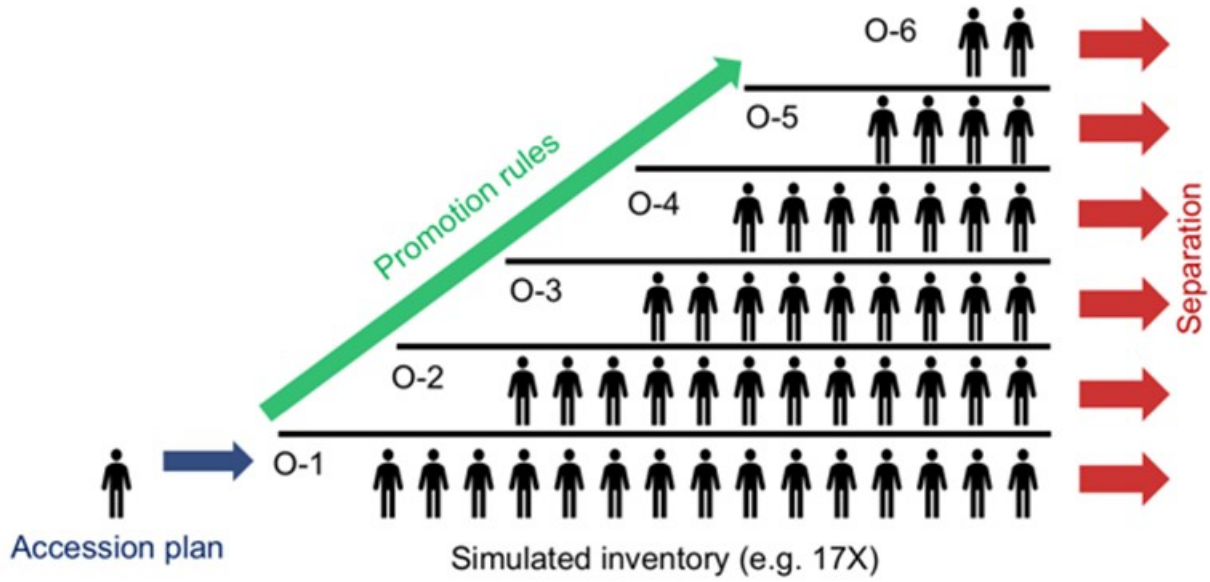
al., 2006), and since has been used to evaluate end-strength accounting rules (Schirmer, 2009), the impact of institutional requirements on the health of the space career field (Rothenberg et al., 2017), and a subset of officer management flexibilities for the military workforce.

Figure C.1 gives a high-level view of how simulated officers follow a career in MCM. Each simulation cycle of the model consists of the following four steps:

1. populating grades with new accessions
    - planning promotions based on promotion zones, promotion opportunity, and authorizations at next grade
    - promoting officers
    - retiring and separating officers from each grade.

Promotion lists are created annually in MCM, as in the Air Force. All other simulation steps, including promotion following selection, occur quarterly. MCM contains additional functionality for selecting and assigning individuals to jobs that we did not use in these simulations.

**Figure C.1. Baseline Implementation of the Military Career Model**




MCM's behavior depends on the following four inputs:

- the **number of accessions** is the number of individuals commissioned and entering the simulated workforce at the grade of O-1 annually. We set this to the values needed to sustain the sizes of the respective career fields, calculated as a career field's sustainment requirement (permanent party core + student, transient, personnel + institutional requirements) divided by average expected years of service.
- **promotion board timing** is the TIG in years for an individual to be considered for promotion to the next grade. We based this on historical promotion board dates by competitive category from FY 2015 to FY 2019. Table C.2 shows board timing in terms

of TIG to be considered IPZ. Individuals within two years of minimum TIG to O-5 and O-6 were considered to be BPZ, and individuals one or more years beyond minimum TIG were considered to be APZ.

- **promotion opportunity** is the percentage of individuals IPZ selected for promotion to the next grade on an annual basis. We based promotion opportunity on historical data from FY 2015 to FY 2018.[63] From these data, we calculated promotion opportunity as a function of the number of individuals IPZ.[64] These values are shown by occupation in Table C.2. Additionally, we calculated the percentage of promotions given to individuals IPZ and APZ versus BPZ. BPZ selections occurred only for promotion to O-5 and O-6 and accounted for about 10 percent of total selections.
- the **continuation rate** is the percentage of individuals remaining in the Air Force on an annual basis. We calculated continuation rates by career field and YOS from Air Force personnel records from FY 2014 to FY 2018. Figure C.2 shows these rates by occupation.[65]

**Table C.2. Promotion Board Timing and Opportunity, by Grade**

| | | Promotion Opportunity[a] | | | | |
|---|---|---|---|---|---|---|
| Grade | Board Timing (Years TIG) | Pilot | Combat Systems | Air Battle Manager | Nonrated Ops | Mission Support |
| O-1 and O-2 | 2 | 100% fully qualified | | | | |
| O-3 | 5 | 98% | 98% | 96% | 97% | 97% |
| O-4 | 4 | 86% | 71% | 68% | 80% | 82% |
| O-5 | 5.5 | 71% | 52% | 51% | 52% | 59% |
| O-6 | 5 | 2% | | | | |

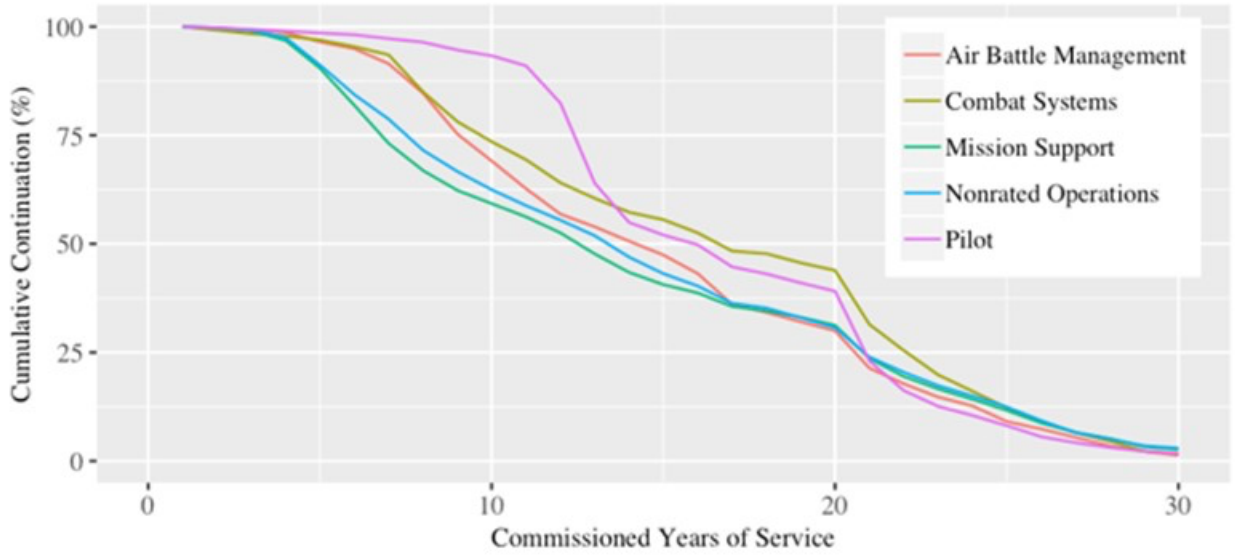
[a] The mapping from occupation to AFSC is: pilot (11X), air battle manager (13B), non-rated ops (13C, 13D, 13L, 13S, 17X), and mission support (35P, 62E, 63A, 64P).

[63] Historical promotion data were provided by the Air Force Personnel Center's Research, Analysis and Data Division from its retrieval application webpage static reports.

[64] *Promotion opportunity* equaled the total number of individuals selected for promotion to the next grade divided by the number of individuals IPZ.

[65] In cases in which the career field was small (e.g., 13C, 13D, 13L), we based continuation rates on values from the broader occupational category within which the AFSC fell (e.g., combat systems, air battle manager, nonrated ops, mission support).

**Figure C.2. Cumulative Continuation, by Commissioned Years of Service**




SOURCE: Data are from Air Force Personnel Records provided to RAND at the end of FY 2018.

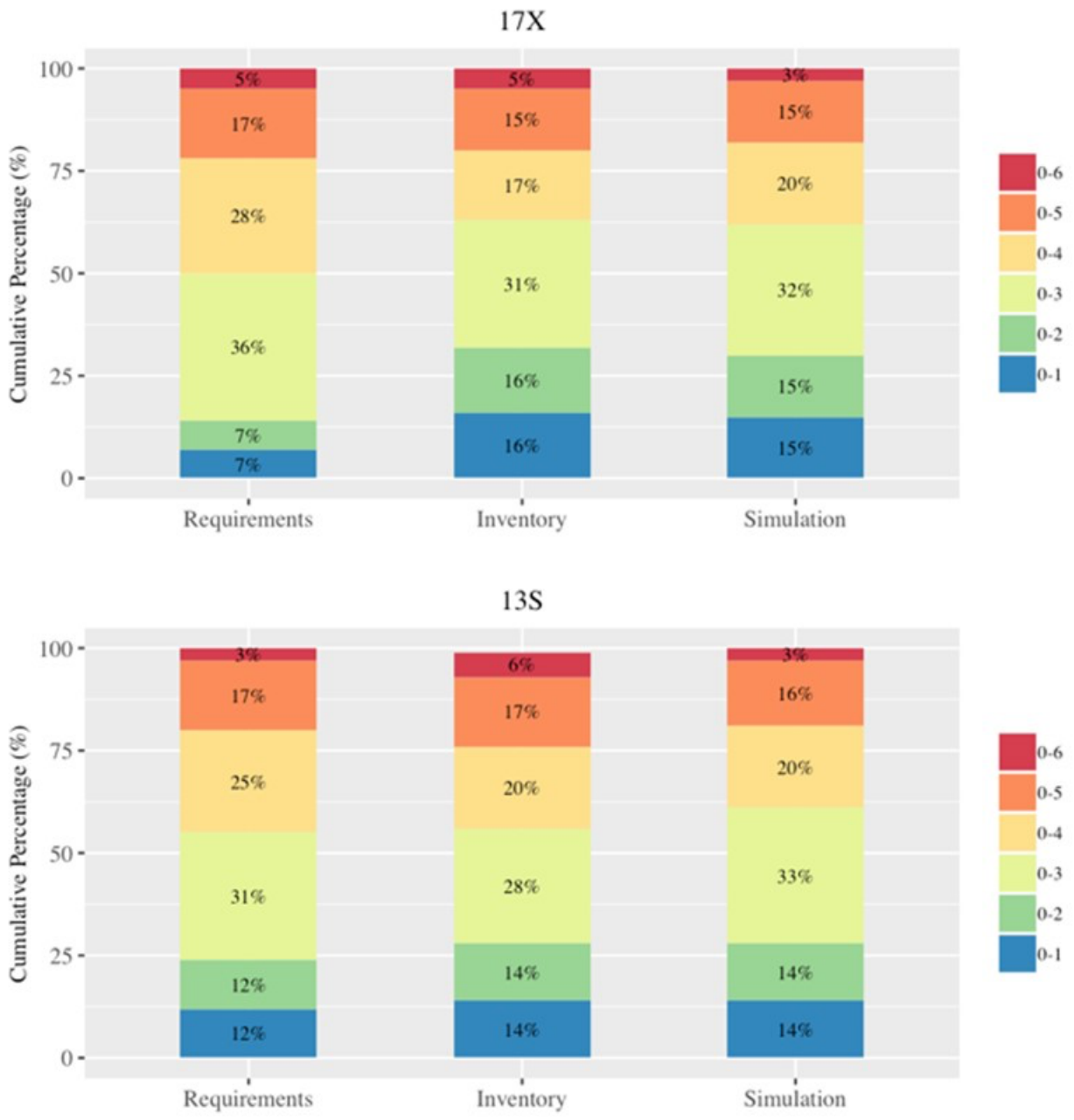
To simulate steady-state grade distributions, we ran the model for an extended number of years and retained results once the simulated grade distributions stabilized.[66] We varied annual accessions, promotion opportunity, and separation rate by career fields, and held board timing and the percentage of promotions allocated to BPZ constant across career fields. We compared the resulting steady-state grade distributions with authorizations by career field.

### *Baseline Simulation Results*

We ran MCM for 11 career fields. In this section, we focus on cyber operations (17X) and space operations (13S). For both career fields, we simulated steady-state grade distributions with accessions set to levels needed to sustain the career fields. Figure C.3 presents simulation results in terms of the percentages of individuals by grade. For comparison, Figure C.3 also presents requirements and calendar year 2018 inventory percentages for each career field. The simulated distributions for the 17X and 13S career fields are similar to the current inventories. The percentage of CGOs in both simulations exceed the required percentages, as did the percentage of CGOs in the actual inventories. This provides validation for the model and demonstrates that the actual imbalances are unavoidable, given requirements and the structure of the current promotion system.

[66] The model begins with no officers in the inventory. Through accessions and promotion, the inventory gradually takes shape. The dynamics of the model and the grade structures it produces stabilize after this initial "burn in" period. We ran the model for 500 years and retained results beginning after year 100.

**Figure C.3. Requirements, Actual Inventories, and Simulated Steady-State Grade Distributions for the 17X and 13S Career Fields**




An important dimension of promotion besides grade distribution is phase point, or average cumulative YOS before an individual is promoted to each grade. Figure C.4 shows phase points for O-1 through O-6 based on historical data from FY 2014 to FY 2018. These values represent average timing for due course promotions for individuals in the LAF. Figure C.4 also shows the corresponding phase points from MCM for the cyber operations (17X) career field (results for the space operations [13S] career field are nearly identical). The simulated phase points perfectly

overlap historical values, providing further evidence that MCM accurately captures grade distributions and promotion timing.

Figure C.5 shows the required and simulated percentages of CGOs for 11 career fields. For six of the career fields, the simulated percentage of CGOs exceeds the required percentage. Thus, the grade imbalances observed for the 17X and 13S career fields are common across the LAF.

**Figure C.4. Observed and Simulated Phase Points for 17X and 13S Career Fields**

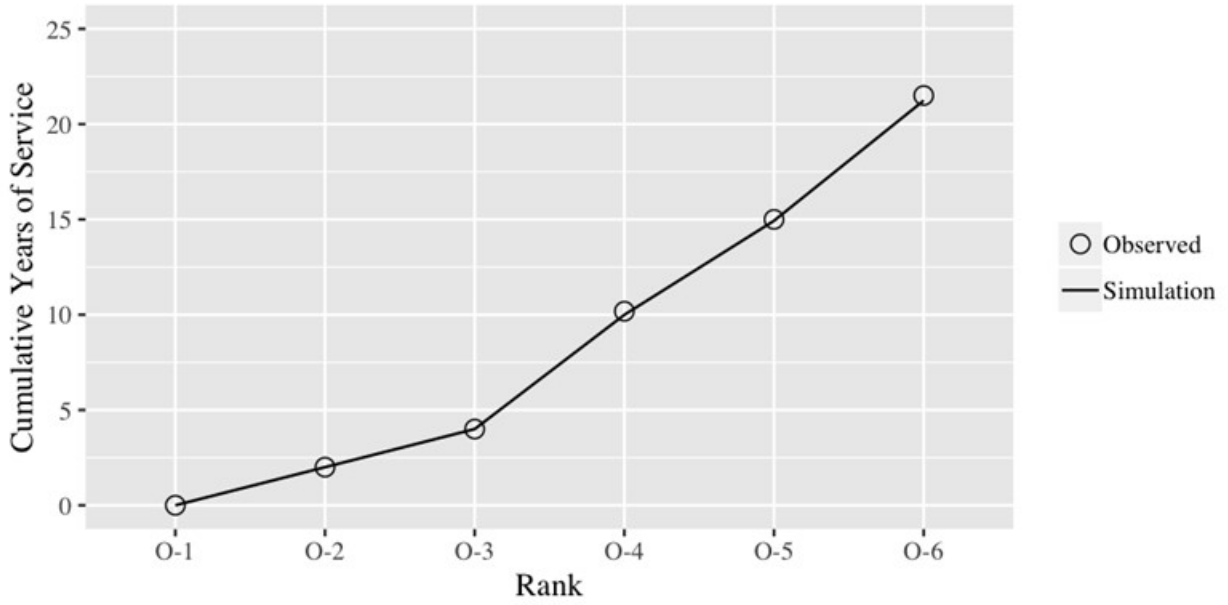
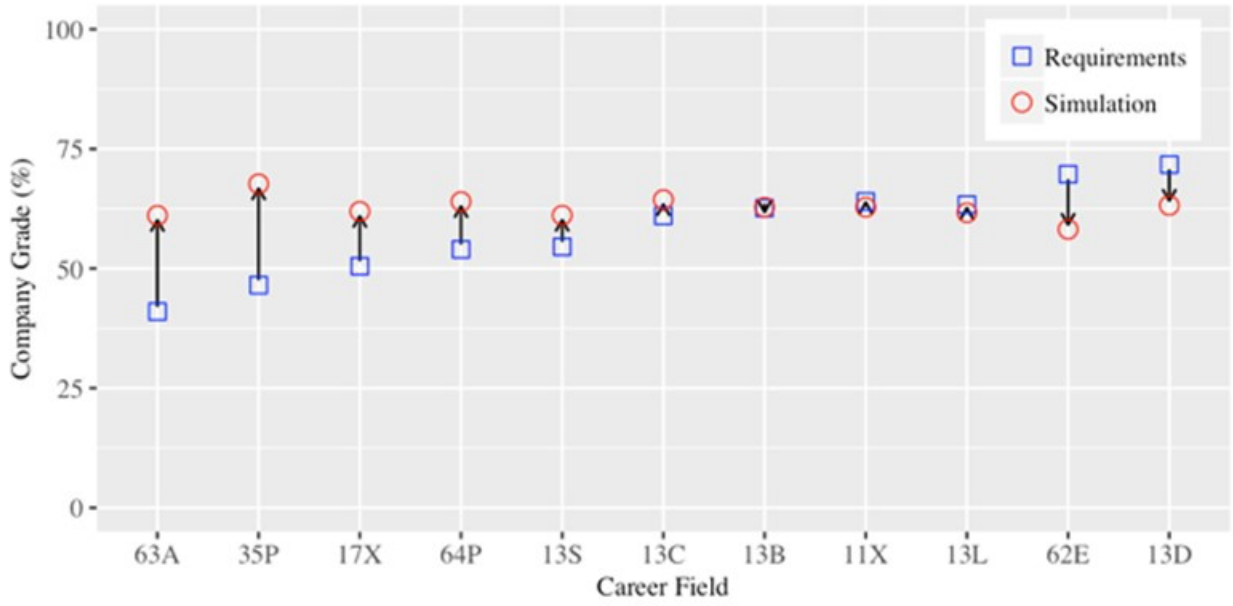



**Figure C.5. Difference Between Simulated Grade Distributions and Requirements, by Career Field**



## Modeling Section 501 and Section 502 Flexibilities

Section 501 of the FY 2019 NDAA repeals the requirement for the ability to complete 20 years of service by age 62 as a qualification for regular commission, and Section 502 of the NDAA enhances the availability of constructive service credit for private-sector training or experience. By using these flexibilities in tandem, the services can offer rank and compensation commensurate with an individual's experience and qualifications. Effectively, they can be used to enable lateral entry by offering commissions above the grade of second lieutenant. This could enable CFMs to increase the number of FGOs in career fields that are undermanned at those grades.

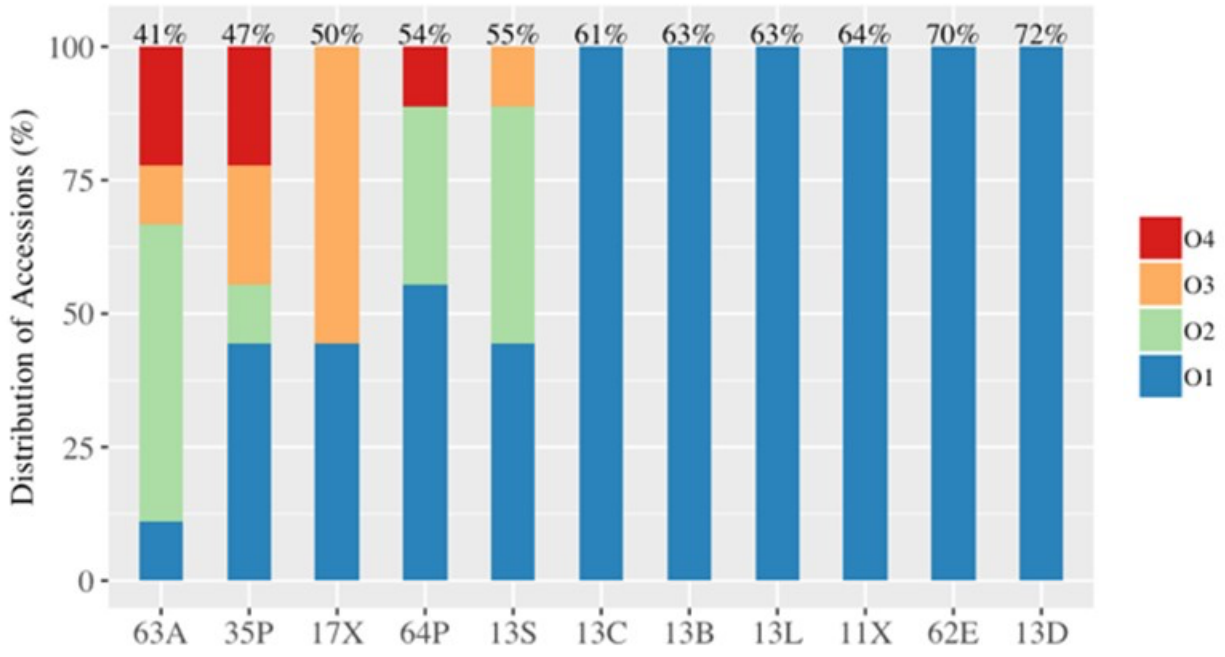
In simulating the use of these two flexibilities, we made two simplifying assumptions. First, accession goals for lateral entries will be met: Enough experienced individuals exist and recruitment incentives will be such that the demand for lateral entries will be satisfied. Second, separation rates after lateral entry will resemble separation rates for officers commissioned at O-1. In other words, after four YOS, an officer who began their career at O-2 or O-3 would have the same separation probability as an officer who began their career at O-1.

To determine optimal allocations of accessions across company grade ranks, we simulated multiple distributions formed by allowing the percentage of accessions at each grade to vary from 0 percent to 100 percent in 10-percent increments (subject to the constraint that the sum across grades equals 100 percent). For example, one case would have 100 percent entries at O-1. The next might have 90 percent O-1 entries and 10 percent O-2 entries, and so on. This formed about 200 different accession distributions for each career field. We then identified the allocations of accessions that came within 1 percent of producing the required percentages of CGOs and FGOs for each career field.

Figure C.6 shows representative allocations from the model for each career field.[67] Each bar shows the percentage of O-1, O-2, O-3, and O-4 lateral entries that enabled the career field to achieve its desired ratio of CGOs to FGOs. Values above the bars indicate the required percentage of CGOs in that career field. For career fields with less than 60 percent CGOs (the five leftmost bars of the chart), the optimal allocation of accessions was concentrated above O-1 to allow individuals to reach field-grade ranks earlier. Alternatively, for career fields with a large percentage of CGOs, the optimal allocation of accessions was concentrated at O-1 (i.e., no lateral entry) to maintain the amount of time individuals spent at company grade ranks.

[67] As shown in Figure C.7, several allocation options came closest for each career field. Figure C.6 uses only one example for each career field, but the point of the figure is that, as the percentage of CGOs increases, fewer lateral accessions would be helpful.

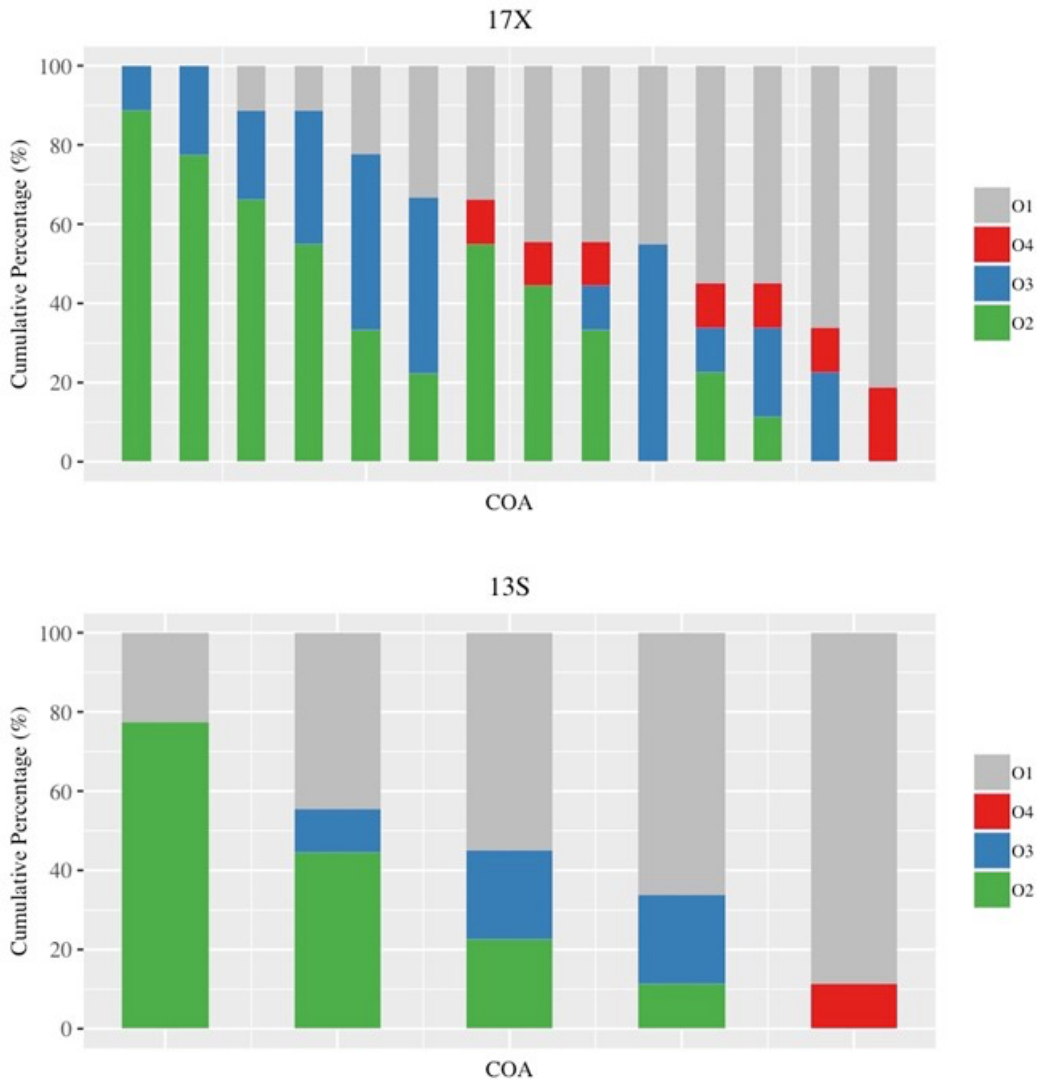
**Figure C.6. Simulated Allocation of Accessions Across O-1, O-2, O-3, and O-4 to Meet CGO Requirements**




In career fields that benefited from lateral entry, multiple distributions of accessions across grades O-1 to O-4 came within 1 percent of producing the required percentage of CGOs. This means that the model indicates that there is a fundamental trade-off between allowing a larger number of lateral accessions at lower grades or a smaller number of lateral accessions at higher grades. Figure C.7 shows the distribution of lateral entries among O-2, O-3, and O-4 grades for several satisfactory COAs for two career fields, cyber operations (17X) and space operations (13S) (usual accessions at O-1 account for the remaining percentage needed for the bars to sum to 100 percent).[68] By *satisfactory*, we mean the simulated accession distributions that came within 1 percent of producing the required percentage of CGOs. For both career fields, some satisfactory COAs involve a higher percentage of lateral entries but at lower grades, some involve a lower percentage of lateral entries but at higher grades, and some involve a blend of lateral entries across all grades.

[68] Note that for 17X, the fifth COA from the right, which has about 55 percent lateral entries at O-3 and 45 percent at O-1, corresponds to the allocation example used in Figure A.6. For 13S, the second COA corresponds to the allocation example used in Figure A.6.

**Figure C.7. Simulated Allocation of Accessions Across O-2, O-3, and O-4 to Meet CGO Requirements for the 17X and 13S Career Fields**




### *Sensitivity of Lateral Entries to Changes in Separation Rates*

In our lateral-entry simulations, we assumed that individuals entering the force above the grade of O-1 would have a similar retention profile to those entering at O-1. This is a strong assumption. If lateral entrants had higher separation rates, it would dilute the benefits of lateral entry. To examine these effects, we conducted additional simulations based on a cyber operations (17X) lateral entry COA reported in Chapter 2. The COA involved accessing 240 individuals annually, with 195 at the rank of O-1 and 45 at the rank of O-4. In the reported simulations, lateral entrants had the same separation rates as individuals who accessed at O-1. We maintained this as a baseline and then parametrically increased lateral entrant separation rates by 10 percent, 20 percent, 30 percent, 40 percent, and 50 percent. In all simulations, we

applied the increase after the fourth year of service to reflect the fact that lateral entrants might be subject to the same mandatory minimum term of service as traditional accessions.

Table C.3 shows the simulated percentage of CGOs as separation rates for lateral entrants are increased by 0 percent to 50 percent. For comparison, the required percentage of CGOs is 50 percent and the percentage of CGOs in the baseline simulation without lateral entry is 62 percent, reflecting 12 percent overmanning at those grades. As separation rates for lateral entrants increase, the percentage of CGOs increases. This is because lateral entrants, who are entering the force as FGOs, serve for fewer years. Thus, given a 30-percent increase in separation rates, the benefits of lateral accessions in meeting grade requirements is effectively halved, and given a 50-percent increase in separation rates, the benefit is almost eliminated.

**Table C.3. Percentage of Company Grade Officers in 17X Inventory as Separation Rates for Lateral Entrants Increase from 0 Percent to 50 Percent**

| | Percentage Increased Separation Rate | | | | | |
|---|---|---|---|---|---|---|
| | **0** | **10** | **20** | **30** | **40** | **50** |
| Percentage company grade in inventory | 50.4 | 52.3 | 54.1 | 55.8 | 57.4 | 59.1 |

## Summary

This appendix has shown the capabilities of MCM and provided examples of model outputs for results related to management flexibilities allowed by Sections 501 and 502 of the FY 2019 NDAA. In particular, the ability of MCM to reproduce existing inventories and promotion phase points provides confidence that varying its parameters to account for other flexibilities, such as cross-flow and other practices allowed by the FY 2019 NDAA, results in reasonable estimates of the consequences of implementing those flexibilities.

# Appendix D. Additional Officer Interview Comments

In addition to the questions addressing new career management flexibilities allowed by the FY 2019 NDAA, the protocol included the following two open-ended questions that allowed respondents to discuss ways in which the Air Force might better promote career flexibility:

- What are some ways the Air Force might better promote career flexibility?
  - This question was asked *before* the FY 2019 NDAA flexibilities were discussed in the interview.
- Do you have any additional suggestions for changes that can be made that could improve the career flexibility provided to Air Force officers?
  - This was the last question asked at the conclusion of the interview.

Major themes related to increasing career flexibility that arose from these questions were the need for cultural changes in the Air Force, the need for changes in the promotion system, and the possibility of modifying the assignment process. Although the questions were essentially the same, the focuses of the responses to them were slightly different. Table D.1 shows major themes, minor themes, and representative interview responses for the first question. Table D.2 shows similar information for the second question.

When answering the second question, suggestions related to changing the promotion system were similar to those made for the first question, so they are not repeated in Table D.2. Suggestions to change the assignment process did not arise in answers to the second question. The most noticeable difference in responses to the two questions was the more-frequent mention of the importance of family issues.

**Table D.1. Themes Related to How the Air Force Could Better Promote Career Flexibility**

| Major Themes | Minor Themes | Representative Responses |
|---|---|---|
| Cultural change | Show that the Air Force values people who explore options outside their career field | • Well, a big challenge is valuing it, that when it comes time to meet a promotion board, people who have gone off and done something out of the norm, tend not to score as well.<br>• And looking at programs that maybe people can transition to and from the Guard, Reserve, and Active Duty easily, or more easily, I would say would be beneficial.<br>• I like where things are going, the Career Intermission Program, where your year-group resets to keep you competitive, is a good example of that. |
| | Allow people to remain in one location for longer periods | • I would say giving them an option to say I would like to live in this area, or I would like to stay in this space, or I would like to attend this school program. . . . So giving them that option. . . .<br>• I think I would just revert back to that, that you should have the option of career progression within an organization or within a unit based on still job performance, but not necessarily having to have as many job changes. |
| Change the promotion system | Eliminate "up or out" | • [T]ry and change the up-or-out mindset, where you can complete a 20-year career, if that's your desire, without the pressure of ensuring that you make rank. . . . I think making rank is what drives people to try and shape their career to what they think the Air Force wants, versus chasing opportunities that are interesting to them. |
| | Introduce technical tracks | • I think that if a policy would be in place like you have two tracks, you have a command track and senior leadership track and you have a track where you're retained to be a technical expert . . . we shouldn't say that just because you're a captain with 20 years and that that's a bad thing. If they're good at their field and at that rank, then that shouldn't be looked down [on]. |
| Change the assignment process | Allow more open competition for jobs | • Allow people, any service member to apply for the job they want and compete for it rather than the centrally managed process by [the Air Force Personnel Center] we have now. |

**Table D.2. Themes Related to Additional Suggestions to Improve Career Flexibility**

| Major Themes | Minor Themes | Representative Responses |
|---|---|---|
| Cultural change | Pay more attention to family issues | • If there was an option that when they need more stability for family, which is what guard or the reserves is for, then later could take up active duty again, it might help.<br>• If they want people to stay in up into higher ranks, I really feel family's probably number one, just because of that time in most people's lives they pretty much affect their spouse and their family, and just having that stability to help them out at the home front could let some of the stress away and help them out in the work front. |
| | Restructure career paths | • Can we make timing more flexible without impacting the officer? Can we make officers older? [M]aybe a guy could be an in-the-zone kind of guy and get an opportunity to lead at the wing level. So maybe we're trying to get there. But those are sorts of things, the general career paths for officers and how our promotion systems work, those are of concern to me personally. I think that changing those will impact the future for the better because you may have that late bloomer that would be a truly outstanding chief of staff one day, but he will never get the opportunity because of timing.<br>• And if there were some more flexibility in terms of being able to stay in the current job if you like it, or maybe some different flexibilities in other opportunities like outside the career field but at the same location that could be open, I think that would certainly help me out. |

# Appendix E. Interview Approach and Protocol

In this appendix, we describe how the interview samples for the individual officer interviews and the CFM interviews were selected and how the interviews were conducted; we also include the protocol used in conducting the interviews with officers assigned to the career fields discussed in our assessment.

## Officer Interviews

We conducted 75 interviews with individuals in ranks O-4 and O-5. To obtain contact information, an initial sample of 36 potential interviewees in each AFSC was randomly drawn from the Air Force Personnel Center's Military Personnel Data System, the Air Force's primary database for personnel data and actions. In April 2019, an initial information email about the study was sent by the sponsor to all potential interviewees in the sample. From May through July 2019, two RAND researchers and a RAND survey coordinator emailed individuals from the sample to request their participation. This introductory email contained information about the RAND Corporation and the study and included the study's informed consent as an attachment. In addition, within the email, individuals were asked to participate in a one-hour phone conversation and, if they were interested in doing so, they were asked to provide dates and times during which they were available for a meeting. If no response was received from an individual, we sent a follow-up email. This process was followed until at least 12 interviewees from each career field were obtained. In our experience with projects such as this one, interviews beyond 12 seldom introduced much new information.

Interviews lasted approximately one hour and were, in most cases, audio-recorded and professionally transcribed for accuracy.[69] Each interview transcript was uploaded into Dedoose Version 8.2.14, a secure web-based application that allows one to organize and analyze qualitative data (Dedoose, undated). We used a two-stage process to code the interviews. In the first stage, we developed a preliminary codebook that corresponded to the interview protocol questions shown later in this appendix. With oversight from a RAND researcher, three policy analysts applied these codes to the interviews. To ensure consistency in coding, three transcripts were selected to be coded by all three policy analysts. Following review, the codes were found to be consistently applied across the analysts. In the second stage, a policy analyst and two RAND researchers developed subcodes based on transcript themes that arose from interviewee comments. We discussed these subcodes during regularly scheduled meetings about transcript coding.

[69] Two interviewees declined to be recorded, so detailed notes were taken during the interview.

## Career Field Manager Interviews

We conducted ten sets of CFM interviews from January through March 2019.[70] For these interviews, we obtained CFM contact information from the study sponsor. To recruit CFMs, two RAND researchers sent an introductory email that contained information about RAND and the study, and included the study's informed consent as an attachment. In addition, individuals were asked to participate in a one-hour, in-person conversation. If they were interested in doing so, they were asked to provide dates and times during which they were available for a meeting.

Two RAND researchers conducted these interviews, and a RAND research assistant or policy analyst took notes during each interview. The notes from the CFM interviews also were coded and analyzed with the same computer program used for the other interviews.

## Interview Protocol

The protocol used for the officer interviews is included here. Because this protocol is highly similar to the protocol used for our CFM interviews, we have included only one protocol in this appendix.

[70] Three career field representatives (e.g., CFM, deputy CFM) participated in one of the interview sets.

*Championing the Agile Military Career Path*

This study is being conducted by the RAND Corporation, a nonprofit research institution located in Santa Monica, California. The research is being sponsored by the Air Force to help identify approaches for increasing Air Force office career flexibility. As part of the study, we are holding discussions with Air Force officers to learn about factors that officers might consider when making choices about their careers.

### Voluntary Participation

Your participation in this discussion is entirely voluntary. You can choose not to participate or skip any points you'd rather not discuss. Additionally, if at any time you no longer want to participate, just let us know and we can stop the conversation.

### Confidentiality

RAND will treat the information you provide as confidential. We will not disclose the responses you provide to anyone outside the research team, except as required by law. (We cannot provide confidentiality to a participant regarding comments involving criminal activity or behavior, or statements that pose a threat to yourself or others.) Information from the discussion will be summarized in aggregate form across all participants for any reports or presentations we make and will not be attributed to specific individuals. We will be taking notes on the discussion today, but to protect confidentiality, we will not include names or any other information that might identify you in our notes.

We do plan to use some comments and quotes from the discussions in reporting our findings and conclusions. However, all comments or quotes will be reported as anonymous and will not contain information that would lead you to be identified.

With your permission, we also will be recording audio during the discussion today to help supplement the notes that we write during the session. Do NOT discuss or comment on classified or operationally sensitive information.

### For More Information

For questions about the study, please contact Miriam Matthews by phone at (703)-413-1100 x5222 or by email at matthews@rand.org, or contact Shirley Ross by phone at (703)-413-1100 x5100 or by email at sross@rand.org. For questions about your rights as a research subject, you can contact RAND's Human Subjects Protection Committee at (310) 393-0411, x636 or by email at hspcadmin@rand.org.

### Background

I would like to start by asking you a few questions about your professional background.

1. What is your current rank or grade?
2. What is your career field?

3. What was your commissioning source?
4. How many years of service have you provided since commissioning?
5. How many months or years do you have remaining on your current service obligation?

### Career Decisions

For this project, we are interested in hearing about your thoughts with regard to your career as well as what you know regarding the career choices of your peers. Our first questions ask about Air Force officer career decisions more broadly, and the next set of questions addresses your career field specifically.

### Air Force Career Decisions

6. In general, what factors do you think contribute to individuals choosing to become active duty Air Force officers?
    a. What are some currently available Air Force career programs or policies that lead people to consider joining the Air Force?
7. What factors do you think contribute to officers choosing to stay in the active duty Air Force?
    a. What are some currently available Air Force career-relevant programs or policies that lead people to stay in the Air Force?
8. What factors do you think contribute to officers choosing to leave the active duty Air Force?
    a. What are some currently available Air Force career-relevant programs or policies that lead people to leave the Air Force?

#### *Career Field–Specific Decisions*

9. Why and how did you choose your career field?
    a. Overall, what characteristics of your career field contribute to individuals choosing it over others?
    b. *Probe:* Are there career-relevant programs or policies specific to your career field that lead individuals to choose it over others? If so, what are these?
10. What career field characteristics contribute to individuals choosing to remain as officers in your career field?
    a. *Probe:* Are there career-relevant programs or policies specific to your career field that lead individuals to remain as officers in your career field? If so, what are these?
11. What career field characteristics do you think contribute to individuals choosing to leave your career field?
    a. What are some reasons why people may choose to join another career field?
    b. What are some reasons why people may choose to leave the Air Force?

*Benefits and Limitations of Career Flexibilities*

We would also like to get your thoughts on Air Force practices that benefit or hurt career flexibility.

12. When you hear the phrase "career flexibility," what comes to mind?
    a. How does this apply to the Air Force?
13. What are some current Air Force practices that promote career flexibility?
14. What are some current Air Force practices that do not allow for career flexibility?
15. What are some ways the Air Force might better promote career flexibility?

## Specific Career Flexibilities

Finally, we would like to get your thoughts on several career flexibilities that the Air Force and DoD, more broadly, are considering.

16. The Air Force is considering increasing cross-flow flexibility, which is the ability of officers to move from one career field into another.
    a. How could cross-flow be adjusted to be more useful for your career field(s)? For example, this might include adjustments to those flowing into or out of the career field.
    b. Would this flexibility be useful for your career field(s)? Why or why not?
    c. What, if any, issues might arise if this were implemented?
17. The 2019 National Defense Authorization Act—or NDAA—enables service secretaries to allow original officer appointments even if the officer is unable to complete 20 years of service by age 62. Therefore, the Air Force is considering repealing the requirement that officers be able to complete 20 years of service by age 62 in order to qualify for an appointment as a regular commissioned officer. *[Interviewer Note: This is **Section 501** of the FY 2019 NDAA.]*
    a. Would this flexibility be useful for your career field(s)? Why or why not?
    b. What, if any, issues might arise if this were implemented?
18. The 2019 NDAA gives service secretaries the flexibility to grant "constructive service" credit for individuals who have special training or experience. This means that the individual with special skills or experience could enter the Air Force with a grade higher than second lieutenant—up to O-6. You may be aware that this is currently possible for a small set of officers, including physicians, and the 2019 NDAA allows the Air Force to make this possible for any career field. *[Interviewer Note: This is **Section 502** of the FY 2019 NDAA.]*
    a. Would this flexibility be useful for your career field(s)? Why or why not?
    b. What, if any, issues might arise if this were implemented?
19. The 2019 NDAA gives service secretaries the flexibility to authorize regular officer promotion boards to place high-performing officers higher on the promotion list. That is, those with higher board scores would promote first, regardless of date of rank. This might modify the Air Force's use of below-the-zone promotions. *[Interviewer Note: This is **Section 505** of the FY 2019 NDAA.]*

a. Would this flexibility be useful for your career field(s)? Why or why not?
b. What, if any, issues might arise if this were implemented?

20. The 2019 NDAA gives service secretaries the flexibility to allow officers to opt out of promotion boards so they can complete broadening assignments, advanced education, assignments of significant value to the department, or a career progression requirement delayed by assignment or education. *[Interviewer Note: This is **Section 504** of the FY 2019 NDAA.]*

    a. Would this flexibility be useful for your career field(s)? Why or why not?
    b. What, if any, issues might arise if this were implemented?

21. The Air Force is considering splitting the line competitive category into six or more competitive categories of officer. Officers in a competitive category compete for promotion only with officers in that category. *[Interviewer Note: example: In the Navy, information warfare officers and public affairs officers are in different competitive categories.]*

    a. Would changing the competitive categories be useful for your career field(s)? Why or why not?
    b. What, if any, issues might arise if this were implemented?

22. Finally, the 2019 NDAA gives service secretaries the flexibility to establish alternative promotion authorities for certain competitive categories. These categories might have different time-in-grade requirements for promotion, different limits on the number of opportunities for promotion a person has to a particular grade, and different criteria for selective continuation for officers who are not selected for promotion. Officers in a competitive category compete for promotion only with officers in that category. *[Interviewer Note: This is **Section 507** of the FY 2019 NDAA.]*

    a. Would this flexibility be useful for your career field(s)? Why or why not?
    b. What, if any, issues might arise if this were implemented?

## Closing Questions

23. Do you have any additional suggestions for changes that can be made that could improve the career flexibility provided to Air Force officers?

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PROJECT AIR FORCE

Human resource management practices that limit career flexibility, neglect and underuse individual talents, and fail to consider employee motivations might hinder the military services' abilities to effectively manage their human capital. The fiscal year 2019 National Defense Authorization Act (NDAA) authorized new options for officer career management that the military services can choose to implement. The authors of this report examined the potential utility of five of the new flexibilities (Sections 501, 502, 504, 505, and 507 of the NDAA) for improving the management of Air Force human capital. Results showed that most of the options examined have the potential to be useful in many career fields, and officers are open to their use. In addition, new officer management flexibilities might permit more-tailored career development for individuals and also allow greater diversity in how Air Force officers advance in different career fields. However, there is variation among career fields in how the options would best be implemented.

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