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Advancement and Retention Barriers in the U.S. Air Force Civilian White Collar Workforce

Implications for Demographic Diversity

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Preface

The Air Force experiences challenges in maintaining a demographically diverse civilian workforce. In particular, data show that women and racial/ethnic minorities are underrepresented at senior General Schedule (GS) (and equivalent) civilian grades within the Air Force. Similarly, employees with disabilities are not well represented among the Air Force's GS (and equivalent) civilian workforce and show higher separation rates than their counterparts. This report documents the results of a RAND Project AIR FORCE (PAF) study designed to better understand the challenges that Air Force civilian women, racial/ethnic minorities, and individuals with disabilities in GS (and equivalent) positions (i.e., "white-collar" positions) face in advancing to higher pay grades as well as factors they consider when deciding whether to remain with the Air Force. The study analyzed Air Force personnel data to identify differences in advancement and retention patterns and conducted focus groups and interviews with close to 300 participants from across the civilian GS and equivalent workforce to better understand potential advancement and retention barriers. The report describes key findings related to differences in advancement and retention and provides recommendations for potential changes to Air Force policies and practices to help grow and retain civilian talent from across all demographics.

This research was cosponsored by the Air Force Directorate of Diversity and Inclusion (AF/A1V) and the Air Force Equal Opportunity Office (SAF/MRQ). It was conducted within the Manpower, Personnel, and Training Program of RAND Project AIR FORCE.

RAND Project AIR FORCE

RAND Project AIR FORCE (PAF), a division of the RAND Corporation, is the U.S. Air Force's federally funded research and development center for studies and analyses. PAF provides the Air Force 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: Force Modernization and Employment; Manpower, Personnel, and Training; Resource Management; and Strategy and Doctrine. The research reported here was prepared under contract FA7014-16-D-1000. Additional information about PAF is available on our website: www.rand.org/paf/

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Summary

The U.S. Air Force must draw from across the U.S. labor market to leverage the best available civilian talent. However, as with its military workforce counterpart, the Air Force experiences challenges in maintaining a demographically diverse civilian workforce: Women, racial/ethnic minorities, and individuals with disabilities are underrepresented at senior civilian General Schedule (GS) (and equivalent) pay grades. For example, in fiscal year (FY) 2016, women made up about 35 percent of GS (and equivalent) pay grade civilians in the Air Force but only 21 percent of personnel in the top two GS (and equivalent) pay grades.

To ensure that it is growing and retaining civilian talent across all demographic groups, the Air Force asked RAND Project AIR FORCE (PAF) to conduct a study aimed at developing a better understanding of the challenges to advancement that women, racial/ethnic minorities, and individuals with disabilities may face and a clearer picture of the factors they consider when deciding whether to remain with the Air Force. To meet this objective, we addressed three key questions, with a focus on the “white collar”¹ (i.e., GS and equivalent) workforce:

1. What are current levels of representation of women, racial/ethnic minorities, and individuals with disabilities in the Air Force civilian white-collar workforce?
2. What are potential barriers to the advancement and retention of civilian women, racial/ethnic minorities, and individuals with disabilities in this workforce?
3. How can changes to policies and practices help the Air Force grow and retain a diverse civilian workforce?

Study Approach

We used a mixed-methods approach to address these three questions. We collected and analyzed both quantitative and qualitative data, and based on these analyses, we developed recommendations.

To address our first key question, we analyzed 22 years (FYs 1994–2016) of Air Force GS (and equivalent) civilian personnel data to better understand current levels of demographic representation and potential barriers to advancement and retention. To address our second key question, we performed a series of quantitative analyses, including descriptive analyses of the levels of representation of women, racial/ethnic minorities, and individuals with disabilities in the civilian workforce and modeling that attempts to explain factors associated with advancement and retention gaps among demographic groups (e.g., white men and white women).

¹ The U.S. Office of Personnel Management (OPM, *Handbook of Occupational Groups and Families*, Washington, D.C., May 2009, p. 3) uses the label “White Collar Occupational Series” to refer to what it used to label as “General Schedule System Occupations.” Throughout this report, we use the term “GS and equivalent” because we reference GS levels in our analyses.

In the models, we included factors such as education, occupational field, work experiences, and performance that might contribute to demographic differences in advancement or retention.

We further assessed potential barriers to advancement and retention by conducting 67 focus groups (comprising nearly 300 participants at ten Air Force installations) and 43 supplementary interviews² with Air Force GS (and equivalent) civilians in the spring and early summer of 2017. The focus groups and supplementary interviews were designed to complement the quantitative analyses by providing qualitative information from participants through discussion, particularly about workplace experiences and perceived barriers to advancement and retention. We used qualitative data analysis software to identify key themes and trends in the focus group transcripts as well as differences in perceptions across demographic and disability groups. We supplemented our focus group and interview findings with a review of relevant scholarly literature.

To address the third key question, we combined the quantitative and qualitative findings to produce three main recommendations for changes to Air Force policies and practices that can help the service grow and retain civilian talent from across all demographic groups.

Key Findings

Our analyses produced several key findings. We first discuss the findings related to potential advancement barriers and then discuss those related to potential retention barriers. The findings regarding levels of representation of demographic groups are presented within the context of the findings on potential barriers to advancement and retention: Some findings are directly tied to specific demographic groups, whereas others concern broader civilian workforce issues that could have implications for different demographic groups. The findings on advancement are presented separately from those on retention.

Potential Advancement Barriers

Findings from Quantitative Analyses on Levels of Representation and Potential Barriers

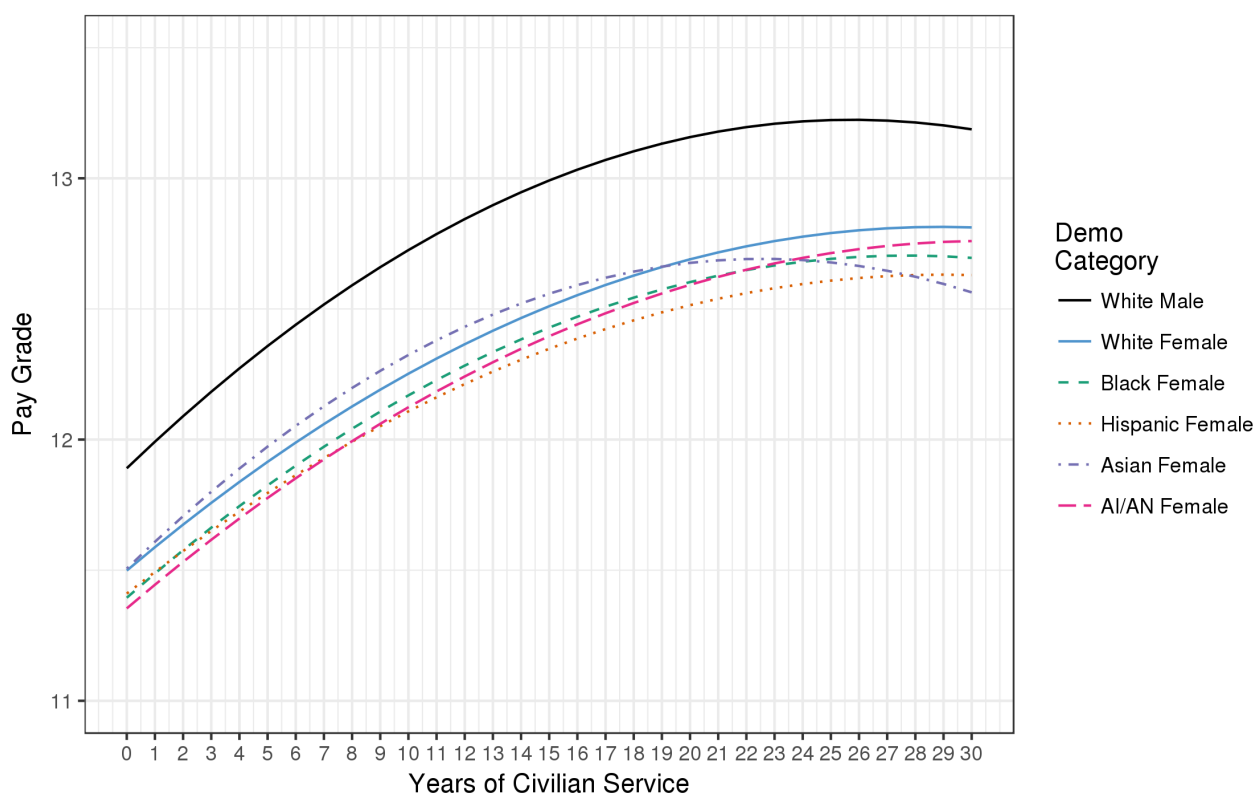
Gender Differences

Perhaps the most significant finding from our quantitative models, in terms of the impact on barriers to advancement, is that Air Force civilian women tend to enter the Air Force civil service at lower pay grades than do their male counterparts. Specifically, over the entire range of pay grades, women start about 1.3 grades lower, on average, than do men, and women are over 20 percentage points less likely than men to begin their careers at or above GS grade 11. We found that such factors as job (occupational) series, veteran status, and work experience explain most of the gender gap in entry-level grades.

² We conducted supplementary interviews to accommodate individuals with disabilities and participants in smaller demographic groups when there were not enough individuals to hold a focus group.

Even in the top tier of grades, GS-11 and above, lower entry grades affect women’s opportunities to reach senior civilian grades. As Figure S.1 shows, women’s advancement trajectories in this grade range are similar to those of males with similar characteristics, suggesting that the underrepresentation of women in the most senior grades stems from these entry-level gaps rather than differences in advancement. In essence, women cannot “catch up” to men in terms of reaching senior civilian grades. This finding suggests that the tendency for women to begin in lower grades than similar male counterparts significantly limits the number of women available to fill senior leadership positions.

Figure S.1. Predicted Grade Level Versus Years of Service for GS-11 and Above Employees, by Race/Ethnicity and Gender



SOURCE: Authors’ calculations from personnel data.

NOTE: Lines represent predicted grades for nonveterans with the following observed factors: no disabilities, a bachelor’s degree in a business field from a low-ranking institution, working in the General Administration job series, located in Ohio, and entered the workforce in 2010. Other variables are set to their average levels. AI/AN = American Indian or Alaska Native.

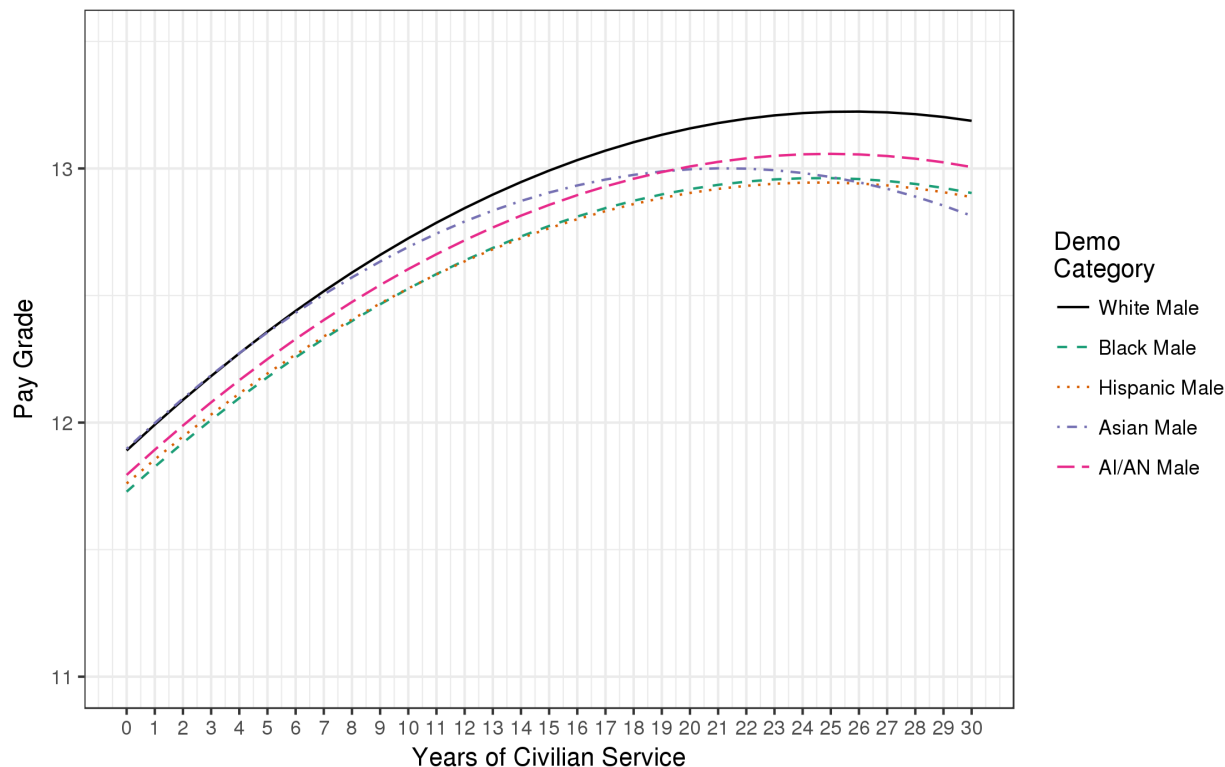
Racial/Ethnic Differences Among Women and Men

Among both women and men, we noted some slight racial/ethnic differences in trajectories. Most notably, Asian and white women begin at similar grades, but in later years, the trajectory of the Asian women flattens.³

Black and Hispanic men also start at lower entry grades than do white men. Specifically, across all grade levels, black and Hispanic men enter at roughly one grade level lower than do white men, on average, and are 15 percentage points less likely to begin in grades 11 and above (i.e., the officer-equivalent tier of grade levels).

In contrast to the gender gap, the race/ethnicity gaps are small and are not explained by factors in the personnel data we analyzed. Comparing Figures S.1 and S.2, career trajectories in

Figure S.2. Predicted Grade Level Versus Years of Service for Male GS-11 and Above Employees, by Race/Ethnicity



SOURCE: Authors' calculations from personnel data.

NOTE: Lines represent predicted grades for nonveterans with the following observed factors: no disabilities, a bachelor's degree in a business field from a low-ranking institution, working in the General Administration job series, located in Ohio, and entered the workforce in 2010. Other variables are set to their average levels.

³ One potential contributor to the lower grades of Asian women with greater years of service (YOS) that needs to be considered is differential attrition. Either lower advancement in this range, or differential attrition (e.g., through retirement patterns) in a way that relates to advancement could produce this pattern. See the quantitative methodology description in Chapter 2 for further consideration of the potential impact of attrition.

grades 11 and above are more similar among men and among women of different race/ethnicity groups than between white men and all groups of women. In addition, the impact of a gap at entry on the percentage reaching senior GS (and equivalent) grades is smaller for men than for women across all race/ethnicities.

To gauge the impact of these trajectory differences, we compared the percentage in each group that reached grade 14 or higher to the predicted percentage for the group if all members had the white male trajectory. The differences in percentages range from 4.2 points for American Indian or Alaska Native men, to 5.4 points for Asian men (entirely an effect of lower advancement, as indicated by the growth curves) and Hispanic men (data not shown).

Differences Based on Disability Status

We found similar career trajectories across self-reported disability categories, although they reveal a slight disadvantage for veterans with 30-percent or higher disability ratings from the Department of Veterans Affairs (VA) compared with veterans without service-connected disabilities. However, because of the small size of the effect and the small size of populations with disabilities,⁴ disability status showed only a small association with advancement.

Findings from Qualitative Analyses on Potential Barriers to Advancement

Our qualitative analyses identified a number of themes of interest in advancement, including awareness of promotion opportunities, key promotion factors, career feedback, mentoring, career development support, and the extent to which participants felt they had an equal opportunity for advancement.

Awareness of Promotion Opportunities and Perceptions of Key Promotion Factors

Overall, although many participants expressed high interest in promotion opportunities, many also perceived a lack of opportunity for promotion to higher grades. Participants identified both structural barriers (e.g., few high-level positions in their career fields) and perceptual barriers (e.g., few role models in higher-level positions).

Awareness of promotion opportunities varied within and between groups. Women and racial/ethnic minorities were slightly more likely to indicate lack of awareness of promotion opportunities than were white men. In general, most who expressed awareness of promotion opportunities cited searches of USAJOBS, the federal government's official employment website.

Discussions of factors important to promotion identified four main themes: (1) individuals' social networks; (2) individual qualifications, such as education and strong prior performance or experience; (3) individual characteristics such as initiative and drive; and (4) mobility, or the

⁴ The sample size limitation is most significant for persons with targeted disabilities. Across the span of FY snapshots, the number of persons with targeted disabilities ranged from a low of 578 to a peak of 854 among all GS-6 to senior executive service (SES) employees.

willingness to move for a higher pay grade position. The importance of social networks was reported most frequently, and some participants even expressed the belief that position descriptions for civilian vacancies are tailored to certain individuals. A small subset of participants voiced concern that they were unaware of the factors related to success in promotion.

Feedback, Mentoring, and Career Development Support

Many groups reported that career feedback, mentoring, and career development support are limited or lacking and, when available, are not always helpful. Several participants reported a perception that supervisors do not feel a responsibility to provide feedback to their staff, or that they may not be able to balance providing feedback with their other job duties. Moreover, some participants reported a lack of transparency surrounding selection decisions for training opportunities, as well as other barriers to career development support (e.g., budget cuts and workload demands restricting time to go to training).

Perceptions of Equal Opportunities for Promotion

We asked participants whether they felt that, compared with other Air Force civilian employees, they had an equal opportunity for promotion, and whether they thought that gender, race/ethnicity, or disability status influence promotion opportunities. All minority and female focus groups discussed how race and gender can influence promotion opportunities, although some participants did not think it had an influence or had not impacted them personally. In contrast, participants in the white male focus groups were much more likely to discuss that they did not think gender and race/ethnicity play a role in promotions, although some admitted they could see the potential for bias.

Individuals with disabilities expressed various beliefs about the impact of disability status on promotion opportunities, with responses largely dependent on the type of disability. Some expressed fear that stigmatization or misperceptions about their capabilities could affect their advancement potential.

Some participants also mentioned the perceived advantage of veteran status and younger age in pursuing opportunities for promotion.

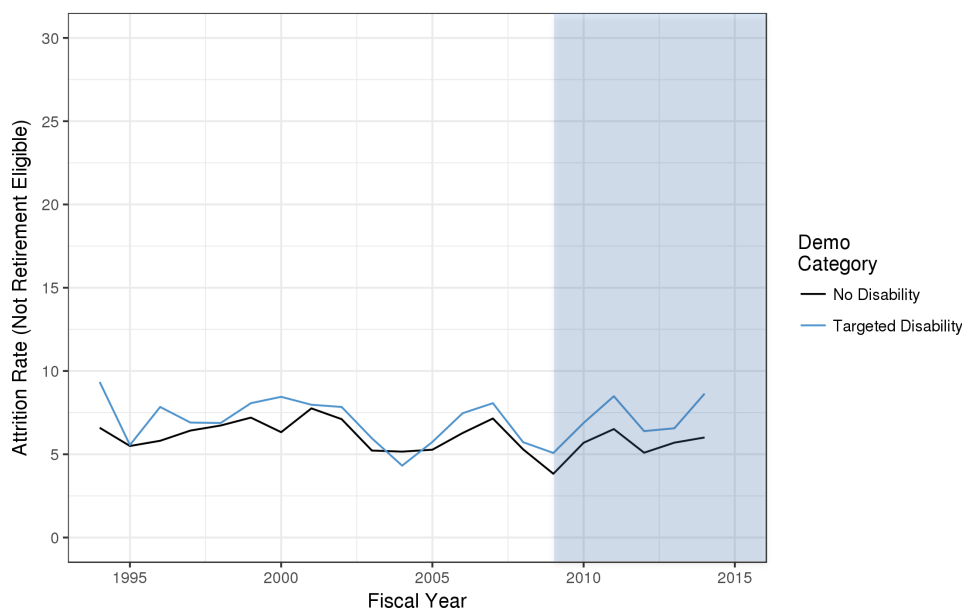
Potential Barriers to Retention

Findings from Quantitative Analyses on Potential Barriers

The analyses of barriers to retention, which controlled for observed factors in personnel data, did not yield many significant findings. Specifically, only ten of the 242 comparisons based on demographic factors showed statistically significant differences. Few comparisons identified gender, race/ethnicity, or disability status as a significant factor in retention, and no consistent pattern was observed across demographic groups, grade levels, or fiscal years.

However, Figure S.3 shows unaccountably higher raw attrition (1–2 percent) rates since 2009 among individuals who have targeted disabilities⁵ relative to those with no disabilities. We did not identify any observed factors that explained these differences, although such explanations might be difficult to find given that populations with disabilities are small, diverse in terms of types of disabilities, and hard to measure because employees with disabilities may not self-identify.

Figure S.3. Annual Attrition Rates for Non-Retirement-Eligible Persons With and Without Targeted Disabilities



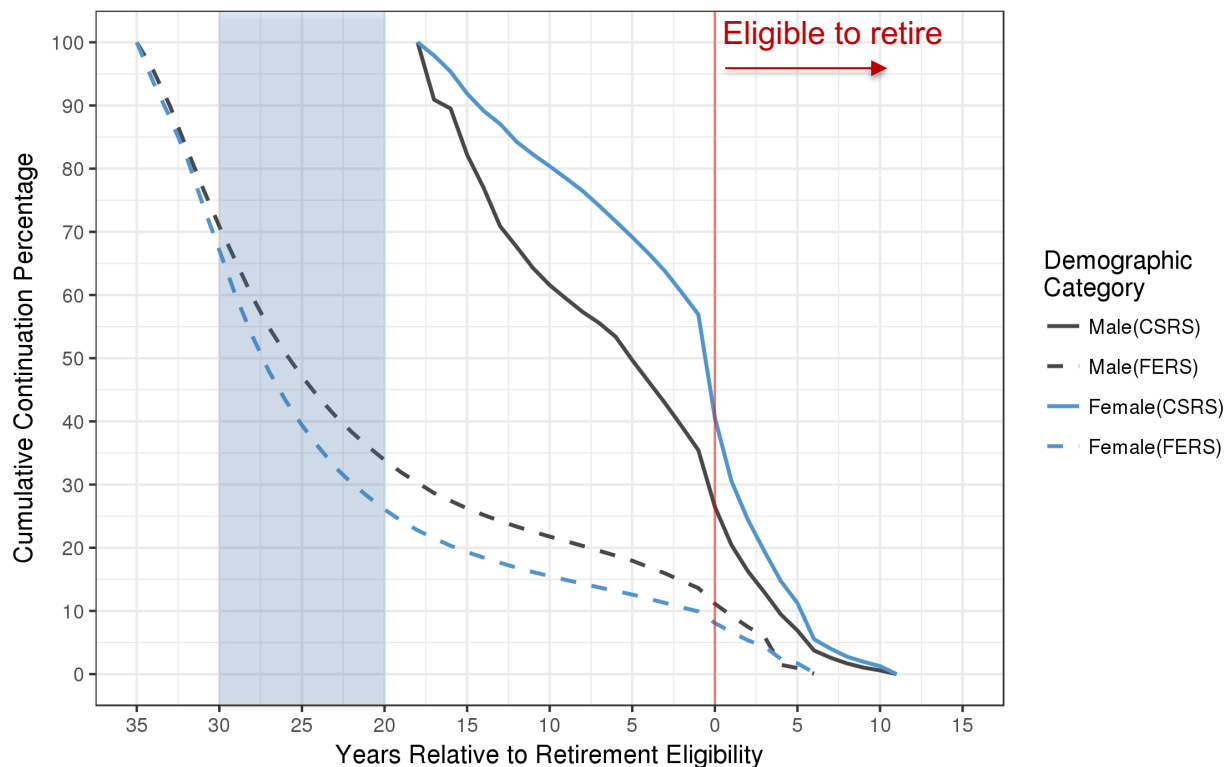
SOURCE: Authors' calculations from personnel data.

NOTE: To ensure sufficient time to observe attrition behavior, these calculations exclude employees who entered the Air Force after FY 2010.

Overall, retention rates did not differ greatly by gender. However, disaggregating these rates into those for the older retirement system—the Civil Service Retirement System (CSRS) in effect prior to 1987—versus those for the newer Federal Employee Retirement System (FERS) reveals gender gaps that merit monitoring. Specifically, as Figure S.4 shows, cumulative continuation rates for female FERS employees are lower than for male FERS employees (reference the dotted lines) who are 20 to 30 years away from retirement. In contrast, women in the CSRS have remained in the workforce at higher rates than have men in the CSRS (reference the solid lines). As of the most recent wave, nearly all remaining employees participate in the

⁵ Targeted disabilities are identified by the federal government as those requiring particular focus for federal government employment. They include deafness; blindness; missing extremities; partial paralysis; complete paralysis; convulsive disorders; mental retardation; mental illness; and distortion of limbs and/or spine.

Figure S.4. Cumulative Continuation Percentages, by Gender and Retirement Plan



SOURCE: Authors' calculations from personnel data.

NOTE: Percentages are calculated from FY 2001 through FY 2014 continuation rates based on years of retirement eligibility that included at least 100 female employees. To ensure sufficient time to observe retention behavior, these calculations exclude employees who entered after FY 2010.

FERS; thus, if the FERS trends continue, low retention among early-career women could become more of a problem in the future.⁶

Findings from Qualitative Analyses on Potential Barriers to Retention

Factors most often cited to account for leaving an Air Force career were compensation and lack of advancement opportunities. Other factors focused on the work environment, including leadership, workload stress, government bureaucracy, furlough risk, and not feeling valued.

Factors most often cited as influencing Air Force civilians to *remain* with the Air Force were commitment to the Air Force mission and work, benefits, and job security.

When participants were asked whether race/ethnicity or gender might influence their decision to leave or remain with the Air Force, responses were based on demographic group membership. Focus groups of women and racial/ethnic minorities expressed mixed opinions, whereas white

⁶ There is an analogous pattern in female retention when examined separately by racial/ethnic group, although retention gaps for black women and Hispanic women are slightly smaller.

male groups almost exclusively agreed that race/ethnicity and gender have “no impact” on retention decisions.

Those with disabilities expressed various opinions regarding whether their disability status might influence their decision to leave the Air Force. Experiences with reasonable accommodations at work were mentioned as a factor by those who said that disability status could potentially affect retention. Responses regarding willingness to request accommodations were mixed, with those who had not requested accommodations stating that they felt they could address their own needs, did not know how to request an accommodation, or were concerned about drawing attention to their disability for fear of stigmatization.

Recommendations

Based on our findings, we provide three overarching recommendations:

- (1) Identify root causes for the entry-level gap for women and other minority groups.
- (2) Ensure that supervisors and managers take responsibility for the career development and disability management of their staff.
- (3) Monitor the advancement and retention of civilian demographic groups that have lower-than-expected advancement or retention rates.

Within each of the three recommendations are more detailed recommendations, some directly addressing demographic diversity challenges and others addressing broader issues for civilian personnel that could have an indirect impact on the demographic diversity of the Air Force civilian workforce. Given that perceptions of a lack of advancement opportunities emerged as one of the top two reasons for attrition, the recommendations for improving the support of advancement opportunities for Air Force civilians also indirectly impact retention.

Because some of our findings concern factors or situations that are outside the Air Force’s control or that can be difficult to change, the recommendations we offer are designed to address the most critical and actionable areas of improvement we identified through our analyses. We also wish to note that employee benefits (e.g., health care, retirement) were cited as among the key positive motivators for remaining with the Air Force; therefore, reductions to these benefits should be made with caution.

(1) Identify Root Causes for the Entry-Level Gap for Women and Other Minority Groups

We recommend that the Air Force conduct root-cause analyses to determine why women and particular racial/ethnic groups tend to enter the Air Force civil service at lower grades than do white men. Analyses should consider factors that have been shown to contribute to entry-level gaps: job (occupational) series, work experience, and veteran status. For example, if analysis of civilian applicant data reveals that fewer women than men apply for jobs in occupations that typically hire directly into higher GS grades, root causes could relate to the applicant pool, recruiting, hiring and selection practices, or some combination of factors.

(2) Ensure That Supervisors and Managers Take Responsibility for the Career Development and Disability Management of Their Staff

Findings suggested that some supervisors and managers may not include career development (e.g., providing career feedback, mentorship, and general support) among their responsibilities as supervisors and managers. Because civilian hiring and promotions are based on local hiring authorities, those involved in hiring and promotion decisions (e.g., hiring managers) should implement staff career development, with an emphasis on understanding and disseminating disability policies and procedures and ensuring that position descriptions for higher-grade vacancies align with official career field guidance. We identify three interrelated ways to address this issue:

- Formally require supervisors and managers to engage in staff career development.
- Formally require supervisors and managers to become familiar with disability requirements and to educate all staff.
- Ensure that Air Force career guidance is up to date and that position descriptions align with official Air Force career guidance and do not require attributes limited to those who have served in the uniformed services.

(3) Monitor the Advancement and Retention of Different Civilian Demographic Groups That Have Lower-Than-Expected Advancement or Retention Rates

The Air Force should continue to monitor trends for the few groups where differences in advancement and/or retention were found. Moving forward, the Air Force should consider linking Air Force civilian retention and exit survey data with personnel records to estimate the impact of civilian perceptions regarding compensation, mission, and other factors on future retention behavior.

Acknowledgments

This project would not have been possible without the assistance of many people in the Air Force and at RAND. First, we are grateful to our project sponsors, Chevalier Cleaves, former Chief Diversity Officer and Director, Diversity and Inclusion, U.S. Air Force; and James Carlock, former Director, Air Force Equal Opportunity Office. We also thank our action officers, Chanelle Johnson and Kendra Duckworth, for their continued support of this project, including assistance with focus groups at the Pentagon and Joint Base Andrews. We also wish to thank Col Angela Giddings for her guidance and support.

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Abbreviations

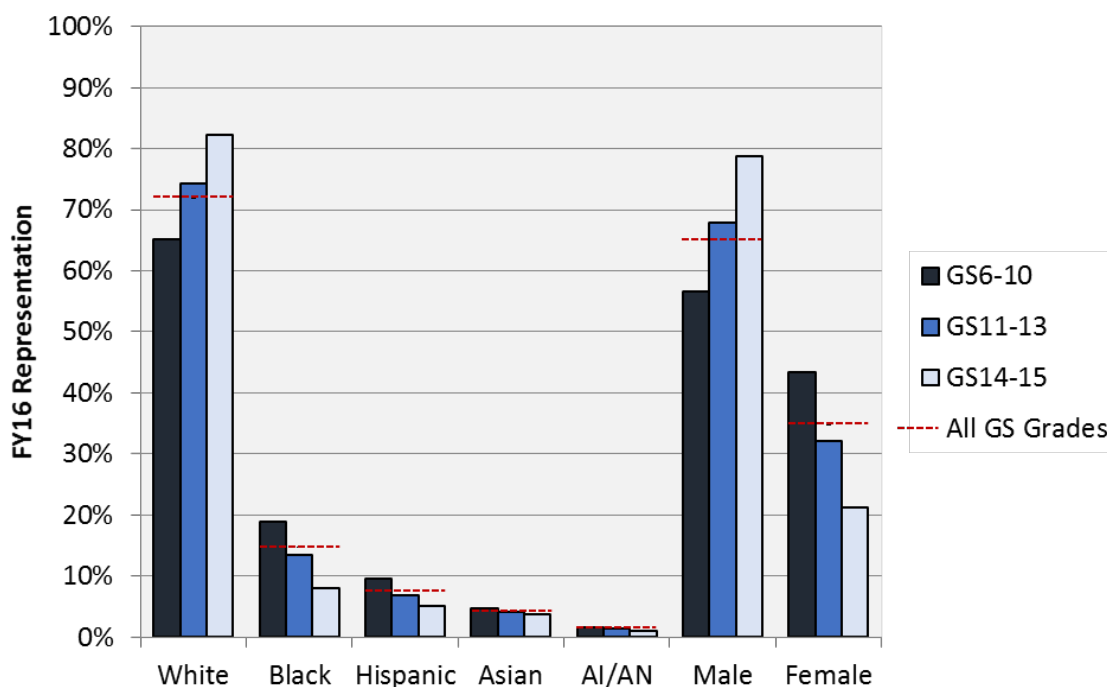
AFB	Air Force Base
AFBAWG	Air Force Barrier Analysis Working Group
AI/AN	American Indian or Alaska Native
APF	appropriated funds
CAP	Computer/Electronic Accommodations Program
CPS	civilian personnel section
CSRS	Civil Service Retirement System
DCPDS	Defense Civilian Personnel Data System
EEOC	Equal Employment Opportunity Commission
EOD	entrance-on-duty
FERS	Federal Employee Retirement System
FEVS	Federal Employee Viewpoint Survey
FYs	fiscal years
GS	General Schedule
KSAs	knowledge skills and abilities
LN	local national
MRA	minimum retirement age
NAF	non-appropriated funds
ODMEO	Office of Diversity Management and Equal Opportunity
OL	Operating Location
OPM	U.S. Office of Personnel Management
PAF	RAND Project AIR FORCE
PD	position description
PPP	Priority Placement Program
PWTD	persons with targeted disabilities
RIF	reduction in force
RPA	Request for Personnel Action
RPL	Reemployment Priority List
SCPD	Standard Core Personnel Document

SES	senior executive service
TSP	Thrift Savings Plan
VA	Department of Veterans Affairs
WG	wage grade
WRP	Workforce Recruitment Program
YORE	years of retirement eligibility
YOS	years of service

1. Introduction

The U.S. Air Force’s civilian workforce must draw from across the U.S. labor market to leverage the best available talent. However, as in its military workforce counterpart, the Air Force experiences challenges in maintaining a demographically diverse civilian workforce. In particular, women, racial/ethnic minorities, and individuals with disabilities are underrepresented at senior civilian General Service (GS) (and equivalent) pay grades within the Air Force. We show these trends in Figures 1.1 and 1.2, which provide the fiscal year (FY) 2016 representation levels for racial/ethnic minorities and women, and for individuals with targeted disabilities, respectively.¹ To demonstrate trends by civilian pay grade, we show representation levels for

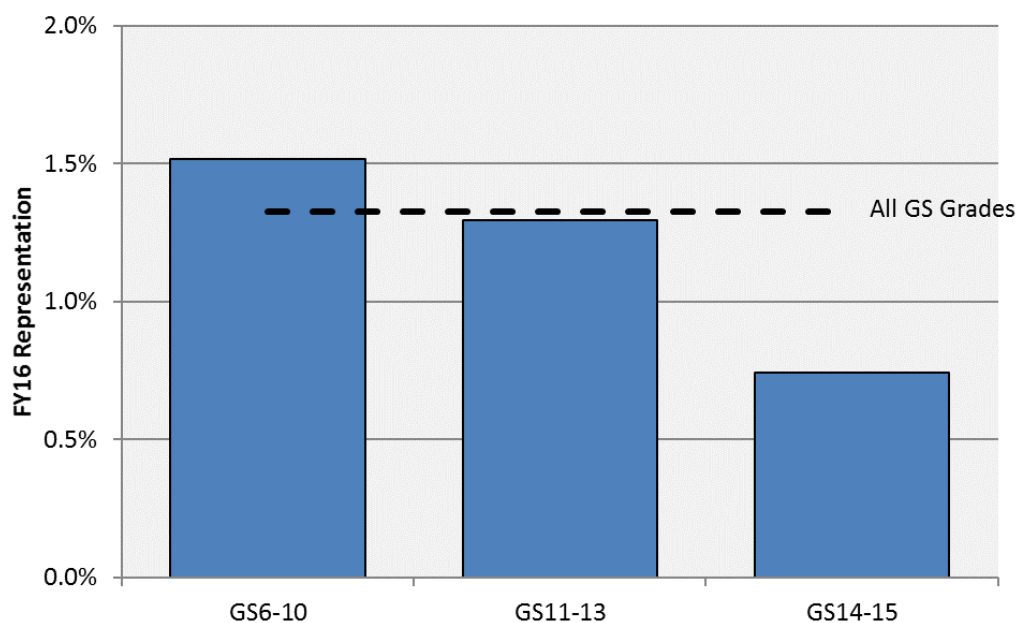
Figure 1.1. Racial/Ethnic Minority and Female Representation by Pay Grade Category in Air Force Civilian Workforce



SOURCE: Authors’ calculations from personnel data.

¹ Targeted disabilities are identified by the federal government as disabilities requiring particular focus for federal government employment. They include deafness; blindness; missing extremities; partial paralysis; complete paralysis; convulsive disorders; mental retardation; mental illness; and distortion of limbs and/or spine. Information about federal employment of individuals with disabilities is discussed in Chapter 2, with more details provided in Appendix A.

Figure 1.2. Representation of Persons with Targeted Disabilities in Air Force Civilian Workforce



SOURCE: Authors' calculations from personnel data.

three pay grade categories: GS 6–10, GS 11–13, and GS 14–15. We use the term “GS” to reflect GS or equivalent (e.g., GG) pay grades since the majority of Air Force civilians work in “white collar” occupations that are in GS or equivalent pay plans.² The dashed lines in each figure reflect the overall GS workforce levels for each group (e.g., women). Hence, a bar below its respective dashed line reflects lower representation for that group, and a bar above the respective dashed line reflects overrepresentation.

As the figures show, the general trend across several groups is for overrepresentation at lower GS grades (GS 6–10) and underrepresentation at the highest GS grades (GS 14–15). For example, women make up about 35 percent of GS civilians in the Air Force but only 21 percent of personnel in the top two GS grades. Similarly, black personnel and Hispanic personnel are overrepresented at the lowest GS grades but underrepresented at the top two GS grades. Finally, as Figure 1.2 shows, persons with targeted disabilities are also underrepresented in the top two GS grades compared to their representation across the civilian workforce.

Lower representation in higher grades would seem to suggest a barrier to advancement for certain demographic groups. However, a number of other factors besides demographic differences in advancement could also contribute to declining representation of a group as grade levels increase. There could be demographic differences in retention, where members of some groups exit the workforce at higher rates and thus are not present to compete for advancement.

² We provide additional explanations of civilian pay plans and workforce structure in Chapter 2 and Appendix A.

There could also be demographic differences in grade levels at entry. Finally, changes in the workforce composition over time could contribute to these patterns. For example, if a particular group had lower representation in the past, and those cohorts constituted the majority of employees in higher grades in FY16, these dynamics could also create such a pattern in representation across grades.

To ensure that the Air Force is growing and retaining civilian talent across all demographics, the Air Force asked RAND Project AIR FORCE (PAF) to conduct a study aimed at developing a better understanding of the challenges to advancement that women, racial/ethnic minorities, and individuals with disabilities may face and a clearer picture of the factors they consider when deciding whether to remain with the Air Force. The study addressed this objective by answering the following three questions, with a focus on the “white collar” (i.e., GS and equivalent) workforce:

1. What are current representation levels of women, racial/ethnic minorities, and individuals with disabilities in the Air Force civilian white-collar workforce?
2. What are potential barriers to the advancement and retention of civilian women, racial/ethnic minorities, and individuals with disabilities in this workforce?
3. How can changes to policies and practices help the Air Force grow and retain a diverse civilian workforce?

Study Approach

The study leveraged prior research and data on the Air Force civilian GS (and equivalent) workforce as well as collected additional data to examine trends in representation and potential barriers for advancement and retention. In particular, the study took a mixed-methods approach and conducted the following three tasks:

1. Analyzed relevant personnel data to better understand current levels of representation and potential barriers for advancement and retention.
2. Conducted focus groups (and supplementary interviews) to better understand potential barriers to advancement and retention factors.
3. Based on study findings, developed recommendations for potential changes to Air Force policies and practices to help grow and retain civilian talent from across all demographics.

To perform task 1, we collected and analyzed Air Force civilian personnel data for GS (and equivalent) pay grades from FY 1994–2016. As shown in Figures 1.1 and 1.2, we conducted descriptive analyses of the representation levels of women, racial/ethnic minorities, and individuals with disabilities in the Air Force civilian workforce. We also performed a series of quantitative analyses with the historical data to include modeling that attempts to explain factors associated with advancement and retention gaps among demographic groups (e.g., white men and white women).

Our second task, conducting focus groups with Air Force civilians in GS (and equivalent) pay grades, was completed in the spring and summer of 2017. The focus groups were designed to

complement our quantitative analyses by providing an opportunity to gather rich information from participants through a group discussion. In particular, the focus groups allowed us to ask exploratory questions regarding workplace experiences and perceived barriers to advancement and retention for Air Force civilians. Thus, the focus groups presented an opportunity to provide additional insight into, and context for, some of the quantitative findings from task 1. We also conducted supplementary interviews to accommodate individuals with disabilities and participants in smaller demographic groups when there were not enough individuals to hold a focus group. To provide context for our focus group and interview findings, we integrated findings from scholarly literature where available and appropriate.

To conduct the focus groups and supplementary interviews, we traveled to ten Air Force installations and collected data from close to 300 participants across various gender, racial/ethnic, and disability categories. We combined gender and race/ethnicity to form gender-and-race/ethnicity groups (e.g., Hispanic women). For individuals with disabilities, we offered two types of groups: (1) military veterans with disabilities connected to their time in service and (2) individuals whose disabilities are not connected to military service. To accommodate individuals with disabilities and participants in smaller gender-and-race/ethnicity groups, we offered interviews as an alternative to focus groups. In total, we conducted 67 focus groups and 43 supplementary interviews.

Finally, task 3 involved documenting findings from earlier tasks, supplemented with findings from relevant scholarly literature, and using those findings to develop recommendations for potential changes to Air Force policies and practices that can help it grow and retain civilian talent from across all demographic groups.

Limitations

Although we use a mixed-methods approach in this study to strengthen our findings and recommendations, the study has some limitations that are important to note. First, this study focuses only on full-time personnel in GS (and equivalent) pay grades. As explained in more detail in Chapter 2 and Appendix A, GS (and equivalent) personnel represent white-collar occupations whereas wage grade (WG) personnel represent blue-collar occupations.³ It was beyond the focus of the current study to examine both pay grade systems given potential important nuances in occupations and organizations that may differ between white- and blue-collar workforces that could not be explored within the study resources and timeline. Therefore, this study focused only on the GS (and equivalent) pay grades because they represent the majority of the Air Force civilian workforce (around 79 percent).

³ We use the label “blue collar” as shorthand for the official label that OPM uses to describe the WG series: “Trade, Craft, or Labor Occupational Series” (OPM, 2009, p. 3). However, OPM still refers to “blue-collar employees” in reference to those working in these occupational series (previously called “Federal Wage System Occupations”). See OPM, “Pay & Leave: Pay Systems, Federal Wage System Overview,” n.d.g.

Second, our quantitative analyses also faced limitations, primarily as a result of the personnel data. Although we use 22 years of historical personnel data, we did not have access to applicant data or detailed promotion data, and we had no access to data on other sectors of the federal workforce. With only snapshots of the Air Force civilian workforce, we had to rely on changes in personnel information to identify new hires, advancement, and retention. Applicant data would have allowed an analysis of patterns in civilian hiring in the Air Force, which could point to potential barriers for entry that affect later advancement opportunities. Like an analysis of applicant data, an analysis of detailed promotion data could have offered insights into civilian promotion patterns and suggested areas where barriers might exist. Finally, broader information on the federal workforce would have allowed us to differentiate actual separations from transfers and/or promotions that take place in other parts of the federal workforce. Without these detailed data, our analysis focused on understanding general patterns in advancement and retention across pay grades over time. However, the limitations prevent us from attributing these patterns to specific arms of the personnel system (e.g., the promotion process).

Third, for the current study, we chose to prioritize gathering rich information on the experiences and attitudes of a variety of Air Force civilian employees through qualitative methods. This was intended to complement and provide more insight into the quantitative findings examining patterns in advancement and retention. Future research using other methods, such as a survey, would be needed to provide precise statistical estimates regarding the relative importance of any single theme or factor identified through our focus groups and interviews or the percentage of civilian employees for which a particular theme or factor is important.

In addition, although we attempted to include participants from across the Air Force by using a systematic approach for selecting Air Force bases for the focus groups and interviews, the geographic spread of Air Force civilians limited our ability to capture a large number of personnel. Moreover, we encountered logistical challenges in recruitment due to factors such as lack of centralized civilian email distribution lists, varied work schedules of civilian personnel (e.g., regular days off), and significant lead time needed for approval to recruit civilians (e.g., local leadership reviews of recruitment messages). As a result of these challenges, we did not obtain as many participants in each demographic group as desired. In addition, it is also possible that the participants who are very satisfied with their Air Force careers chose not to participate in these groups. Smaller sample sizes are expected with focus groups and interviews, but it is still important to note when interpreting the findings.

A final challenge for focus group and interview recruitment involved the sheer number of demographic groups that were covered and the need to avoid individuals participating in more than one focus group or interview. For example, a participant might self-identify as African American and Caucasian (white), but we had separate groups for African American participants and white participants. We did not allow participants to join multiple groups because we would not be able to determine if themes across groups were generated independently. We acknowledge

that having to pick one demographic group proved challenging for some participants and would have allowed them to join multiple groups if the analysis provided a means to do so.

Lastly, we had hoped to bolster our study findings by analyzing Air Force exit and retention survey data. Unfortunately, due to language in the surveys' consent forms, the data could not be provided to RAND. We therefore focused our survey analyses on publicly available data on the Federal Employee Viewpoint Survey (FEVS), which the U.S. Office of Personnel Management (OPM) fields to federal government civilian employees on an annual basis. Due to limitations of the publicly available FEVS data, we limit discussion of our FEVS findings in the main report. We provide background on FEVS and our analyses of FEVS data in Appendix B. We also provide an overview of the Air Force Survey Office's findings from previous Air Force exit and retention surveys in this same appendix, and also provide limited reference to these findings in the main report.

Acknowledging these limitations, our mixed-methods approach was able to provide complementary and relevant insight into potential advancement and retention issues, including potential policy and program changes that the Air Force can further explore to address barriers.

Organization of the Report

The remainder of this report provides an overview of our methods, findings, and recommendations for addressing potential barriers to advancement and retention for Air Force civilian women, racial/ethnic minorities, and individuals with disabilities. Chapter 2 provides general background on the structure of the civilian workforce and describes the study's methodology in detail, focusing on both quantitative methods and qualitative methods for focus groups and interviews. Chapters 3 and 4 then present findings for civilian advancement and retention, respectively. Finally, Chapter 5 provides study conclusions and recommendations.

We also provide several appendixes. Appendix A provides background information on the Air Force civilian personnel system, including considerations for individuals with disabilities. Discussion of analysis and findings for the FEVS survey and description of Air Force retention and exit survey results are in Appendix B. Appendix C provides a description of how we selected Air Force bases for focus group and interview data collection. Appendix D provides the full set of results from our quantitative analysis of observed factors that explain gaps between demographic groups. Finally, Appendixes E and F provide additional details on focus group/interview protocols and the final coding scheme used in our qualitative analyses.

2. Background and Study Approach

In the sections below, we provide some general background on the structure of the civilian workforce within the Air Force and then provide an overview of our study approach.

Air Force Civilian Workforce Structure

A basic structural feature of the civilian Air Force workforce involves the source of funding used to pay for civilian employees. There are two main sources of funds for civilian positions: appropriated funds and non-appropriated funds. Appropriated funds (APF) refer to moneys allocated through legislation passed by Congress and signed by the president (FederalPay.org, 2017a) and can be used only for the purpose they have been appropriated for. Non-appropriated funds (NAF) refer to revenue earned by government departments, organizations, and agencies by means other than taxation. NAF employees tend to be hired for part-time work. Of the roughly 179,000 Air Force civilian employees, about 21,000 are NAF employees while the other 158,000 are paid for with appropriated funds.

Another basic structural feature of the civilian workforce relates to categories of employment. Categories of employment laid out in Title 5 of the Code of Federal Regulations (5 CFR) include Career and Career-Conditional Employment (Part 315) and Temporary and Term Employment (Part 316). A term employee is one who is appointed for a period of more than one year but not more than four years when the need for the employee's service is not permanent; a temporary employee is one whose service is needed for less than a year. Career and career-conditional employees are those who are not considered temporary or term employees (i.e., are permanent). The vast majority of civilians—almost 144,000 out of roughly 179,000 Air Force civilians—are in career or career-conditional (permanent) positions.¹

Finally, pay plans and associated pay grades provide another basic element for how the Air Force civilian workforce is structured. According to OPM, a pay plan “is a two-digit alphabetical code used to identify Federal civilian pay systems,” with pay plan codes approved by OPM for “agency use” (OPM, n.d.e.). The Air Force uses over 90 pay plans for its civilian workforce. The most common for white-collar civilian positions is the General Schedule, or GS. The wage grade (WG) pay plan is used for many traditional blue-collar positions, and senior executives are typically identified by the executive service and executive schedule (ES and EX) pay plans. In

¹ Most of the permanent civilian employees are also U.S. citizens because U.S. law (Public Law 114-113) requires government employees in duty posts within the continental United States to be U.S. citizens or lawfully in the country (e.g., permanent residents). The Air Force does employ local nationals (i.e., citizens of foreign countries doing work for the Air Force in their home countries), but they only represent about 11,000 of the roughly 179,000 Air Force civilian employees. Therefore, roughly 140,000 are permanent full-time employees and U.S. citizens.

general, the distribution of Air Force civilians from the many pay plans can be represented as about 21 percent wage grade, 0.2 percent senior executives, and 78.8 percent GS or GS equivalents. Because the bulk of the full-time civilians are in the GS (and equivalent) pay plan, our study focused on GS and equivalent (e.g., GG) employees.

Within the GS pay plan, personnel are assigned pay grades ranging from GS-1 to GS-15. Each of these pay grades contains ten steps (e.g., GS-5, step 1 through GS-5, step 10). The steps represent incremental pay points within a grade on the civilian pay tables. Each step increase for GS-3 and higher represents a fixed pay increase on the pay tables. For example, on the 2017 pay tables, a GS-5, step 1 going to step 2 after a year of satisfactory service sees an annual increase in pay from \$28,545 to \$29,497, which is an increase of \$952. Each step advance within the GS-5 grade is accompanied by that same increase in pay. A periodic increase from one step to the next is based on time served in each step and acceptable performance in that step (5 USC § 5335). Personnel may increase in steps faster than the periodic increase during the annual appraisal cycle when a supervisor grants the employee something called a “quality step increase.”

Advancement in Grade

Going from one pay grade to the next higher pay grade (GS-5 to GS-6) requires a promotion. A permanent promotion typically results from current civil service employees applying for and getting selected for positions posted on the USAJOBS website. To be considered for a permanent promotion, the candidate needs to have spent at least a year in the current grade. In contrast, a temporary (or time-limited) promotion “is the temporary assignment of an employee to a higher-graded position for a specified period of time” (U.S. Army Civilian Personnel, 2014). These types of promotions are designed to meet temporary agency needs, such as during a reorganization or downsizing. While in the temporary promoted position, the employee gets higher pay and valuable experience.

To assist Air Force civilians with their career advancement and development, the Air Force provides policy guidance for mentoring. Specifically, Air Force Manual 36-2643 provides the foundational policy guidance for mentoring Air Force personnel, both military and civilian (U.S. Air Force, 2017b). Responsibility for executing mentoring strategies resides at the local level such that major commands (MAJCOMs) and local units facilitate mentoring while leaders “are expected to ensure Airmen are provided mentoring opportunities as described in this Manual” (U.S. Air Force, 2017b, p. 3). One of the key institutional-wide tools that the Air Force developed to assist with mentoring is called MyVECTOR, which “is a web-based resource for Total Force Airmen that lets them access career field, education, and training information from one website customized to each user’s needs” (U.S. Air Force, 2017b, p. 22). Personnel can access MyVECTOR on the Air Force Portal website, and the tool allows personnel to access their records, chat with peers, request a mentor, and engage with a mentor.

Retirement

As with the rest of the civil service system, OPM provides guidance on the civilian retirement system. The federal government has two main retirement systems for civilian personnel: the Civil Service Retirement System (CSRS) and the Federal Employee Retirement System (FERS). CSRS is the older system and was replaced by FERS in 1987 so that employees who entered civil service after that time are in FERS, whereas those who were in civil service before 1987 are under CSRS. Of the 140,000 Air Force permanent full-time employees who are U.S. citizens, roughly 5,200 are in the CSRS retirement system, and a little over 134,500 are in FERS.

Both CSRS and FERS include a defined benefit based on contributions made by the employee and matching funds by the employing agency. CSRS employees do not contribute to Social Security, but they must pay the Medicare tax. They may also participate in the 401(k)-type program for federal employees by making contributions into the Thrift Savings Plan (TSP), but these contributions are not matched by the agency. In contrast to CSRS employees, FERS employees contribute to Social Security and receive matching agency contributions to TSP if they contribute. Also, FERS includes a minimum retirement age between 55 and 57 years and has a deferred retirement option that allows employees who have five years of creditable service but have not yet reached age 62 to leave civil service with retirement benefits.

Employment of Individuals with Disabilities in the Civilian Workforce

The federal civilian workforce, which includes the U.S. Air Force, defines a person with a disability as someone who meets at least one of three qualities: “(1) has a physical impairment or mental impairment (psychiatric disability) that substantially limits one or more of such person’s major life activities; (2) has a record of such impairment; or (3) is regarded as having such an impairment” (OPM, 2010; 2016b, 2016c). This definition is contained within Standard Form (SF)-256, the form used by the federal government for self-identification of disability among federal civilian employees. It draws from the definition used by federal law—namely, the Rehabilitation Act of 1973, amended (Public Law 93-112).

The federal government maintains representation goals for individuals with disabilities. In January 2017, the Equal Employment Opportunity Commission (EEOC), the federal organization responsible for enforcing laws against discrimination, established a 12 percent federal employee representation goal for persons with disabilities across all federal agencies (EEOC, 2017). Prior to this date, the federal government maintained a 2 percent representation goal for individuals with a particular subset of disabilities, known as targeted disabilities, for several years (EEOC, 2017). The federal government’s definition of targeted disabilities has changed over time. Categories of targeted disabilities (as of August 2016) include blindness, deafness, developmental disability, disfigurement, dwarfism, epilepsy, intellectual disability,

missing extremities, mobility impairment, paralysis, psychiatric disability, and traumatic brain injury. (Descriptions of these categories can be found in Table A.1 in Appendix A.)

In addition to targeted disabilities, federal agencies also explicitly consider the disability status of certain U.S. military veterans (OPM, 2016a; 5 USC 2108). For example, federal agencies may noncompetitively appoint veterans who have received a 30-percent or more disability rating when they retired from active duty and veterans who have a compensable service-connected disability of 30 percent or more. A Physical Evaluation Board determines the disability rating of active-duty personnel and veterans (DFAS, 2017). This board assigns a numerical disability rating, which addresses a person's ability to perform work and daily activities, based on each service-connected injury or illness a person has incurred.

Study Approach

As outlined in Chapter 1, our study used a mixed-methods approach to address three key study questions:

1. What are current levels of representation of women, racial/ethnic minorities, and individuals with disabilities in the Air Force civilian white-collar workforce?
2. What are potential barriers to advancement and retention of Air Force civilian women, racial/ethnic minorities, and individuals with disabilities in this workforce?
3. How can changes to policies and practices help the Air Force grow and retain a diverse civilian workforce?

Our quantitative methods involve analysis of Air Force personnel data to provide findings on representation levels and to identify potential barriers to advancement and retention (questions 1 and 2). Our qualitative methods encompass focus groups and interviews with Air Force civilians in different demographic categories and provide findings on potential barriers (question 2). The two sets of methods are then designed to complement each other to help identify policy solutions to barriers for advancement and retention of Air Force civilian women, racial/ethnic minorities, and individuals with disabilities (question 3).

Quantitative Methodology

The overarching goal of the quantitative analyses in this study was to sift through the large body of information available in Air Force personnel data files and develop an understanding of the demographic patterns in grade levels. We focus on grade-level differences because of the observed differences among demographic groups in representation in top civilian GS (and equivalent) grades, as of FY 2016 (see Figures 1.1 and 1.2 in Chapter 1). Where civilian employees in minority subgroups show a tendency to hold lower-grade positions, the information in the data can help our understanding in two major ways. First, the data can help pinpoint whether the grade-level differences are present at entry and whether they develop over time due to differences in advancement or retention patterns. Second, the data can help explore whether

the differences appear to be structural, in that they may be understood by examining the personnel system, or whether the differences operate independent of the personnel system through other means. For example, entry grade and opportunity for advancement may differ by career field; accounting for differences in the distribution of subgroups across career fields could reveal a structural understanding of subgroup differences within the personnel system. Understanding both of these dimensions is critical to directing policies that can promote more equitable outcomes across demographic groups.

Our Data Follow Civilian Careers Through 22 Years of Personnel Data Files

A key concern for ensuring that this analysis is policy relevant lies in whether we can distinguish systematic demographic patterns from those that are temporary or local in nature. Today's workforce is the result of many years of hiring, advancement, and retention trends, so using data provided by the Air Force, we amassed a large panel of end-of-FY workforce snapshots from 1994 through 2016, which allows us to follow the careers of all civilian employees over a 22-year period. Not only do these data make it possible to trace career progression over time, but they also allow us to capture the relationship between advancement and changes in other observed factors (such as increases in experience or investments in education).

This analysis focuses on full-time permanent employees in GS (and equivalent) pay grades ranging from GS-6 through GS-15 and senior executive service (SES)² employees.³ Excluding other employees (such as those in WG positions) was necessary to ensure we could meet all of the objectives of the analysis, and it allows the analysis to focus on the primary paths to senior leadership. Further, as will be discussed in Chapters 3 and 4, advancement and retention analyses are limited to those in grades 11 and above, and the analysis of career trajectories limits the data to individuals who serve a minimum of five total years. The following subsections provide a brief overview of the different types of variables included in the analysis.

Outcome Variables

Because all of the data come from personnel files, we had to derive information on advancement and retention indirectly from changes in employee information. Because we lack data on the promotion process, we generally measure advancement as a change in an employee's grade level, such as moving to a higher-grade position between fiscal year snapshots. This definition means that advancement rates in our study are not the same as promotion or selection rates because they cannot differentiate between employee actions (such as applying for a higher-

² The multilevel growth model analysis, which treats grade as a continuous rather than categorical outcome, essentially treats SES as one grade level above GS-15.

³ Nearly all non-SES employees in our data have GS as their pay plan codes, but other pay plan codes exist, including GG, GL, GM, and GP. From 2006 to 2010, many of these employees transitioned to pay plans covered by the National Security Personnel System (NSPS), which did not follow the same grade structure. To impute GS-type grades for these employees during the NSPS period, we created a crosswalk algorithm using grade information before and after the transition, as well as equivalency rules between grade ranges and pay bands.

grade job) and the results of the personnel management system (such as referral and selection). In addition, we identify retention by tracking when employees drop out of the personnel data, which means that those who transfer to other components, agencies, or non-GS pay plans (and thus are not lost to the federal workforce) appear to this analysis as a loss.⁴

Demographic Variables

The main demographic variables include race/ethnicity, gender, and disability status. First, we divided employees into ten mutually exclusive race/ethnicity/gender categories. Possible races/ethnicities included white (non-Hispanic), black (non-Hispanic), Hispanic, Asian/Pacific Islander (non-Hispanic), and American Indian/Alaska Native (non-Hispanic).⁵

We categorized employees' self-reported disability status into three groups according to whether they had a targeted disability (by the definition in the October 2016 Standard Form 256), whether they had a nontargeted disability,⁶ and whether they either indicated that they had a disability that was not listed on the form or did not wish to identify their disability. Finally, we identified veterans with at least a 30-percent VA disability rating according to the veteran's preference information associated with the hiring process. Veterans were divided into six categories by crossing the 30-percent disability rating status (with the rating versus without the rating) by three veteran groups—retired officers, retired enlisted members, and other veterans.

Other Observed Factors

In order to provide the best information possible on potential barriers to advancement facing different demographic subgroups, we sought to derive an additional set of variables that capture other factors that likely play a role in advancement. These variables include traditional measures of human capital, such as education and work experience, as well as employee job series (i.e., occupation). We also compiled a set of experience and performance measures based on employee job histories in the data. These measures captured the breadth of employee experiences (e.g., the number of different installations and organization types for which the employee had

⁴ One additional question lies in handling employees who leave the GS workforce of interest and later reenter. For advancement and retention, we categorize the outcomes of these employees based on the next available data point. For example, an employee who is a GS-12 in FY11 and who is not present in FY12 but reappears in FY13 as a GS-13 is counted as having both advanced and been retained after FY11. Only employees who drop out of the workforce and are never seen again are counted as losses in the retention analysis.

⁵ A small percentage of the workforce did not indicate Hispanic ethnicity but selected two or more races (1–4 percent of Air Force civilians in FY2017). To be consistent across the 22 years of data we analyzed, we aligned our racial/ethnic categorization to the methods used in pre-2003 Air Force records. Specifically, we grouped non-Hispanic multirace employees into the major categories by first classifying all partially black (non-Hispanic) employees, then all partially American Indian/Alaska Native (non-Hispanic employees), and finally all partially Asian/Pacific Islander employees. Although this categorization introduces the possibility of a small amount of error where multirace employees might personally identify more with a different group than the one we assigned, given the small number of employees affected, we do not expect this decision to have a significant impact on the results.

⁶ For simplicity in this report, we sometimes refer to individuals with targeted disabilities with the acronym PWTD, which stands for persons with targeted disabilities.

worked), as well as experience in what are coded as career essential positions, career-broadening positions, and supervisory positions. Finally, we attempted to capture employee performance using a combination of performance ratings and the accumulation of awards.

Though the information on civilian employees is rich and detailed, it does not include everything pertinent to civilian careers. For instance, information on marital/family status, military rank for veterans who did not retire, and nonfederal employment experience are all “unobserved” in that they are not available in the personnel data. To highlight this reality, we refer to the control variables collectively as the “observed factors” when referencing them throughout the analysis, in contrast to the other relevant variables that the personnel data do not happen to capture.

We Use Multiple Quantitative Methods to Provide a More Complete Picture of Barriers in the Civilian Workforce

The conclusions in this study are the result of applying several complementary methods to the workforce data. The methods serve different functions and vary in interpretability and sophistication, but they all essentially seek to understand how our outcome variables, described above, relate to demographics and other observed factors. In this section, we briefly review the key methods we used to derive our findings in Chapters 3 and 4.

Blinder-Oaxaca Decompositions

One of the goals of barrier analysis is to identify structures that limit minority groups from achieving similar outcomes as a majority/baseline group. A valuable approach for understanding how the observed factors relate to group differences in an outcome, such as grade level, is to “decompose” the differences using the Blinder-Oaxaca method (Blinder, 1973; Oaxaca, 1973). This method uses a simple formula based on regression results to answer the following question: How much of the group difference in outcomes (i.e., grade levels, promotion rates) is attributable to differences in the observed factors? The estimated contribution of each observed factor to the outcome difference can help to pinpoint which of the observed factors poses the most significant barrier to minority subgroups.

We use decompositions to analyze how group differences in grade levels at entry relate to relevant observed factors about employees or their jobs, such as job series and work experience. For illustration purposes, consider that there are gender differences in the job series that employees tend to enter into (which will be discussed in Chapter 3). The impact of these differences depends on (1) the magnitude of the gender difference in job series and (2) the strength of the association between job series and grade level. The Blinder-Oaxaca method calculates this impact by multiplying the average difference in job series by the strength of the relationship (as measured by the regression). So, if employees in a particular job series began one grade level above average, and women were 10 percentage points less likely to be in that job series than men, this job series barrier would tend to produce a gender gap of 0.1 grades (10 percent times the one grade difference). Alternatively, a larger gender difference in the

likelihood of working in a different job series with a smaller grade advantage could have as much or more of an impact, because more women would be affected.

At its core, the decomposition method will take differences in entry grades and divide them up into the portion that is attributable to the observed factors (often referred to as the explained component) and the portion that remains unexplained. If the observed factors account for most of the initial gap, then examining the explained component provides clarity on the structural forces behind the grade difference. A significant unexplained component indicates that the target demographic group fares worse than expected (given the observed factors), and that other barriers related to factors that the personnel data do not capture likely play a role.⁷

For more information on applying the Blinder-Oaxaca decomposition method to barrier analysis, see Matthews et al. (2017), Appendix E.

Doubly Robust Estimation

A key component of our understanding of demographic differences in advancement and retention is to test whether advancement and retention rates for minority subgroups are abnormally low. Simply comparing rates by demographic group, however, is insufficient to answer this question because of group differences in all of the other factors determining an individual's employment situation. For example, a higher proportion of the female employees in the snapshot at the end of FY 2014 are retirement eligible relative to male employees; this produces lower aggregate retention during FY 2015 for women, independent of gender-specific barriers. To identify the areas where there may be barriers to advancement or retention, it is necessary to compare the rates of women to those of male employees with similar observed factors.

To achieve this comparison where employees from different demographic groups have similar observed factors, we use a method known as *doubly robust regression estimation* (Bang and Robins, 2005; Kang and Schafer, 2007). The method entails first carving out a weighted⁸ group of employees from a base group (e.g., white male employees for race/ethnicity/gender comparisons) whose observed factors closely match the demographic group of interest. These weights assign greater importance to employees from the base group with observed factors that

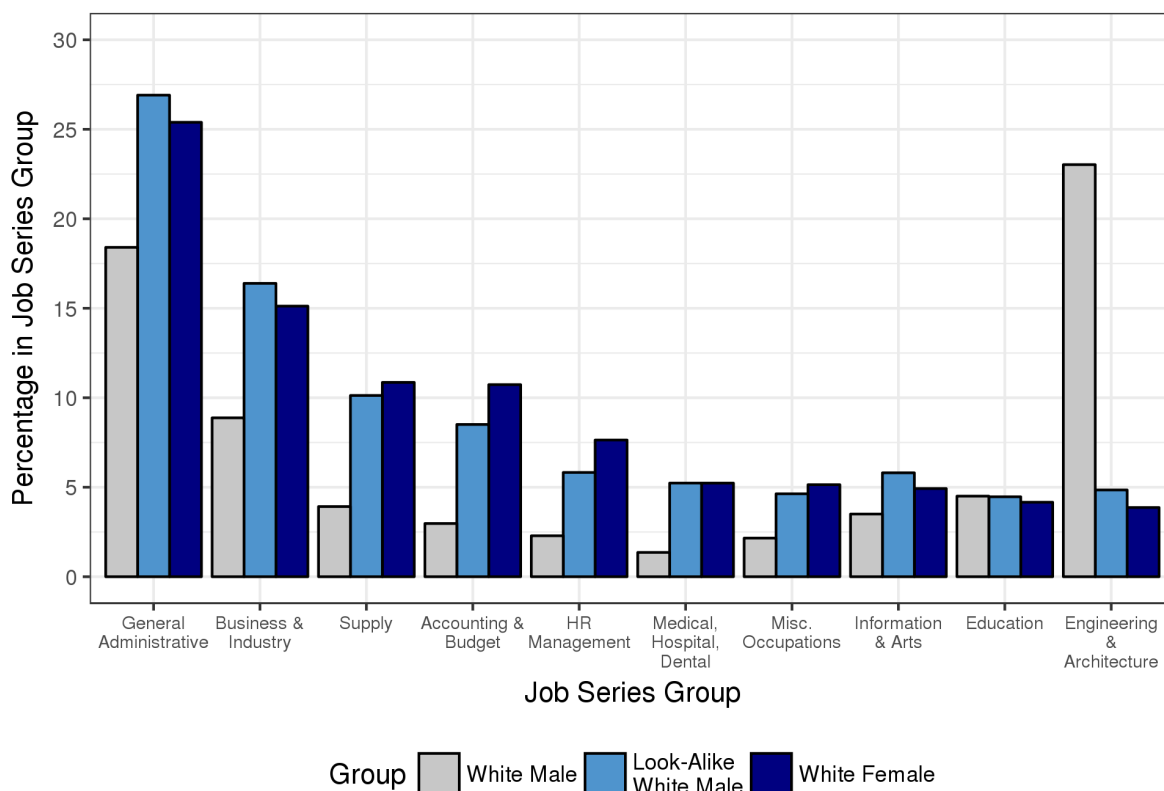
⁷ Often, applications of the Blinder-Oaxaca method intend to analyze an outcome difference in terms of the portion due to productivity (explained) and the portion due to discrimination (unexplained). With this aim, Ronald Oaxaca ("Male-Female Wage Differentials in Urban Labor Markets," *International Economic Review*, Vol. 14, No. 3, October 1973, pp. 693–709) notes that the findings hinge on the researcher's decision for which variables legitimately measure productivity. Our aim is broader in that we seek to identify which structural factors play the strongest role. Thus, the unexplained component should not be interpreted as an indicator of systematic bias. Under our specification, discrimination could be present in either component, and the goal is to point policymakers to the areas where barrier elimination efforts should focus.

⁸ The weights are based on estimates of the base group employees' propensity scores, which we calculate using the method described in Daniel F. McCaffrey, Greg Ridgeway, and Andrew R. Morral, "Propensity Score Estimation with Boosted Regression for Evaluating Causal Effects in Observational Studies," *Psychological Methods*, Vol. 9, No. 4, 2004, pp. 403–425.

are similar to the target minority group in order to create a simulated “look-alike” group with the same observed factors as the minority group of interest.

For example, the previous section established that there are systematic differences in the job series in which male and female employees tend to work, and the likelihood of advancement could differ depending on job series. The ideal comparison would identify a group of male employees with the same occupational distribution as the female employees in each comparison. Figure 2.1 demonstrates that the weighting portion of the doubly robust procedure creates something like this ideal comparison. For the example comparison (white female GS-11s⁹ in the 1995 to 1999 time period), the figure shows the ten job series groups with the highest proportion of white females and the percentage of white male and female employees in each group. The

Figure 2.1. Percentage in Each Job Series Group for White, Female, GS-11 Comparison, 1995–1999



SOURCE: Authors' calculations from personnel data.

NOTE: Look-alike percentages result from applying propensity score weighting to the white males in the same grade and time period. The doubly robust comparisons also include regression controls for all variables, which can further adjust for the small differences between the target group and their look-alikes.

⁹ For simplicity, we use “GS” to refer to GS and equivalent (e.g., GG) pay grades.

figure also shows percentages for a look-alike group—white male employees who have been statistically adjusted for the doubly robust comparison. The look-alikes mirror the job series (as well as other observed factors that are not shown) of the white female employees, making their advancement or retention rates directly comparable.

The final step in the doubly robust procedure is to compare the promotion or retention rates of base group and target group employees in a weighted regression that predicts the outcome conditional on the observed factors. The regression controls serve as an additional level of protection to ensure similarity between the groups (which gives rise to the term *doubly robust*). Further detail on the doubly robust regression technique can be found in Lim et al. (2014), Appendix A, which employs the same procedure to examine demographic differences in Air Force officer promotions and retention.

Multilevel Growth Modeling

Beyond identifying the areas where there are differences in advancement rates, we sought a technique that could draw all available information in the data together into an understanding of demographic differences in career trajectories. Our motivation for more comprehensive modeling was that identifying differences in advancement rates at particular grades does not provide enough information on how differences impact the careers of the target subgroup members or what differences mean for their chances of reaching the senior levels of the workforce.

We further analyzed career progression through the framework of multilevel growth modeling (Singer and Willett, 2003). This technique is useful for panel data, where we observe individuals at multiple points in time, and where the primary question involves understanding how the outcome variable (grade level) changes over time. In particular, growth models will allow us to estimate and plot the typical career trajectory of members from each demographic group and assess differences in senior-level attainment, while accounting for the other factors likely to influence grade levels, such as cumulative experience. Multilevel growth models also have the powerful capacity to parse out variation in careers due to individual idiosyncrasies¹⁰ while aggregating the career features common to each demographic group—which provides a clearer descriptive picture for barrier analysis. Such models are extremely flexible and interpretable, which is why they have a history of being applied across a wide range of areas. For example, other researchers have used multilevel growth models to understand trajectories of substance use (Chen and Jacobson, 2012), student achievement (Morgan, Farkas, and Hibel, 2008), obesity (Clarke et al., 2008), and the breeding of livestock (Schaeffer, 2004). In each

¹⁰ In addition to the fact that observations are grouped by individual (since individuals are observed each year over the course of their career), there is a great deal of other multilevel structure in our data. One could conceive of employees being grouped within installations, occupation groups, organizations, etc. We investigated the possibility of capturing this structure within the random effects portion of the model using Bayesian estimation techniques, but the computation requirements for the size of our data set (about 1.1 million observations) limited practical implementation. We settled on a specification that includes fixed controls for these different levels, with random intercepts and slope terms (on the years of service polynomial) for each individual.

application, the data are repeated measures of individuals over time, and the key results summarize how the outcome develops over time for the typical individual. Estimating such growth curves is also conceptually similar to econometric applications that estimate the relationship between earnings and work experience. An important recent example from this literature is Barth, Kerr, and Olivetti (2017).

With the first two quantitative methods discussed above, we generally tried to be as specific as the data would allow in linking observed factors such as location and job series to our outcomes (i.e., initial grade level, promotion, or retention). In fitting the growth models, by contrast, we had to ensure we did not include any control variables that were basically synonymous with grade level. For example, if employees changed job series upon promotion to a higher-grade position and members of a target demographic subgroup faced lower advancement rates, controlling for detailed job series codes would run the risk of attributing the demographic difference to a job series effect. For this reason, the growth models only control for occupation at the level of job series “families” (i.e., the first two digits of the job series code); however, it is important to note that there are significant demographic differences in job series within a family that are not captured in the multilevel growth models.¹¹ A related concern is that we did not include any variables that are closely related to our “time” variable, years of service (YOS). Age, fiscal year, and YOS all increase at the same rate between each wave for employees who remain in the workforce, and though it is possible to include all three, doing so obscured the interpretation of the YOS portions of the model. To circumvent this problem, we expressed age and FY variables in ways that did not change over time (i.e., age at entry and cohort, rather than age and FY at any particular time). This restriction better suits our aim to describe demographic differences in grade levels over the course of a civilian career.^{12,13}

¹¹ We did account for four-digit job series codes in the Blinder-Oaxaca analysis of grade levels at entry, and we tested doubly robust analyses of advancement and retention while controlling for four-digit job series as a sensitivity check.

¹² Under this restriction, age and fiscal year at a given time period are omitted variables, and their effects could be attributed to years of service or other observed factors included in the model.

¹³ The specification for the model that produced the results in Chapter 3 includes the following features. We estimated a model of grade level in a given wave as a function of years of service (YOS) and its square to fit the growth pattern generally observed in the data (i.e., where advancement slows in later YOS). The intercept and both YOS coefficients include an individual-level random effect, essentially adjusting the trajectory according to patterns unique to each individual. We interacted the YOS variables with each race/ethnicity/gender category, reported disability status, veteran status, and job family to allow for custom growth curves across these categories. We also included controls for the following: state, cohort, entry age, educational attainment, education institution ranking (in four tiers), degree field, professional military education completion, quadratic polynomials for cumulative number, dollar amount, time off associated with performance awards—an indicator for an outstanding performance rating—and the cumulative number of locations, organizations, career-broadening positions, career essential positions, and supervisory positions held by the employee. Finally, we standardized all continuous variables in order to circumvent convergence problems with the maximum likelihood estimation routine.

Finally, an important consideration in the interpretation of our results is that employees in the data vary in the length of their careers,¹⁴ and even 22 years of data are not enough to observe an entire civilian career from entry-level through retirement. The multilevel growth model method is flexible enough to piece together the information from these varied careers. However, demographic differences in who remains in the workforce, conditional on other factors in the model, could be correlated with advancement in a way that skews the estimated trajectories. We found few significant retention differences in the doubly robust analyses, but differential attrition cannot be ruled out as a potential contributor to lower trajectories for particular demographic groups.

Qualitative Methodology

To complement our quantitative analyses, we also conducted focus groups and supplementary interviews with Air Force civilian personnel in the spring and early summer of 2017 to better understand perceived barriers to advancement and factors that Air Force civilians consider when deciding whether to remain with the Air Force. To try to obtain a sample of the civilian workforce representing a range of perspectives and experiences, we held focus groups and interviews across ten different base locations that were selected based on their representation across the following dimensions:

- Demographics (gender, race/ethnicity, disability status)
- Major commands (MAJCOMs)
- Career fields
- Geographic region

The final locations included were Joint Base Andrews, Joint Base San Antonio (Randolph, Lackland, Fort Sam Houston), Joint Base Langley-Eustis, Kirtland, Pentagon, Scott, Vandenberg, and Wright-Patterson. Appendix C provides greater detail regarding our base selection methodology.

Participants

At each of our target locations, we worked with a local point of contact to send out invitation emails to Air Force civilian employees at that base, requesting participation from civilians in pay grades GS-9 through GS-15 (or equivalent). In consultation with the study sponsors, we targeted these pay grades in particular since higher pay grades are where previous analyses have found that women and racial/ethnic minorities tend to be underrepresented. For our groups with individuals with disabilities and veterans with service-connected disabilities, we requested participation from civilian employees in pay grades GS-5 through GS-15 (or equivalent) given their much smaller total number within the workforce.

¹⁴ We did limit the sample to employees who were observed for at least five years in the data to ensure that the results were not driven by those who were only employed on a short-term basis.

Because the goal of the study was to understand whether there may be particular barriers to advancement and retention for Air Force civilians based on race/ethnicity, gender, and disability status and to ensure that participants felt comfortable discussing these issues in a focus group format, we divided participants into the following types of focus groups based on their indicated preference:

- American Indian or Alaska Native men
- American Indian or Alaska Native women
- Asian men
- Asian women
- Black/African American men
- Black/African American women
- Hawaiian/Pacific Islander men
- Hawaiian/Pacific Islander women
- Hispanic/Latino men
- Hispanic/Latina women
- White men
- White women
- Individuals with disabilities
- Veterans with service-connected disabilities

We informed individuals who identified with more than one of these groups to please choose one focus group in which they would like to be included, or if they felt that their experiences could not be represented by one of the groups listed, we could arrange for them to participate in an individual interview. Depending on the location, we did not always have at least two participants in certain demographic categories to hold a focus group.¹⁵ These participants were offered individual interviews as an alternative.

Across the ten locations we visited, we conducted a total of 67 focus groups and 43 supplementary interviews, with a total of 276 participants. The total number of the types of groups and interviews we conducted is provided in Table 2.1.

In Table 2.2, we provide the demographic breakdown of participants by race/ethnicity, gender, and disability status, along with a comparison to their representation in the overall Air Force civilian workforce.

¹⁵ Ideally, we would have five to eight participants in a focus group to ensure a greater chance for a full discussion. However, given the small numbers of some demographics at certain locations, we allowed for two or more participants per focus group.

Table 2.1. Types of Focus Groups and Interviews Conducted

Demographic Category	Focus Groups	Interviews
American Indian or Alaska Native men	0	0
American Indian or Alaska Native women	1	0
Asian men	0	3
Asian women	1	2
Black/African American men	7	4
Black/African American women	12	3
Hawaiian/Pacific Islander men	1	2
Hawaiian/Pacific Islander women	0	2
Hispanic/Latino men	2	2
Hispanic/Latina women	3	8
White men	10	4
White women	13	2
Individuals with disabilities	5	6
Veterans with service-connected disabilities	12	5

Table 2.2. Focus Group and Interview Participant Demographics

Demographic Category	Focus Group/Interview Sample (No.)	Focus Group/Interview Sample (Percentage)	Air Force Civilian (Percentage)
Gender			
Male	121	44	68
Female	153	55	32
Missing	2	<1	NA
Race/Ethnicity			
American Indian or Alaskan Native	2	<1	1
Asian/Pacific Islander	13	5	4
Black/African American	85	31	14
Hispanic	37	13	7
White	114	41	74
Other/More than one race	17	6	NA
Missing	8	3	NA
Disability Status^a			
Have a disability	18	24	19
Have a targeted disability	17	6	1
Veteran who is 30% or more disabled	49	18	15
Missing	8	3	NA

NOTE: To match our sample, the Air Force civilian percentage includes personnel in pay grades GS-9 to GS-15 (and equivalent) for gender and racial/ethnic categories; pay grades from GS-6 to GS-15 (and equivalent) are included for the disability status categories. We did not have GS-5 (and equivalent) personnel in our personnel data files, which is why we do not include them in the Air Force civilian percentage column.

^a For the Air Force civilian percentage, "Have a disability" includes all disability categories listed on the SF-256, including those who indicate that they do not wish to identify their disability or that it is not listed on the form. Veterans with 30 percent or more disability ratings who also list their disability status via the SF-256 are included in the other rows.

In Table 2.3, we provide the breakdown of participants by occupational series, along with a comparison to their representation in the overall Air Force civilian workforce.

Table 2.3. Focus Group and Interview Participant Occupations

Occupational Series	Focus Group/Interview Sample (No.)	Focus Group/Interview Sample (Percentage)	Air Force Civilian (Percentage)
Miscellaneous occupations	10	4	7
Social Science, Psychology, and Welfare	19	7	5
Human Resources Management	32	12	3
General Administrative, Clerical, and Office Services	58	21	26
Accounting and Budget Group	23	8	7
Medical, Hospital, Dental, and Public Health Group	9	3	3
Veterinary Medical Science Group	1	<1	0
Engineering and Architecture Group	15	5	9
Legal and Kindred Group	3	1	1
Information and Arts Group	3	1	1
Business and Industry Group	17	6	12
Physical Sciences Group	6	2	1
Mathematical Sciences Group	5	2	2
Equipment, Facilities, and Services Group	1	<1	3
Education Group	28	10	4
Inspection, Investigation, Enforcement, and Compliance Group	1	<1	1
Supply Group	4	1	3
Transportation Group	5	2	5
Information Technology Group	18	7	6
Electronic Equipment Installation and Maintenance Family ^a	2	1	NA
Missing	16	6	NA

NOTE: To match our sample, the Air Force civilian percentage includes personnel in pay grades GS-9 to GS-15 or equivalent for gender and racial/ethnic categories; pay grades from GS-6 to GS-15 are included for the disability status categories. We did not have GS-5 (and equivalent) personnel in our personnel data files, which is why we do not include them in the Air Force civilian percentage column.

^a This occupational series is for the WG employees who inadvertently were included in our focus groups. Therefore, we do not include an Air Force equivalent in this table.

In Table 2.4, we then provide the breakdown of participants by pay grade, along with a comparison to their representation in the overall Air Force civilian workforce.

The age of our participants ranged from 24 to 73 years, with an average age of 51 years. The total number of years as an Air Force civilian ranged from 0.5 to 40.6 years, with an average tenure of 12.7 years. Fifty-seven percent of participants had some prior service experience, with 39 percent having Air Force service experience.

Table 2.4. Focus Group and Interview Participant Pay Grades

Pay Grade	Focus Group/Interview Sample (No.)	Focus Group/Interview Sample (Percentage)	Air Force Civilian (Percentage)
GS 5–10	40	15	31
GS 11–13	190	69	62
GS 14–15	29	11	6
Missing	15	5	NA

NOTE: The Air Force civilian percentage only includes grades GS-6 to GS-10 in the GS 5–10 row because we did not have GS-5 (and equivalent) personnel in our personnel data files. We also had one WG employee and one SES employee who inadvertently were included in our groups. They are not included in the above table.

Finally, for individuals with disabilities, 37 percent indicated that they had self-identified as disabled with the Air Force using Standard Form 256, Self-Identification of Disability. Eleven percent indicated that they were hired under the Schedule A hiring authority for individuals with disabilities, and 13 percent indicated they had been noncompetitively appointed under the hiring authority for veterans who are 30 percent or more disabled.

Focus Group and Interview Structure

The focus groups and interviews followed a similar format. First, the facilitator provided participants with background information about the study and administered the informed consent. The informed consent emphasized the voluntary nature of the study and outlined the steps that would be taken to ensure that any potentially identifiable information would be kept confidential by the research team. Following the introduction, the facilitator asked participants to fill out a background sheet that included questions on demographics, tenure, and career field (see Appendix E). Focus groups ran roughly 90 minutes, and interviews were roughly 60 minutes in length. Participants were asked two sets of questions, one set on advancement and one set on retention. The advancement questions focused on participants' advancement interests, perceived support for career development and feedback, factors that lead to being successfully promoted, whether they think they have an equal opportunity for promotion, and how the Air Force can better prepare and support civilians for promotion. The questions on retention focused on the factors that contribute to civilians leaving versus staying in the Air Force, whether these may differ by demographic groups, and how the Air Force might improve retention of civilians from all demographics. For participants who had disabilities or were veterans with service-connected disabilities, we also asked questions about their experiences receiving accommodations. Appendix E provides the full protocols.

Each session was facilitated by one RAND team member, with a second team member taking notes. To the extent possible, we matched the demographics of the facilitator and participants to ensure the comfort of the participants when discussing their experiences as a woman or

racial/ethnic minority. To protect participant identifiability, note-takers were instructed to not include names or other identifiable information about the participants in their notes.

Qualitative Coding and Analysis

We conducted our qualitative coding and analysis using NVivo, a qualitative data analysis software program. We used an integrated approach of deductive and inductive coding, with the protocol questions guiding the initial development of broad coding categories. We then reviewed the text within each of these broader coding categories and developed sub-codes for key emergent themes throughout the coding process. To help identify any differences across demographic and disability groups as well as other key characteristics (e.g., occupation, age), we also coded comments according to participants' background characteristics (obtained through a background questionnaire).

The coding was divided into two phases, with two researchers coding the transcripts at each phase. The initial phase of coding the transcripts into broad categories was conducted by two junior researchers, and then the final inductive coding to identify emergent themes within each of these broad categories was conducted by two senior researchers. To ensure coding consistency, during the first phase of coding, the two researchers both separately coded, or double-coded, two sets of focus group transcripts. The two researchers then met with one of the senior research team members to discuss and resolve any discrepancies in how the codes were being used. Following this session, the two researchers double-coded an additional three sets of focus group transcripts and then met to again discuss and resolve any discrepancies. We also ran a coding comparison to examine inter-rater reliability measured by the Cohen's Kappa coefficient and percent agreement at each coding node.¹⁶ Given sufficient inter-rater reliability between the coding of the two researchers, they then began coding the remaining transcripts individually. To ensure acceptable levels of coder consistency remained, the researchers conducted a final coding comparison at the end of the process, double-coding an additional three sets of focus group notes to ensure acceptable inter-rater reliability remained.

During the second phase of coding, the two senior researchers read through the text that had previously been coded into the broad categories that aligned with the protocol questions. They then identified additional emergent themes appearing across multiple focus groups and interviews within each of these broad categories. The researchers used an iterative process of coding the text and then meeting to discuss the themes being identified. Once the sub-codes or themes were identified, additional analyses were conducted to also examine potential differences

¹⁶ Cohen's Kappa coefficient is a statistical measure of inter-rater reliability that aims to account for coding agreement occurring by chance. Guidelines recommended for interpreting Kappa values are as follows: less than 0.40, poor agreement; 0.40–0.75, fair to good agreement; more than 0.75, excellent agreement. See Jacob Cohen, "A Coefficient of Agreement for Nominal Scales," *Educational and Psychological Measurement*, Vol. 20, No.1, 1960, pp. 37–46.

in the frequency of these themes by demographic groups. The final coding guide is included in Appendix F.

In the following chapters, we provide descriptions of the key themes that we identified across focus groups and interviews related to advancement and retention. Throughout the report, we provide the percentage of focus groups in which a particular theme or issue was raised to give the reader a sense of the prevalence or prominence of particular issues or themes. However, this should not be taken to mean that every member of that group responded the same way, and in some cases, we deliberately do not provide percentages because they may be misleading due to the particular nature of the question or topic being discussed and the mix or nuance of the responses within groups. Where we are able to provide percentages, they reflect the percent of groups that raised a particular theme in response to a particular question. For example, the percentages related to discussion of accommodations reflect only groups with individuals with disabilities since the other groups did not discuss that issue. It is also important to note that although the information was included in our overall analysis of themes, we do not provide percentages from our interviews. The interviews were only done when necessary to accommodate individuals with disabilities and participants in smaller demographic categories when there were not enough individuals to hold a focus group. Due to their supplementary nature, the demographics of the interview sample are different from the full participant sample, and the dynamics of interviews differ from focus groups, which could lead to different types of information being raised.

Summary

As described in this chapter, we used a mixed-methods approach to examine demographic trends in representation and to identify barriers to advancement and retention for Air Force civilian women, racial/ethnic minorities, and individuals with disabilities. The next two chapters discuss our findings from these analyses.

3. Barriers to Air Force Civilian Advancement

In this chapter, we describe findings from our analysis of barriers to advancement for Air Force civilians. We first present findings from our quantitative analyses and then discuss findings from our qualitative (focus group/interview) results. To anchor our qualitative findings, we integrate relevant research literature where applicable.

Quantitative Findings

The fact that racial/ethnic minority and female employees, as well as employees with certain disabilities, are disproportionately observed in lower-grade positions could result from grade differences at the point of entry or from demographic differences in advancement or retention (or some combination of the three). This section employs multiple quantitative methods in examining the personnel data files to characterize the potential barriers that lead to demographic differences in grade-level attainment.

Grade Levels at Entry

First, we examine the starting grade levels of all employees who began their careers in the window of time observed in the data (1994 through 2016). To ensure we capture the entry point of all employees, we include those who first appear in the data with one year of service (which typically make up 15–20 percent of each cohort), and we restrict the sample to employees who are present in a minimum of two years of data. Table 3.1 provides an overall summary of the demographic differences in grade level at entry. In early career years, patterns in the data indicated that grade levels are somewhat unstable for employees who enter at grades 10 and below,¹ so we examined grade levels at two YOS in addition to entry to more fully characterize how members of different groups begin their careers.

The first column shows that grade levels differ by both gender and race/ethnicity. The largest such differences are between white men and black/Hispanic women (1.8 grades), while starting grade levels of white men are more similar to Asian and American Indian/Alaska Native (AI/AN) men. Race/ethnicity and gender gaps often shrink between zero and two YOS, which partly reflects differences in veteran status, since it is more common for nonveterans to enter at lower grades and rapidly advance. Regarding disability status, column one in Table 3.1 shows

¹ Specifically, many employees who enter at grades 7 and 9 quickly advance to grades 9 and 11, respectively, within one to two years. Veterans are more likely to enter directly into the higher grades, possibly because their experience often qualifies them to bypass a trial period in grade 7 or 9. This pattern exaggerates the differences at entry for demographic groups that differ significantly according to veteran status (e.g., men versus women, and white versus Asian men).

that employees with targeted disabilities start about a half grade lower than those who indicate no disability, but the second column indicates that grades after two years of service are similar across self-reported disability categories. The grades of veterans show that those who enter with a 30 percent or higher VA disability rating have similar yet slightly lower grades than those who do not.

In addition to the average grade-level differences, there are also substantial differences in the percentage of new employees in each demographic group that enter into grades that could be

Table 3.1. Grade Levels of Employees at Entry by Demographic Group

	Average Grade at Entry	Average Grade at 2 YOS	Percentage Entering Grade 11 or Higher	Percentage Entering Grade 14 or Higher
Race/Ethnicity and Gender				
All male	10.2	10.7	55.3	4.5
All female	8.9	9.7	31.3	1.2
White male	10.4	10.9	58.2	5.1
White female	9.0	9.8	33.2	1.4
Black male	9.5	10.0	43.4	2.0
Black female	8.6	9.3	26.0	0.7
Hispanic male	9.5	10.1	43.4	2.0
Hispanic female	8.6	9.4	25.3	0.7
Asian male	9.8	10.7	48.1	2.6
Asian female	8.9	9.9	30.9	1.1
AI/AN male	10.0	10.5	51.2	3.5
AI/AN female	8.9	9.5	31.1	0.8
Self-Reported Disability Status				
No disability	9.8	10.4	48.6	3.6
Targeted disability	9.3	10.3	38.5	2.2
Other disability	9.9	10.4	50.1	3.0
Unidentified/not listed	10.0	10.6	53.0	4.3
VA Disability Rating				
Nonveteran	9.0	10.4	32.1	1.5
Retired enlisted (No disability)	10.0	10.3	54.4	0.8
Retired enlisted (30% disability)	9.7	10.1	49.1	0.6
Retired officer (No disability)	12.7	12.8	95.2	23.2
Retired officer (30% disability)	12.3	12.5	91.0	17.0
Other veteran (No disability)	9.5	9.9	44.1	1.9
Other veteran (30% disability)	9.2	9.7	38.8	1.1

SOURCE: Authors' calculations from Air Force personnel data.

NOTE: YOS: years of civilian service.

considered similar to military officer grades (11 and above, column three) and who enter at the senior level (14 and above, column four). For example, nearly 60 percent of white men enter the officer tier, compared to only 26 and 25 percent of black and Hispanic women, respectively. Differences at entry will tend to perpetuate patterns where racial/ethnic minorities and women are disproportionately in lower grades, independent of differences in advancement or retention.

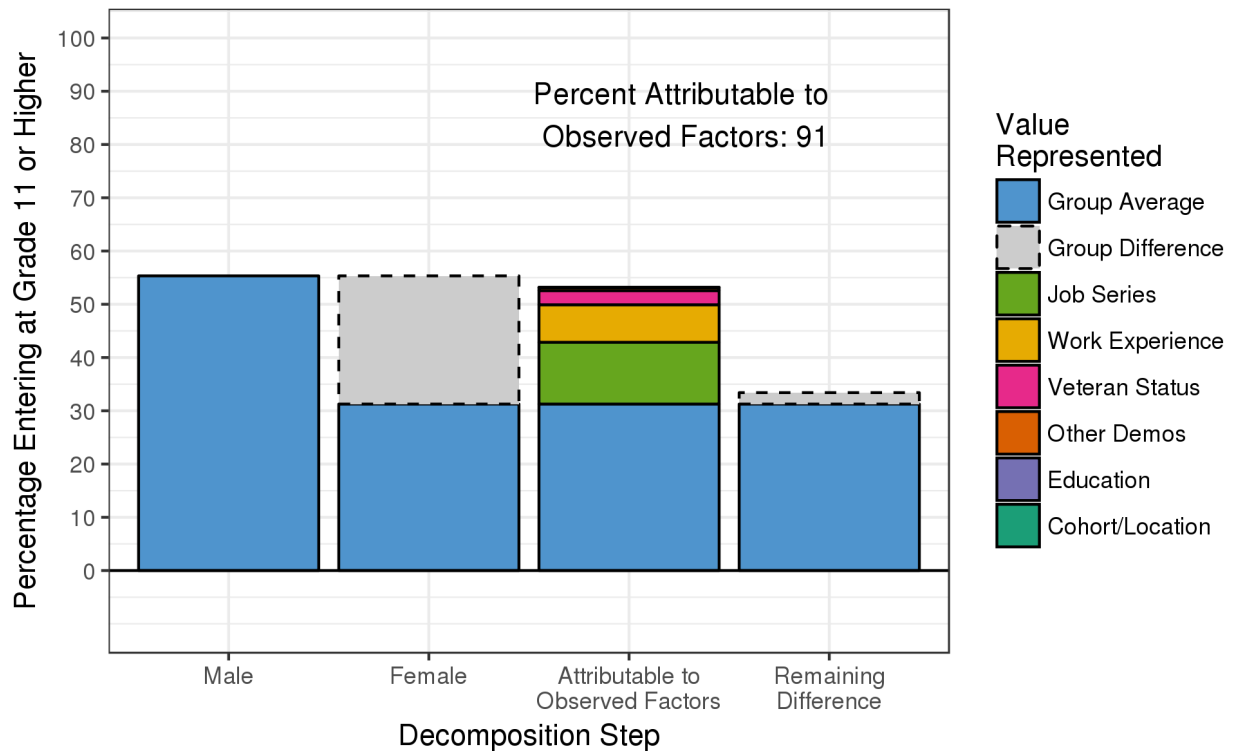
The following sections apply the Blinder-Oaxaca decomposition method introduced in Chapter 2 to better understand how these differences relate to the observed factors in the data. We conducted decompositions separately for each combination of race/ethnicity and gender, as well as for employees in each disability category. Results are similar regardless of whether we decomposed the differences in average grade levels or in the proportion entering at grade 11 and above. We present results for the latter because it is of substantive interest (given that these grades constitute the officer-equivalent levels) and because it better complements our other analysis, which focuses on career progression for employees in grades 11 and above. Appendix D contains the decomposition results of average grade and the proportion entering at or above grade 11 for all race/ethnicity/gender groups.

Women Enter Lower-Grade Positions Than Men, but Differences Relate Strongly to Observed Factors

Of all the quantitative findings discussed in this report, our analyses found that the most sizable barrier to any demographic group reaching senior-level positions is the fact that women begin their careers in lower grades than men. In the previous section, Table 3.1 showed that grade levels of women at initial entry were about 1.3 grades lower than men, on average, and women were over 20 percentage points less likely to begin their careers at or above grade 11. Figure 3.1 presents the decomposition results of the 20-point difference in the percentage entering at or above grade 11. The first two bars represent the percentages for men and women, with a gray section above the female percentage representing the gap. The third bar depicts the decomposition results as colored sections above the female percentage, with each section illustrating the estimated portion of the initial gap that is attributable to the corresponding observed factor. The last bar indicates the difference in percentages that remains after accounting for the observed factors. The size of the remaining difference relative to the initial gap is an indicator of the role played by other unobserved factors. A large remaining difference would suggest that the lower grades of women at entry were due to other factors not captured in the data or systematic barriers to entering higher-grade positions.

The first set of decomposition results indicates that systematic differences between the observed factors of men and women could play a role in the grade disparity at entry (Figure 3.1). Ninety-one percent of the average difference in the percentage entering at grade 11 or higher is potentially attributable to differences in job series, potential work experience, and veteran status, and only a small difference remains after accounting for these and other observed factors. This

Figure 3.1. Decomposition of Percentage in Grade 11 or Higher at Entry by Gender



SOURCE: Authors' calculations from personnel data.

NOTE: Actual work experience is not available in the data, so the analysis uses potential work experience (age minus years of education minus 5). Other demographics ("Demos" in the legend) include race/ethnicity and disability status. Location refers to the employee's state. Comparing racial/ethnic minority women to white males separately by race/ethnicity yields similar results, with slightly higher unexplained differences (see Appendix D for full results).

means that women and men entering the same types of jobs with the same levels of experience show little difference in initial grades.

For observed factors with many categories, such as job series, Figure 3.1 displays the net effect of all differences by adding up the effects of the individual categories. To illustrate the dynamics underlying the job series effect in the figure, Table 3.2 lists the ten job series that have the largest impact on the gender difference in starting grades, with the average starting grade level of the series, whether women are over- or underrepresented, and the effect of the gender difference on the percentage entering at grade 11 or higher. For example, the first row indicates that women are overrepresented in the job series "Miscellaneous Clerk and Assistant," which has an average starting grade of 6.6. This overrepresentation tends to lower the percentage of women entering at grade 11 or above by 1.7 percentage points relative to men, all else being equal. The proportion of employees entering any single job series is small, but systematic gender differences in the types of jobs employees enter, such as those in the table, appear to play a significant role in the aggregate gender difference in grade levels.

Table 3.2. Top Ten Job Series Affecting Gender Differences in Entry Grade

Job Series	Average Grade at Entry	Female Representation	Effect on Percentage in Grade 11 or Above
Misc. Clerk & Assistant (0303)	6.6	Overrepresented	1.7
Secretary (0318)	6.3	Overrepresented	1.5
Aircraft Operation (2181)	12.3	Underrepresented	1.2
Management & Program Analysis (0343)	11.9	Underrepresented	1.0
Equipment Services (1670)	10.9	Underrepresented	1.0
Electronics Engineering (0855)	9.8	Underrepresented	0.9
Information Technology Management (2210)	11.1	Underrepresented	0.8
Air Traffic Control (2152)	11.1	Underrepresented	0.5
Human Resources Assistance (0203)	6.7	Overrepresented	0.5
Misc. Administration & Program (0301)	11.3	Underrepresented	0.4

SOURCE: Authors' calculations from personnel data.

NOTE: Job series are listed in order of the size of their effects on the gender difference in entry grades. Average grade at entry is calculated as the average grade of all employees who began their careers in the respective job series during the period covered by our data. Numbers in parentheses are OPM occupational codes. The ten job series in the table represent 60 percent of the combined effect of all job series disfavoring women.

At the same time, the occupations in Table 3.2 highlight an important limitation inherent in the decomposition analysis—that it likely oversimplifies the problem by attempting to separate the effects of the observed factors. For example, the results attempt to parse the effect of being a veteran from the effect of employees' job series, but many of the higher-grade job series in Table 3.2 are almost exclusively populated by veterans. Less than 2 percent of employees beginning their careers in Aircraft Operation and Air Traffic Control, for instance, are nonveterans. The fact that women are more likely than men to enter as nonveterans likely limits the occupations available to them, but in attempting to isolate these effects, the decomposition attributes most of these differences to job series.

Our findings generally align with the broader gender segregation of occupations in the U.S. economy (e.g., Blau, Brummund, and Liu, 2013).² However, unlike the broader U.S. economy, the Air Force civil service includes occupations that particularly align with veterans' military work experience. Thus, we caution readers that occupation factors cannot be completely separated from veteran-related factors in explaining the gender gap at entry.

² Occupational segregation in the U.S. economy also falls along racial/ethnic lines and has intersections with gender. For a discussion and analysis of historical trends in the gender and racial/ethnic composition of U.S. reproductive labor (i.e., jobs that maintain the economy by nurturing or supporting the next generation—as examples, cooking, cleaning, child care), see Mignon Duffy, “Doing the Dirty Work: Gender, Race, and Reproductive Labor in Historical Perspective,” *Gender & Society*, Vol. 21, No. 3, 2007, pp. 313–336.

Black and Hispanic Men Enter at Lower Grades Than White Men, Which Is Driven Only Partially by Observed Factors

In addition to the gender differences in grade levels at entry, Table 3.1 indicated that black and Hispanic men enter at roughly one grade level lower than white men on average and are 15 points less likely to begin in the officer tier of grade levels. The decomposition analysis (Figure 3.2) shows that job series is again the most important observed factor in understanding the initial grade difference. Unlike the gender decomposition, however, where 91 percent of the initial gap was attributable to observed factors, the observed factors can only account for 57 percent of the initial difference between white and minority males.³ Even conditional on all of the factors listed in the legend of Figure 3.2, black and Hispanic men are 6.4 percentage points less likely than similar white men to begin at or above grade 11.

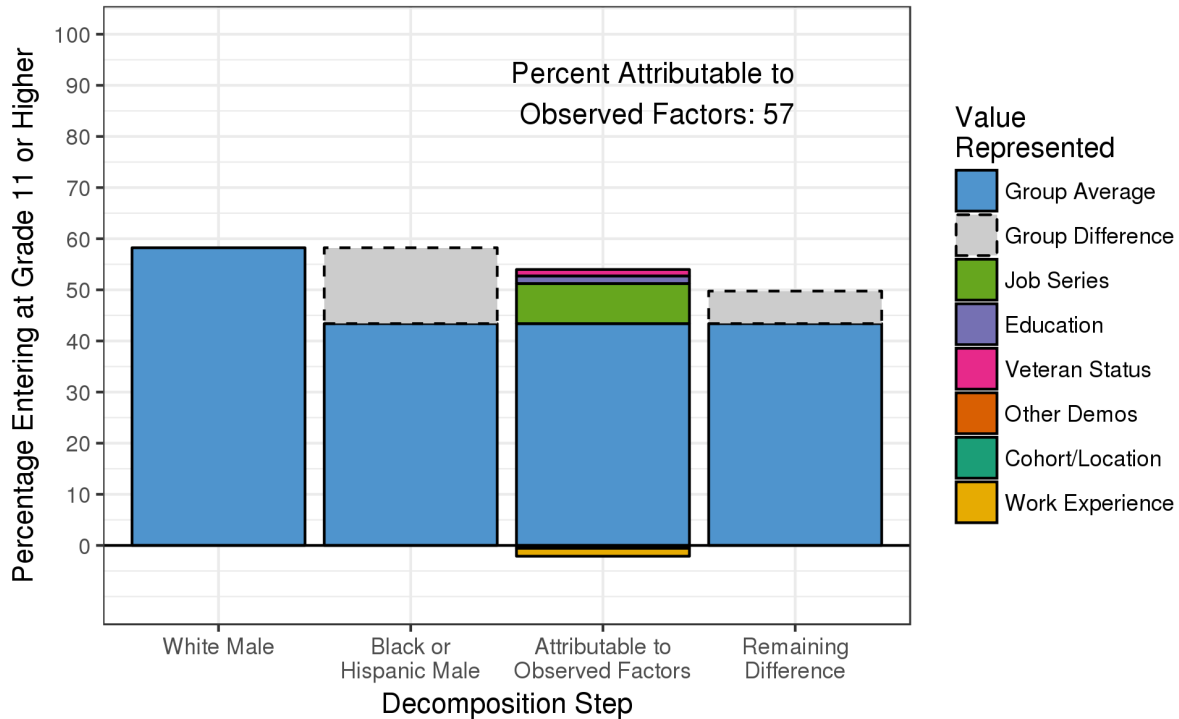
Part of the reason for this larger remaining difference, as a percentage of the original gap, is that not all observed factors work against minority males. The portion attributable to differences in work experience appears below zero, which indicates a negative estimate. This represents the reality that work experience is positively associated with entry grade levels, but that minority males tended to have *more* work experience than white males on average.⁴ In essence, the decomposition indicates that work experience is a mitigating factor, and the initial gap would be larger if not for this minority male advantage. Thus, its effect is subtracted from the portion attributable to the observed factors, and the remaining difference is larger as a result.

Table 3.3 presents the top job series with the largest effects on the difference in entry grades between white men and black/Hispanic men. The results indicate that the white men are more likely to enter higher-grade positions in areas such as Aircraft Operation, Intelligence, Management, and Engineering, while racial/ethnic minority men are overrepresented in series where the typical entry-level employee starts in a lower grade. As with the gender decomposition, this result indicates the influence of observed factors such as education and veteran status on the job series for which employees are qualified and, more generally, that part of the demographic differences in grade entry stems from human capital differences between groups.

³ Similar to our findings for Hispanic men in the Air Force civilian workforce, Matthews et al. found that the gap between Hispanic representation in the Department of Defense (DoD) civilian workforce and Hispanic representation in the U.S. civilian labor force (CLF) can be partly attributed to differences in occupation, education, and veteran status. Specifically, the DoD workforce tends to have higher levels of educational attainment and military veteran representation than the CLF and has a different occupational mix than the CLF. These educational, veteran status, and occupational differences between the DoD's civilian workforce and the CLF contribute to lower levels of Hispanic representation in the DoD workforce. See Miriam Matthews, Bruce R. Orvis, David Schulker, Kimberly Curry Hall, Abigail Haddad, Stefan Zavislan, and Nelson Lim, *Hispanic Representation in the Department of Defense Civilian Workforce: Trend and Barrier Analysis*, Santa Monica, Calif.: RAND Corporation, RR-1699-OSD, 2017.

⁴ The results in Appendix D further indicate that this effect is prominent in the black male decomposition, but it is not present in the Hispanic male decomposition.

Figure 3.2. Decomposition of Percentage of Men in Grade 11 or Higher at Entry, by Race/Ethnicity



SOURCE: Authors' calculations from personnel data.

NOTE: Black and Hispanic men are grouped together for brevity, but results are similar if decompositions are performed separately for black and Hispanic men (see Appendix D for full results). The yellow section for work experience is depicted below the axis, which represents a negative effect. Negative effects indicate that the gap increased after considering the difference in observed factors.

**Table 3.3. Top Ten Job Series Affecting Race/Ethnicity Differences in Entry Grade
(White Men Versus Black/Hispanic Men)**

Job Series	Average Grade at Entry	Racial/Ethnic Minority Representation	Effect on Percentage in Grade 11 or Above
Aircraft Operation (2181)	12.3	Underrepresented	1.34
Police (0083)	6.5	Overrepresented	0.71
Misc. Clerk & Assistant (0303)	6.6	Overrepresented	0.67
Computer Clerk & Assistant (0335)	8.0	Overrepresented	0.48
Intelligence (0132)	11.5	Underrepresented	0.44
Supply Clerical & Technician (2005)	6.9	Overrepresented	0.43
Management & Program Analysis (0343)	11.9	Underrepresented	0.41
Equipment Services (1670)	10.9	Underrepresented	0.40
Mechanical Engineering (0830)	9.6	Underrepresented	0.31
Aerospace Engineering (0861)	9.8	Underrepresented	0.30

SOURCE: Authors' calculations from personnel data.

NOTE: Job series are listed in order of the size of their effects on the demographic difference in entry grades. Average grade at entry is calculated as the average grade of all employees who began their careers in the respective job series during the period covered by our data. Numbers in parentheses are OPM occupational codes. The ten job series in the table represent 60 percent of the combined effect of all job series disfavoring black/Hispanic men.

Race/Ethnicity and Gender Results Are Consistent over Time

The previous results focus on grade levels at entry for all cohorts available in the data, which include some employees who entered the workforce as early as 1993. It is also important to examine whether the main findings could have changed over time. For instance, the entry grades of women could have improved relative to men in more recent cohorts, in which case the result in Figure 3.1 would represent an average effect that is less representative of the current policy environment. To test this possibility, we calculated the same results separately for four different entry windows: 1995–1999, 2000–2004, 2005–2009, and 2010–2014. The percentage of employees going directly into grade 11 or higher has gone up over time, from 32 percent in the 1995–1999 entry period to 55 percent in the 2010–2014 entry period. However, the magnitude of the demographic gap and the portion attributable to the major factors has remained fairly consistent (Table 3.4). Therefore, these differences in grade levels at entry and their relationship to observed factors appear to be a stable workforce pattern and not just an artifact of hiring patterns in the past.

Table 3.4. Summary of Race/Ethnicity and Gender Decompositions of Percentages in Grade 11 or Above at Entry, by Entry Window

Demographic Comparison	Years of Entry	Initial Gap (Percentage)	Percent Attributable to Observed Factors
Male vs. female	1995–1999	23.5	95.2
	2000–2004	29.2	78.2
	2005–2009	25.8	88.2
	2010–2014	20.3	100.0
White male vs. Black/Hispanic male	1995–1999	17.8	49.2
	2000–2004	12.7	52.6
	2005–2009	14.2	52.6
	2010–2014	16.2	53.0

SOURCE: Authors' calculations from personnel data.

NOTE: Though we do not show the impact of individual factors here for brevity, the patterns are generally consistent with those shown in Figures 3.1 and 3.2. That is, job series and (potential) work experience are the dominant factors in the gender decompositions, and job series is the main factor in the race/ethnicity decompositions.

Observed Factors Do Not Account for Lower Grades of Veterans with Disabilities

While average grade levels among employees with self-reported disabilities resemble those of employees without disabilities after two years, veterans with disabilities remain about 0.3 grades lower than their counterparts without disabilities (see Table 3.1). Though this is a small difference, we applied similar methods to test whether differences in the observed factors could account for this gap. In each case, the decompositions produced little insight into the driving forces behind the differences, which indicates that other variables (besides the observed factors of veterans with disabilities) could be affecting these groups.

Demographic Differences in Advancement Rates

Given that we have identified grade-level differences at the point of entry into the Air Force civilian workforce, the next step is to examine patterns of advancement to determine whether there are areas where members of female, racial/ethnic minority, or disability subgroups advance at unusually low rates. For employees in grades 11 through 14, we conducted comparisons of advancement rates to a higher grade⁵ for each demographic group by grade level. Additionally, we performed each set of comparisons in five-year intervals so that we could differentiate consistent patterns from patterns unique to previous eras. The combinations of demographic groups, grade levels, and time periods yielded a total of 205 advancement comparisons.⁶ For each grade level and time interval, we take all employees in a given demographic group (e.g., white women) and compare them to employees in the same grade level and time interval from the corresponding base group (e.g., white men). White men serve as the base group for all race/ethnicity comparisons, employees without disabilities serve as the base group for disability comparisons, and veterans without a 30-percent VA rating serve as the base group for veteran disability comparisons.

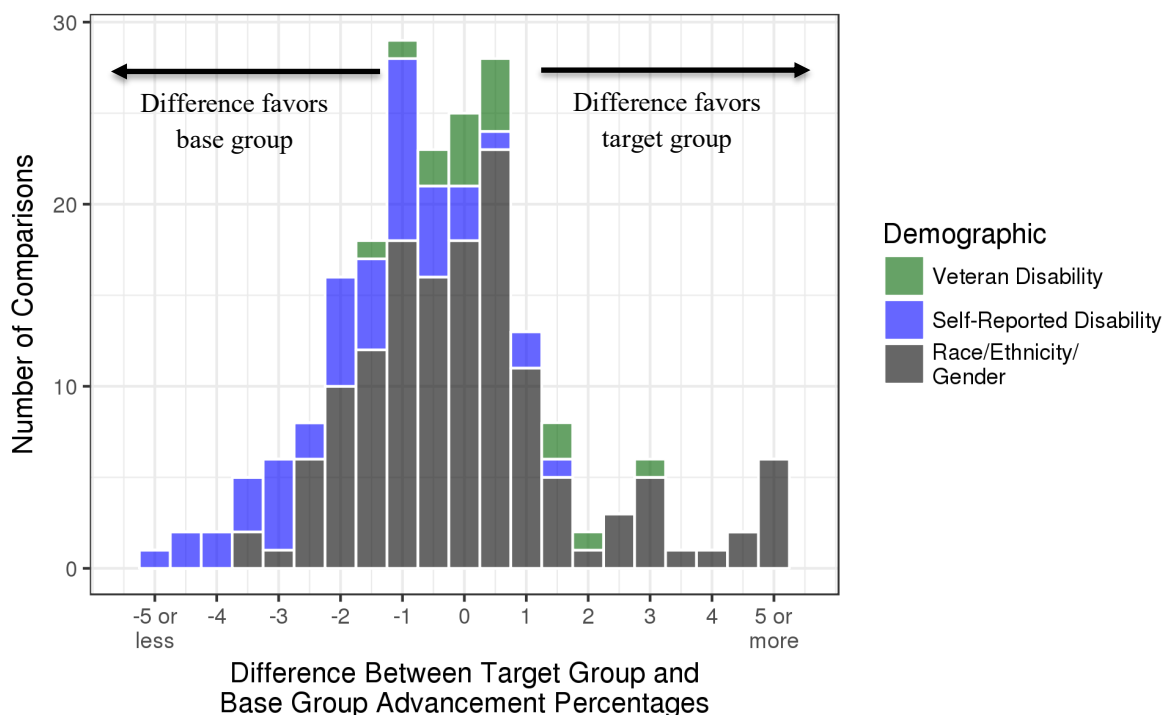
Figure 3.3 shows how base group (i.e., white males, employees with no disabilities, etc.) advancement percentages compare to target group percentages in the form of a histogram, which compares the size of the difference (horizontal axis) to how often the difference occurred (vertical axis). Positive values indicate comparisons where the target group percentage was higher than the base group percentage, while the reverse is true for negative values.

Turning to Figure 3.3 as a whole, nearly all comparisons yielded differences in advancement that were less than 5 percentage points in magnitude, and most points tend to be close to zero, which indicates broad similarity in advancement patterns across demographic groups. However, the tendency for bars to the left of zero to be higher than bars to the right of zero (especially for disability comparisons) indicates that employees from the target groups tend to have slightly lower advancement rates overall. Yet, simple comparisons of advancement rates, such as the ones in Figure 3.3, are insufficient to fully answer the question of whether target group advancement is abnormally low. At least two reasons might explain differences in advancement rates between groups. First, some variation about the 45-degree line would be expected due to random noise, and large chance differences become more likely in small subgroups (such as with persons with targeted disabilities). Second, the employees in different demographic groups might differ in their observed factors in ways that influence their expected advancement likelihoods.

⁵ Most often, employees progress to the next highest grade. However, our advancement rates also include the less-common cases where an employee advances two or more grade levels.

⁶ We also set a minimum sample size of 50 for the target demographic group, which eliminated three of the 208 possible combinations of categories.

Figure 3.3. Advancement Differences Between Target Demographic Groups Compared to Corresponding Base Groups



SOURCE: Authors' calculations from personnel data.

NOTE: The chart shows a total of 205 comparisons, one for each demographic group (race/ethnicity/gender and disability category), grade level (11 through 14), and time period (in five-year intervals from 1995 through 2014).

To counter these potential problems, we conducted doubly robust regression comparisons of advancement percentages, where we compare each target demographic group to a statistically adjusted group of employees from the base group that match their observed factors (which we refer to as the “look-alikes”).⁷ Further, errant conclusions on statistical significance become more likely when conducting a large number of comparisons, so we adjusted the statistical tests to hold the rate of incorrect significance determinations (known as the false discovery rate) at 5 percent⁸ (Benjamini and Hochberg, 1995). The resulting comparisons after these adjustments reveal which groups face abnormally low advancement likelihoods compared to their similarly situated peers.

⁷ To ensure a clean comparison, we corrected for an extensive set of observed factors. We adjusted base group employees to match each target group in the following: years of civilian service, time in current position, potential work experience, retirement eligibility, job series group, location (state level), fiscal year, education level, ranking of education institution, degree field, professional military education completion, total number of different installations, career essential positions, organization types, supervisory positions the employee had worked in, whether the employee received an outstanding performance rating, and the total number and monetary amount of awards received. For race/ethnicity/gender comparisons, we controlled for disability status, and vice versa.

⁸ We applied the false discovery rate correction separately for race/ethnicity/gender comparisons and for disability comparisons.

Most Race/Ethnicity and Gender Comparisons Show No Significant Difference, but Patterns Emerge for Certain Groups

Of the 205 doubly robust advancement comparisons, only 7 percent showed statistically significant differences between employees in the target minority subgroup and those in the base group. An additional 14 percent of comparisons were potentially significant on their own but did not survive the correction for the large number of tests that we conducted, and 79 percent were not significant even before the correction. The conclusion that the visual examination of Figure 3.3 suggests, that advancement patterns tend to be similar across demographic groups, is borne out in this more rigorous analysis.

For the race/ethnicity and gender comparisons, there are still some noteworthy patterns in the differences that were statistically significant, which are listed in Table 3.5. The table depicts the initial unadjusted (i.e., raw) difference from Figure 3.3 and the doubly robust difference in percentage points (with negative values indicating lower advancement rates for racial/ethnic

Table 3.5. Statistically Significant Differences in Advancement Rates for Doubly Robust (DR) Race/Ethnicity/Gender Comparisons (5-Percent Significance Level)

Demographic	Grade Level	FY	Raw Difference (Percentage Points)	DR Difference (Percentage Points)	DR Ratio (Target/Base)
Male					
Black	12	2000–2004	–1.2	–1.8	0.81
	12	2005–2009	–0.7	–1.3	0.83
	12	2010–2014	–1.8	–1.6	0.74
Asian	12	1995–1999	–1.5	–3.5	0.63
	12	2000–2004	–2.7	–3.8	0.61
	12	2010–2014	–0.9	–1.6	0.77
Female					
Black	11	2005–2009	2.7	–4.5	0.76
	11	2010–2014	–1.0	–2.0	0.86
	12	2010–2014	–1.3	–2.0	0.72
	13	2010–2014	–0.3	–2.0	0.58
	14	2010–2014	–1.2	–3.0	0.38
Hispanic	11	1995–1999	0.9	–4.3	0.72
	11	2005–2009	0.2	–6.2	0.65
	12	2000–2004	–2.2	–3.5	0.65
	14	2005–2009	4.5	4.9	2.38
Asian	12	2010–2014	–1.6	–6.0	0.44

SOURCE: Authors' calculations from personnel data.

NOTE: The table depicts the 16 statistically significant race/ethnicity comparisons out of a total of 141 conducted. For each comparison, the demographic group indicated in the first column is compared to white males in the same grade level and FY range. We used the procedure described in Benjamini and Hochberg (1995) to control the false discovery rate at 5 percent within the sets of race/ethnicity and disability comparisons. The p-values were based on the coefficient on an indicator variable for being in the target group (versus the base group) in a weighted logistic regression predicting advancement. See footnote 7 in this chapter for a list of controls included in both the propensity score model and the regression model.

minority and female employees). The last column shows the relative difference in the advancement rates in the form of a ratio to capture the fact that the same difference in percentage points is larger in relative terms in the higher grades where advancement rates are lower. A rate ratio of 0.8 means that the target group's advancement rate is 80 percent as high as the base group rate.

The most consistent cases of low advancement were for black and Asian males at the GS-12 level. Members of these groups were less likely to advance to higher grades in subsequent years in three of the four time periods that we examined. For female employees, there was no single race/ethnicity group and grade level where advancement was relatively low in all time periods, but the most recent time period (2010–2014) showed relatively low advancement for black women in all of the grades we examined.

For the female advancement differences, especially those involving Hispanic women, the doubly robust analysis revealed significant differences where there was not initially a large gap in advancement. For example, the first female row (black female GS-11s from 2005 to 2009) shows a raw difference of 2.7, indicating that the white male advancement rate was lower than the black female rate in this population. The doubly robust comparison flips this conclusion, revealing that advancement for black females was lower than similar white males, despite being higher in the aggregate.

Most Disability Groups Show Similar Likelihood of Advancement to Counterparts Without Disabilities

In the 64 comparisons involving employees with disabilities, none produced statistically significant differences in advancement likelihood at the 5-percent significance level (after the false discovery rate adjustment). This finding means that throughout the extensive amount of data that we examined, we find no significant evidence that employees with different types of self-reported disabilities and veterans with a 30-percent or higher VA disability rating move into higher grades at different rates as their counterparts without disabilities.

At the same time, there are cases where some disability groups advance at lower rates, but the differences are not large enough to be distinguished from statistical noise given the size of the group. For instance, advancement rates for PWTD tend to be slightly lower than rates of employees with no disabilities, but persons with targeted disabilities are a small population, which limits the statistical confidence that can be associated with those disparities. For illustration purposes, Table 3.6 shows differences that would be significant under a relaxed threshold of 10 percent. The most consistent pattern disfavoring employees with disabilities that emerges involves PWTD at the GS-12 level, who were between 2 and 3 percentage points less likely to advance than similar employees who reported no disabilities. This may sound small, but these differences equate to advancement rates for PWTD that are between 47 percent and 65 percent as high as employees with no disabilities.

Table 3.6. Statistically Significant Differences in Advancement Rates for Doubly Robust (DR) Disability Comparisons (10-Percent Significance Level)

Disability Type	Grade Level	FY	Raw Difference (Percentage Points)	DR Difference (Percentage Points)	DR Ratio (Target/Base)
Targeted	12	2000–2004	–3.4	–2.9	0.65
	12	2004–09	–2.8	–2.6	0.60
	12	10–14	–2.9	–2.2	0.59
	13	00–04	–3.5	–3.6	0.47
Other	11	95–99	–3.9	–1.1	0.87

SOURCE: Authors' calculations from personnel data.

NOTE: The table depicts the five statistically significant disability comparisons out of a total of 64 conducted under a 10-percent significance level (Benjamini and Hochberg, 1995). For each comparison, the demographic group indicated in the first column is compared to employees with no disabilities in the same grade level and FY range. The p-values were based on the coefficient on an indicator variable for being in the target group (versus the base group) in a weighted logistic regression predicting advancement. See footnote 7 in this chapter for a list of controls included in both the propensity score model and the regression model.

Demographic Differences in Career Trajectory

The story that has taken shape up to this point reveals that the clustering of racial/ethnic minority and female employees in lower-grade positions is present at entry and strongly relates to human capital differences between groups (somewhat more so for gender). Yet, different demographic groups have similar likelihoods of advancement, with some advancement gaps for black men and women, Asian men, and Hispanic women. This section seeks to understand the implications of these patterns for the differences in career trajectories for different demographic groups.

As discussed in Chapter 2, we examine career trajectories under the methodological framework of multilevel growth modeling, where the goal is to understand the relationship between grade level and years of service (YOS) for each demographic group. In this relationship, grade at entry is represented by grade levels at zero YOS, and differences in advancement are captured in the rate at which grade levels increase over time (i.e., growth). Further, we include other information about employees that is relevant to career trajectories, such as job series families, veteran statuses, education levels, and measures of cumulative experience and performance.⁹ This analysis also focuses on the leadership grades of 11 through SES.¹⁰

⁹ The model results presented in this chapter specify YOS as a quadratic polynomial. The model estimates separate polynomials for race/ethnicity/gender groups, self-reported disability categories, veteran statuses (separately by VA disability status), and job series families. The model also includes fixed effects for state and cohort, as well as controls for age at entry, education level, ranking of education institution, degree field, professional military education completion, number of awards, as well as the dollar amount and time-off amounts associated with awards received (an indicator for outstanding performance ratings) and the number of different locations, organizations, career-broadening positions, career essential positions, and supervisory positions the employee has held.

¹⁰ We explored growth models that included all grade levels to more fully capture the demographic patterns in the entire GS workforce. The models discussed are appropriate for patterns in grades 11 and above. Patterns of advancement in grades 6 through 10 differ markedly from those of higher grades, and a different model specification would be needed. For efficiency, and because interest lies in understanding pathways to senior leadership, we focus here on employees in the leadership grades as a stand-alone population.

This analysis is descriptive in nature and seeks to examine the general differences in career trajectories across demographic groups, conditional on a set of basic controls for human capital and experience levels. There are factors that relate to advancement that the growth models do not account for, which means that these results do not assess the causal effect of demographics on advancement trajectories. Further, the demographic differences could vary if we were to examine different subsets of the workforce in isolation (such as particular occupations or mission areas). A systematic examination of how the overall demographic patterns vary across relevant subpopulations was beyond the scope of the current effort but would be worthwhile to examine in future work. Instead, the reader should interpret these demographic differences as a general description of the ways in which career progression has differed by demographic group throughout the period covered by the personnel data.

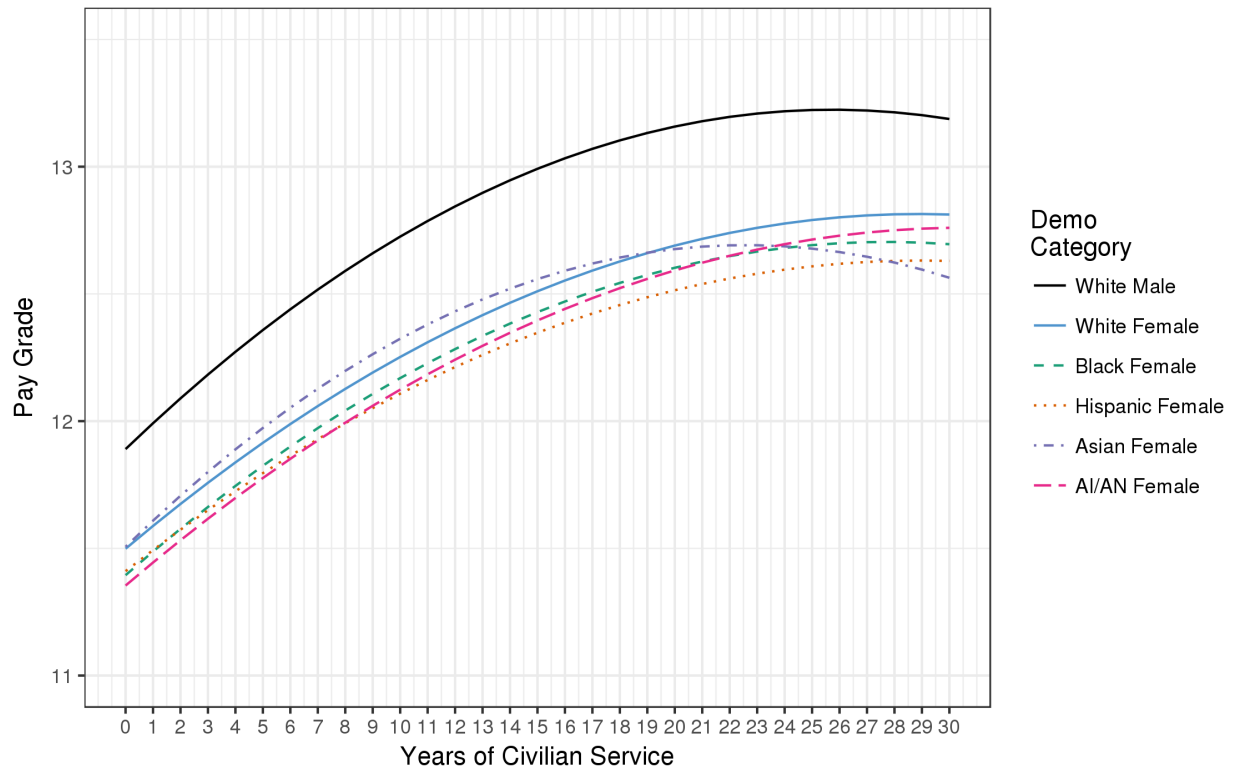
Starting in Lower Grades Limits Senior-Level Attainment for Women

The growth model includes many observed factors, several of which vary over the course of a career. The easiest way to interpret the demographic differences in career trajectories, then, is to show predicted relationships with all other observed factors fixed. Figure 3.4 presents predicted career trajectories for female nonveterans in each race/ethnicity group compared to white male nonveterans, with other factors fixed at either their average level (for continuous values, such as number of awards) or at their most common category. These curves represent the demographic differences in career trajectories, net of all other observed factors that the model includes. Thus, though the shapes of the trajectories vary depending on job series and veteran status, for example, the relative positions of the race/ethnicity/gender curves would be the same for any set of fixed observed factors. The gaps between the white male line and others at zero YOS reflect the entry difference (ranging from 0.4 to 0.5 grade levels).¹¹ Conditional on the entry grade, however, the increase in grade levels over the course of a career is similar across groups. Only Asian females exhibit a noticeable dip in grade levels relative to white males, which appears roughly between 20 and 30 YOS.¹²

¹¹ These differences at entry differ from the entry grade analysis for two reasons. First, as discussed in Chapter 2, there is less detail in how the observed factors are incorporated into the multilevel growth model. Additionally, this analysis focuses on grades 11 and above. We use these estimates to think holistically about the full trajectory of these leadership grades, but the reader should rely on the decomposition analyses for a more precise understanding of the grade differences at entry.

¹² One potential contributor to the lower grades of Asian women in higher YOS that needs to be acknowledged could be differential attrition. This pattern could be produced either by lower advancement in this range or differential attrition (e.g., through retirement patterns) in a way that relates to advancement. See the quantitative methodology discussion in Chapter 2 for further information on the potential impact of attrition.

Figure 3.4. Predicted Grade Level Versus Years of Service for GS-11 and Above Employees, by Race/Ethnicity and Gender



SOURCE: Authors' calculations from personnel data.

NOTE: Lines represent predicted grades for nonveterans with the following observed factors: no disabilities, a bachelor's degree in a business field from a low-ranking institution, working in general administration job series, located in Ohio, and entered the workforce in 2010. Other variables are set to their average levels.

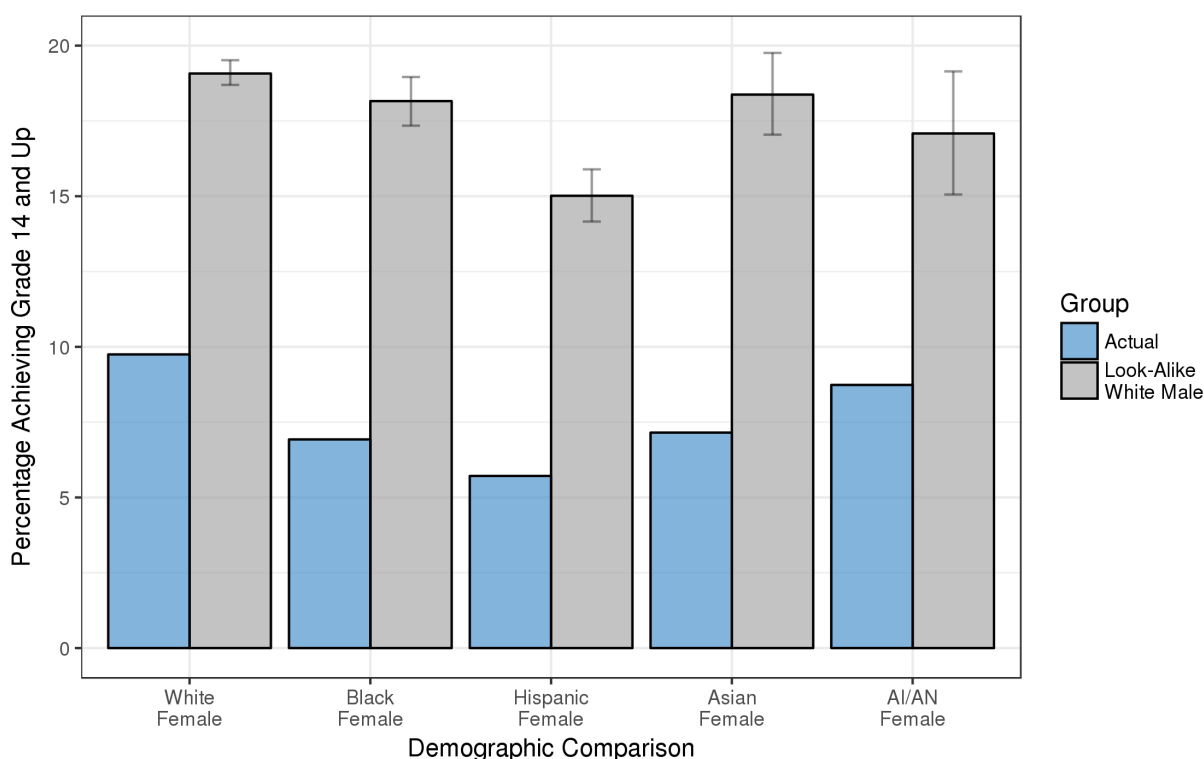
So-called growth curves such as those plotted in Figure 3.4 are a useful summary measure that place the modeling results in line with the other quantitative findings. Across the multitude of careers that played out in our data set, grade disparities exist at entry and persist across the range of YOS, but female rates of advancement are generally similar to those of men. A key remaining question is: What is the impact of these differences on senior-level attainment?

To examine this question, we conducted another look-alike comparison. This time, we kept the most recent observation for each woman in the data set to represent her point of maximum grade achievement.¹³ Then, we compared the percentage of women who had reached the senior level, defined as grades 14 and above, to what the percentage would have been if each woman's

¹³ By keeping the most recent grade level for each woman and calculating the counterfactual grade level under the male trajectory, differences in attrition (which might cause earlier departures for women relative to men) are not directly contributing to the differences in actual versus look-alike grade-level attainment. Attrition bias could, however, affect the model estimates that underlie the predictions (see Chapter 2).

career had followed the white male starting point and trajectory.¹⁴ The results in Figure 3.5 show that the impact is substantial. The percentage of look-alikes reaching the senior level is 8.3 to 11.2 percentage points higher than the actual percentage for women across the comparisons, which would be enough to more than double the proportion of black, Hispanic, and Asian women who ultimately become senior leaders. This finding suggests that the tendency for women to begin in lower grades than similar men significantly limits the number of women available to fill senior leadership positions.¹⁵

Figure 3.5. Percentage of Women Who Reach Grade 14 or Higher in Latest Available Observation, by Race/Ethnicity



SOURCE: Authors' calculations from personnel data.

NOTE: Percentages reflect predictions from the most recent observation available for each employee in the data set. Look-alike predictions are predictions for each group, but with their race/ethnicity/gender category changed to white male. Predicted grade levels of 13.5 or higher were considered to have attained grade 14, which caused the predictions to line up well with empirical grade levels. Predictions include the best linear unbiased predictions of the random intercept and slope components. Error bars represent 95 percent confidence intervals.

¹⁴ An additional advantage of these predictions over those in the previous figure is that they factor in all of the female employees' observable characteristics, in addition to their estimated random slope and intercept components.

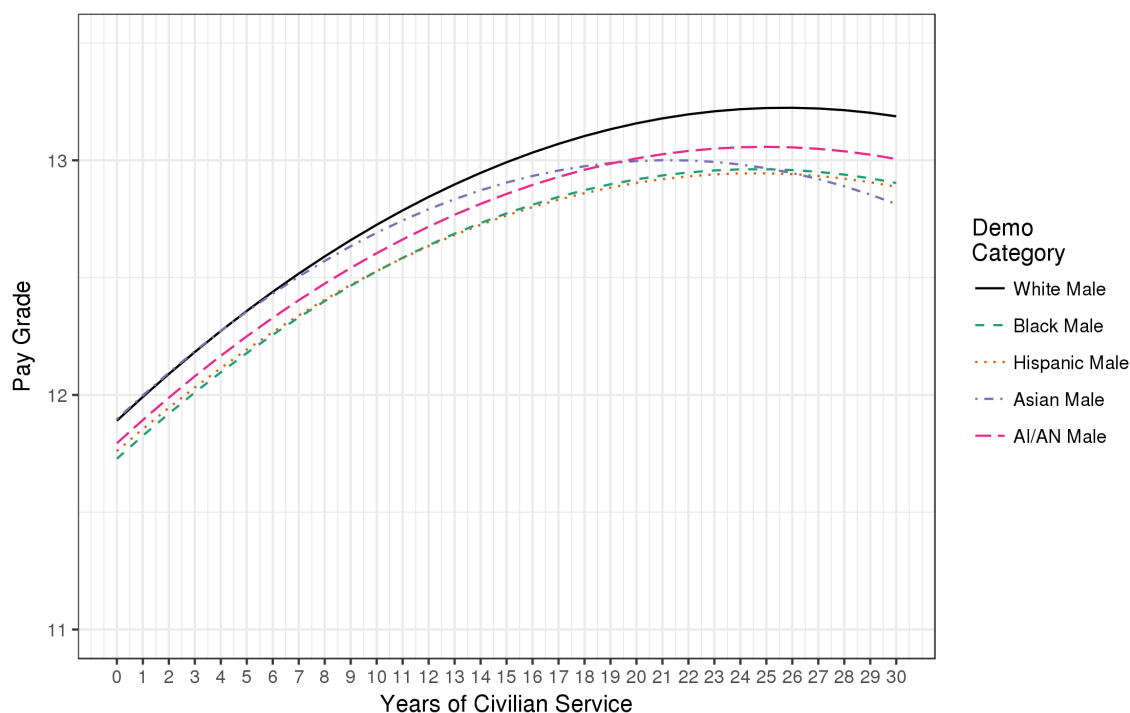
¹⁵ Additionally, it is worth remembering that the look-alike predictions in Figure 3.5 change nothing else about the women besides their race/ethnicity and gender. In reality, increasing advancement likely opens up other opportunities that are correlated with grade level, such as professional military education. If other factors were taken into account, the gap between predictions for women versus their look-alikes would likely increase.

The differences in Figure 3.6 are descriptive “what-if scenarios” that illustrate the model results. The results show that enduring differences at entry will limit the number of women available for senior leadership, even when advancement rates are similar across groups. The gender differences in trajectories would potentially shrink depending on how precisely we account for the observed factors (e.g., controlling for job families permits a great deal of unaccounted-for variation in job series). The goal of this portion of the advancement analysis was not to explain away the gender differences, but to illustrate the current impact of the actual patterns in the civilian careers observed in the data.

Grade Trajectories Are More Similar Among Men of Different Races/Ethnicities

Within genders, the descriptive growth curves are similar for different racial/ethnic groups. This is true when comparing the bundle of female growth curves in Figure 3.4, as well as for the corresponding picture for men, shown in Figure 3.6. For all groups except for Asian men, there is a small gap in grade levels at zero YOS, followed by a slight widening of the initial gap over time. For Asian men, the growth model estimates an identical starting point with a slower rate of advancement after about eight YOS.

Figure 3.6. Predicted Grade Level Versus Years of Service for Male GS-11 and Above Employees, by Race/Ethnicity

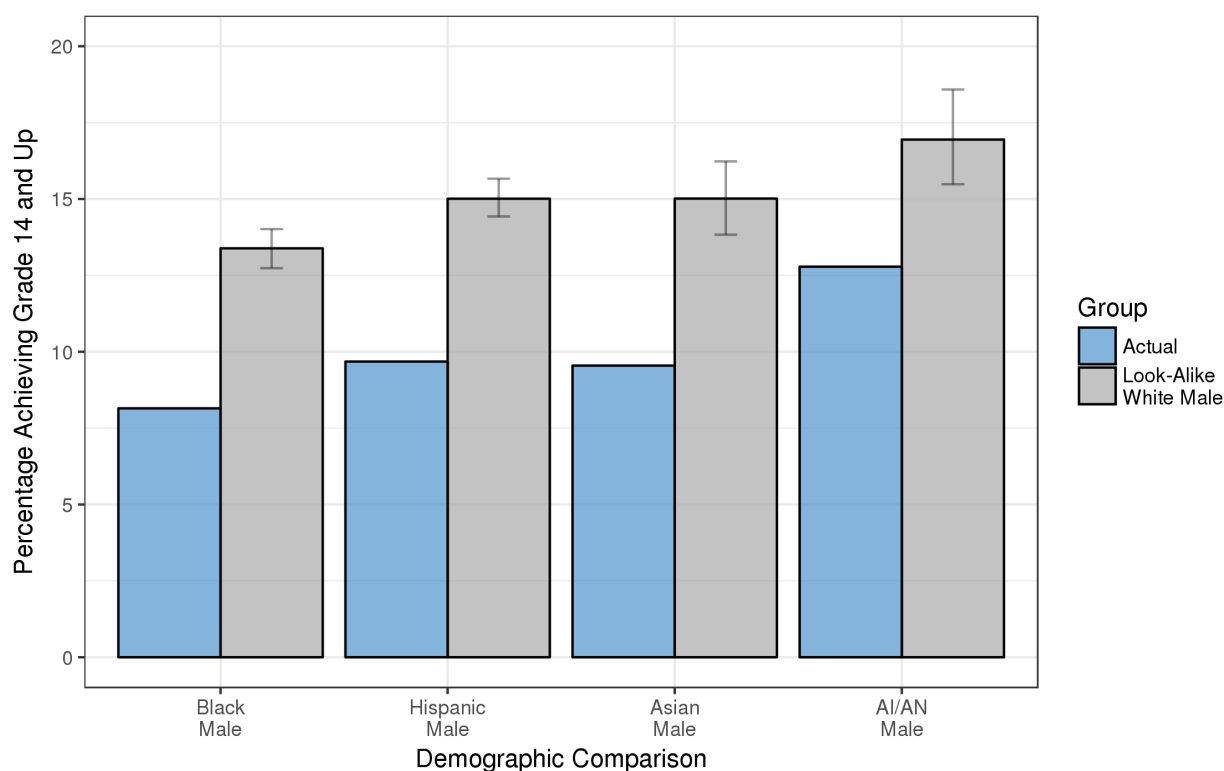


SOURCE: Authors' calculations from personnel data.

NOTE: Lines represent predicted grades for nonveterans with the following observed factors: no disabilities, a bachelor's degree in a business field from a low-ranking institution, working in general administration job series, located in Ohio, and entered the workforce in 2010. Other variables are set to their average levels. The gray borders represent 95-percent confidence intervals.

Since trajectories are more similar among men of different race/ethnicity groups, the impact on the percentage reaching grade 14 or higher (Figure 3.7) is smaller than the corresponding case for women. The differences in percentages range from 4.2 points for AI/AN men to 5.4 points for Hispanic and Asian men. The smaller differences in both grade trajectory and predicted senior-level attainment accord with previous findings in suggesting that careers among men of different races/ethnicities have been more similar. Still, the findings continue to highlight lower advancement for Asian men in particular as an area warranting further investigation, as the impact in Figure 3.7 is entirely an effect of lower advancement (see Figure 3.6).

Figure 3.7. Predicted Percentage of Men Who Reach Grade 14 or Higher in Latest Available Observation, by Race/Ethnicity



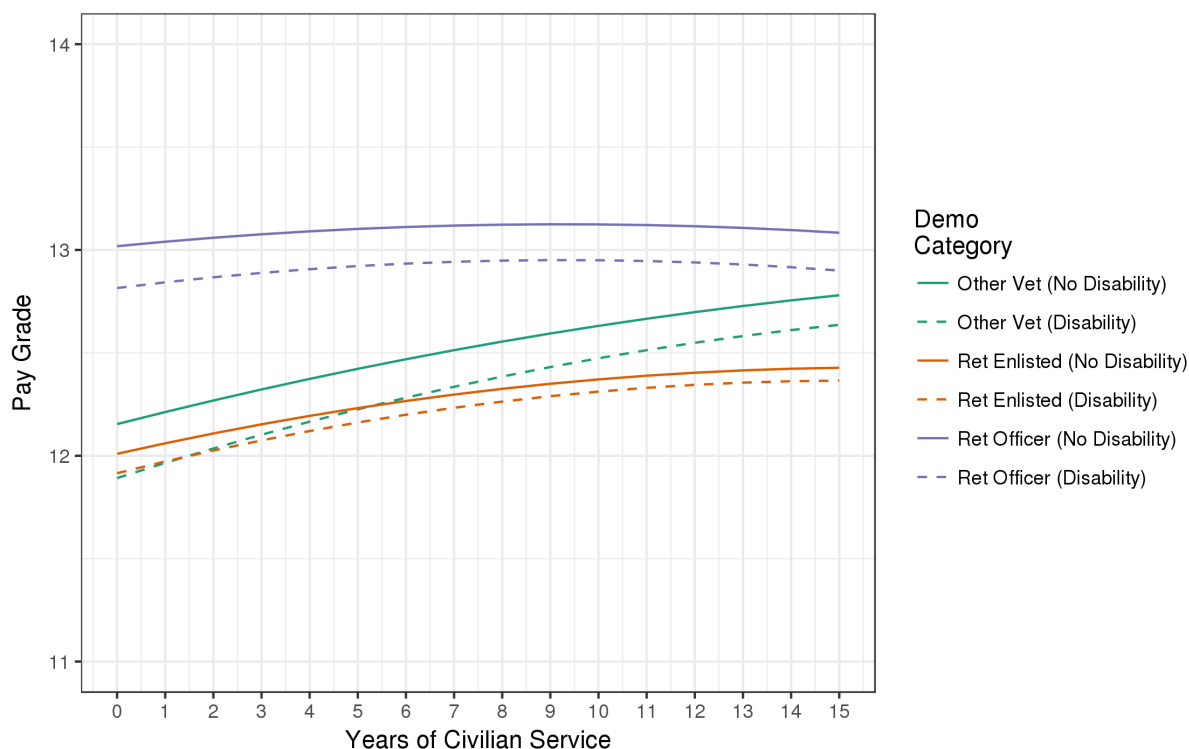
SOURCE: Authors' calculations from personnel data.

NOTE: Percentages reflect predictions from the most recent observation available for each employee in the data set. Look-alike predictions are predictions for each group, but with their race/ethnicity/gender category changed to white male. Predicted grade levels of 13.5 or higher were considered to have attained grade 14, which caused the predictions to line up well with empirical grade levels. Predictions include the best linear unbiased predictions of the random intercept and slope components. Error bars represent 95-percent confidence intervals.

There Are No Strong Differences in Trajectories by Self-Reported Disability Status, but Veterans with Disabilities Appear to Enter at Slightly Lower Grades

Results from the growth model show very little difference in grade trajectory across different self-reported disability categories, but veterans with at least a 30-percent VA disability rating tend to be in slightly lower grades than their counterparts without disabilities (Figure 3.8). First,

Figure 3.8. Predicted Grade Level Versus Years of Service for GS-11 and Above Veterans, by Disability Status



SOURCE: Authors' calculations from personnel data.

NOTE: Lines represent predicted grades for veterans with the following observed factors: white male, no disabilities, a bachelor's degree in a business field from a low-ranking institution, working in general administration job series, located in Ohio, and entered the workforce in 2010. Other variables are set to their average levels.

the predictions for different types of veterans illustrate the career differences between them. Retired officers enter at much higher levels than other veterans but show very little advancement on average. Retired enlisted members and other veterans enter at lower grades, but their grades increase more over time than retired officers (though the retired enlisted trajectories are significantly flatter than the trajectories for other veterans). Comparing veterans of each type without disabilities (shown in solid lines in Figure 3.8) to those with disabilities (shown in dashed lines) reveals similar trajectories with differences at zero YOS that are slightly smaller than the race/ethnicity differences among men.¹⁶

Both the lack of strong differences between self-reported disability categories and the differences between veterans with and without disabilities accord with the previous sections. The entry grade analysis and the multilevel growth model show similar trajectories across self-reported disability categories and a slight disadvantage for veterans with 30-percent

¹⁶ For example, the differences in estimated intercepts for other veterans, retired enlisted, and retired officers with/without disabilities were 0.14, 0.06, and 0.19, respectively, while the difference between white and black males was 0.22.

disability ratings. Additionally, both the doubly robust regression analysis and the multilevel growth model analyses indicate very few differences in advancement along disability lines (for either self-reported disability categories or veterans with 30-percent VA disability ratings).

Summary of Quantitative Findings

The careers of Air Force civilians from FY 1994 through FY 2016 reveal several insights about the potential barriers facing women, racial/ethnic minorities, and employees with disabilities. First, there are demographic differences when employees begin their civilian careers that appear to relate to human capital differences across groups. The largest differences in entry grade are between men and women, with smaller gaps for certain races/ethnicities and disability categories that do not relate as strongly to the observed factors in the data. Advancement rates of women, racial/ethnic minorities, and employees with disabilities are generally similar, with some unexplained gaps (most of which affect racial/ethnic minority men and racial/ethnic minority women at certain grade levels). Finally, demographic differences in career trajectories appear to have significantly limited the proportion of women available for senior leadership, while differences are smaller for racial/ethnic minority men and employees with disabilities.

Focus Group and Interview Findings

In this section, we describe the key themes that emerged from our focus groups and interviews with Air Force civilians regarding their perceptions of potential barriers to advancement. Our findings focus on seven areas related to advancement: (1) interest in advancement, (2) feedback received, (3) mentorship, (4) career development support, (5) awareness of promotion opportunities, (6) key promotion factors, and (7) the extent to which participants felt they had an equal opportunity for advancement. Where relevant, we also note any differences based on demographic groups and disability status.

Interest in Advancement

We asked focus group and interview participants to what extent they were interested in advancing to a higher pay grade. Most participants expressed high interest in promotion opportunities, with 91 percent of focus groups discussing positive interest in advancement and just 48 percent of focus groups discussing a lack of interest in advancement. The motivations for this interest included the increased pay that comes with advancement, opportunities to continue career development, and a desire to be in a position to effect change or have a greater impact. In terms of demographics, focus groups with racial/ethnic minority civilians were less likely to discuss a lack of interest in advancement compared to focus groups with white civilians: 61 percent of focus groups with white civilians had at least one participant express a lack of interest in advancement compared to just 35 percent of focus groups with racial/ethnic minority civilians.

While most participants did express a desire for advancement, interest in supervisory or senior leadership positions was varied. Some participants offered reasons for their hesitation to pursue supervisory or senior leadership positions: increased levels of responsibility, additional work hours and stress, and not wanting to move out of the technical aspects of their work to manage people. However, other participants did note a strong desire for senior leadership in the Air Force.

Despite interest in advancement, many participants cited a lack of promotion opportunities in response to this question, an issue raised in 48 percent of focus groups. Participants mentioned limited positions at higher grades, resulting in their feeling as if they were “hitting a ceiling” at a certain pay grade. Structural issues within certain career fields were also raised as inhibiting promotion opportunities, for example:

It’s an impossibility, the way the system is in my career field. It is practically impossible to even get to 12. . . . There are higher positions, but they generally start at 13; they’re MAJCOM positions. The way the system is you have to be a 12 before you’re a 13. Since the next position is a 13, it’s like they blew up the bridge. You can’t get a 12 to get to a 13.

Additionally, a small number of racial/ethnic minority participants noted that promotion opportunities were lacking because they did not see Air Force civilians that “looked like them” in higher-level positions, leading to perceptions of their inability to be promoted to higher levels. For example:

I do [think about advancement], but not in my organization. I don’t believe it’s possible for me. I don’t see people of color advance. I don’t see it where I am.

Despite most participants expressing interest in advancement, some participants were not seeking promotion opportunities at any level. Reasons cited for this lack of interest in advancement included not wanting to relocate to get a promotion, wanting to focus on life outside of work and not increase responsibilities or workload, and not wanting to engage in the perceived increased bureaucracy or politics in the higher grades. For example:

I’m probably not [interested in advancement] because it would almost certainly mean a move, and my wife’s tired of moving. I work with our program office, and there are a lot of folks here who are retired active duty, and they don’t want to move anymore.

Another participant commented:

At GS-14 and GS-15, it gets a little too political. . . . I want to stay and help the people around me rather than get too political.

Additionally, a few participants commented that they had been interested in advancement earlier in their careers but after many failed attempts, they were frustrated and had given up seeking promotion opportunities. For example:

Until recently, I was very open to it. I was seeking it. But after 15 years of not getting any traction, I decided to settle in this area. I went to the point of selling my house so I was mobile, but nothing panned out.

Feedback Received

A long history of management research has shown that performance feedback about organizational members (people who work or participate in an organization) informs organizational learning and performance (Fang, Kim, and Milliken, 2014). Feedback can be delivered through processes ranging from formal appraisal systems, like annual performance reviews, to informal communication between supervisors and subordinates. While annual performance reviews can be useful benchmarking tools about performance across an organization, informal supervisor-subordinate communication is a critical way to provide useful, timely feedback to employees about their job performance. Seeking feedback is also an important way for employees to obtain information about their work and related organizational topics, such as training or advancement opportunities (Lam et al., 2015).

Therefore, we asked focus group and interview participants about the quality and amount of feedback they had received about their career path and career potential as Air Force civilians. Overall, participants most frequently reported that they had found feedback to be lacking in both quality and amount provided, with 68 percent of focus groups discussing how feedback is lacking or limited. Many participants commented that feedback is either not provided or is extremely limited, and that feedback they had received was not constructive or helpful to them. One participant commented:

I receive zero feedback. I have zero conversations with my supervisor regarding that.

Many participants mentioned a perception that supervisors do not feel a responsibility to provide feedback to their staff or may not be able to balance providing feedback with the workload of their job duties. For example, as another participant commented:

My supervisor told me that he needed me to give him my bullets for my evaluation. I went for feedback and he said, "Oh no, I'm just going to put what you wrote in there."

Some participants had mixed experiences with feedback over their careers. Specifically, participants noted that their experiences with feedback were very dependent on their individual supervisors and had varied over their careers as their supervisors had changed. For example, one participant commented:

As a civilian, it's very correlated to the type of supervisor you have. If the supervisor is interested or has some commonalities, they'll offer more feedback. My first supervisor had a certain personality and only gravitated to certain folks. I know they received feedback and got new assignments to headquarters. In my case, I was kind of left out.

Consistent with these experiences, previous research has shown that supervisor-subordinate relationship quality affects how feedback interactions occur (Beenen, Pichler, and Levy, 2017; Levy, Cober and Miller, 2002).

Additionally, a few participants commented that military supervisors were particularly problematic in terms of providing feedback. There is a perception that military supervisors do not adequately understand the Air Force civilian system or culture to provide appropriate feedback, have no incentive to provide feedback to civilians, and instead prioritize other military members and rotate frequently, so they are not invested in providing feedback to help civilians' careers. For example, one participant stated:

It's the military culture and the military view of GS and their view of the civilian world. Maybe it's that they don't know what they are supposed to be doing in terms of scoring, career broadening, and career counseling. The military supervisors are unprepared to deal with civilians.

Participants also pointed out that they felt as though they had to seek out feedback from supervisors in order to receive any. Participants perceived that many supervisors believe it is employees' responsibility to ask for feedback rather than provide it on a regular basis unprompted. One participant commented, "Unfortunately, you have to be very aggressive in seeking feedback."

A few participants also noted that they had received more feedback earlier in their careers, but that it had tapered off as they advanced in their careers. These participants expressed a desire for consistent feedback throughout their careers, even as they become more senior. Participants also commented that the feedback that they had received was much more focused on job performance than on their broader career path and advancement, an area they found lacking. For example, two participants commented as follows:

I get feedback routinely on my job performance. But my senior leadership is not equipped to give me feedback on advancing. I'm not sure if they're not equipped or if they choose not to. When I ask about training and advancement, they act like they don't know. And when I press them, they act like they are too busy to give me that information.

I can't say that I get a lot of feedback on my specific career goals. They'll say, "Oh, yeah, you're doing great," and then kind of move on. I'd prefer more concrete feedback.

Finally, while most participants reported receiving limited or no feedback, a few participants did have positive feedback experiences, with at least one participant in 32 percent of focus groups citing positive experiences. These participants had received feedback from their supervisors that they found to be beneficial and that helped prepare them for advancement. Types of helpful feedback mentioned included information about career path and career development resources available. For example, according to two participants:

I've had great supervisors who provided great feedback on things you may want to do, based on their understanding of my career. I've never had an issue at all.

The amount is immense and the quality [of feedback] is great. If you want to progress, it's clear.

Of note, even some participants who referenced positive feedback experiences expressed a desire to receive more feedback in the future.

Mentorship

There is broad academic literature on the impact of mentorship on career advancement, with the literature demonstrating that mentors play a crucial role in career development and can increase the knowledge, skills, and self-esteem of their protégés. Mentorship has been studied for decades in the career advancement literature and has consistently been linked with positive career outcomes such as salary, promotion rates, and job satisfaction (Allen et al., 2004). Mentors guide the careers of their protégés by giving advice, teaching valuable skills, and providing encouragement. Furthermore, mentors often are aware of opportunities such as promotions, professional development, or programs to increase skills. Protégés can be informed about these opportunities from their mentors and use them to achieve greater success (Scandura and Williams, 2001).

Mentorship relationships can take many forms. They can be formalized, where organizations assign a mentor to one or more new or less experienced employees (de Janasz, Sullivan, and Whiting, 2003). Typically, though, mentorship relationships are informal, forming over time where the mentors develop a vested interest in the career of their protégés. Both informal and formal mentors can support their protégés, but in different ways. Allen et al. (2004) found that formal mentors tend to focus more on giving vocational support, being role models, and providing protégés with information about how to advance within their organization. Informal mentors provide both vocational support and more psychosocial mentoring than formal mentors (Day and Allen, 2004). Psychosocial mentoring, which is comprised of emotional support, counseling, and acts of friendship, benefits protégés by improving self-efficacy, work motivation, and job satisfaction (Craig et al., 2013). While there is no definitive answer on which type of mentoring is more effective for attaining career success, the literature is clear that any mentoring is superior to not receiving mentoring at all (Allen et al., 2004; Singh, Ragins, and Tharenou, 2009). Both informal and formal mentoring provide great benefits for protégés and are invaluable to career advancement.

Given the importance of mentorship for advancement, we asked focus group and interview participants about their experiences with mentorship throughout their Air Force civilian careers. Similar to experiences with feedback, many participants across half of all focus groups described their experiences with mentorship as lacking, with some having not received any mentorship during their civilian careers. Discussions of limited or lacking mentorship were prevalent in focus groups with men. Sixty percent of focus groups with men noted this experience compared to 38 percent of focus groups with women. Similarly, at least one participant in 64 percent of focus groups for veterans with disabilities described this experience. Participants mentioned feeling as if they are on their own and without mentorship or career

guidance, and that civilians were not invested in providing mentorship to others. Three participants commented as follows:

I've felt that more often than not, we were kind of left to the wolves to figure out our own way along. I still don't think the Air Force has a good mentoring program.

I haven't been on the recipient end, and I see no mentoring or what you need to do to get to the next position or what is open.

Mentoring for advancement—it's nonexistent.

Some veterans who participated in focus groups or interviews mentioned that the deliberate structure for mentoring they saw on active duty does not exist for civilians and is lacking on the civilian side. Additionally, some participants see others receiving mentorship but had not found that experience for themselves. For example, a Hispanic woman commented:

The last supervisor I had told me flat out there was no place for me to advance. Then she turned around three weeks later and said there is training available and I want to train someone who I can mentor and who reminds me of me when I was young.

For those participants who had received mentorship, informal mentorship was much more prevalent than formal mentorship. When asked about mentorship, 41 percent of focus groups had at least one participant note experiences with informal mentorship, while just 24 percent of focus groups described experiences with formal mentorship. Participants reported that informal mentorship occurred much more organically than formal mentorship, often through on-the-job interactions or conversations. Informal mentorship included interactions with supervisors at times, but also with peers, in some cases in an attempt to make up for the lack of formal mentors. For example:

There are a handful of black employees at my organization who feel what I feel. I organize them, and we have monthly luncheons to share ideas and talk about training and suggest trainings and other opportunities to one another. It's very informal, but we felt the need to do that because of the lack of formal mentorship.

A few participants reported having received formal mentorship but had mixed experiences with this type of mentorship. In terms of gender, 34 percent of female focus groups and 15 percent of male focus groups had at least one participant who noted experiences receiving formal mentorship. Examining the focus groups by race/ethnicity, 35 percent of focus groups with whites and 19 percent of focus groups with racial/ethnicity minorities mentioned receiving formal mentorship. Of note, no individuals with disabilities we spoke with had experience with formal mentorship. Participants commented that formal mentorship can feel forced, and that the mentor-mentee relationship is often not a good match when it is formally assigned. A few participants with formal mentors noted that they also seek out informal mentorship, as it was seen as beneficial to have both.

Similar to experiences with feedback, participants noted that they have to proactively seek out mentorship. They also mentioned a perception that there are not enough people willing to mentor others. As one participant commented:

There is a lack of people willing to step up to be mentors. That's something you end up having to do on your own when you have supervisors who do not want to mentor.

Additionally, participants noted that experiences with mentorship can vary over the course of their careers. For instance, programs such as PALACE Acquire¹⁷ were mentioned as having provided useful mentorship earlier in some participants' careers, although this type of mentorship may not have remained consistent throughout their careers.

Experiences with MyVECTOR

In addition to experiences with mentorship more broadly, we asked focus group and interview participants about MyVECTOR, the Air Force's web-based tool that allows personnel to request and engage with a mentor. Participants reported varied exposure to MyVECTOR. Some participants had never heard of it and did not know it existed or its purpose. The 29 percent of focus groups that discussed MyVECTOR had at least one participant with this experience. Other participants were aware of MyVECTOR but had not used it, which was mentioned in 57 percent of focus groups that discussed MyVECTOR. Reasons cited for not using MyVECTOR included not thinking it would be a useful tool, hearing negative feedback from peers who had used the system, not being encouraged by supervisors to use the system, technical issues accessing MyVECTOR, or simply not taking the initiative to use it. For example, according to two participants:

It's eye candy. The result is still the same—there's no career growth opportunity there.

I looked at it. But a whipped dog cowers from the hand after a while. My supervisor sort of said, "Oh, you don't need that; you're not looking to move up."

Only 52 percent of focus groups that discussed MyVECTOR included at least one participant who had used this resource. For those participants who have used MyVECTOR, feedback on its usefulness was mixed, although mostly negative. Participants reported that they have had limited success connecting with mentors through the system, and the formal nature of MyVECTOR

¹⁷ The PALACE Acquire program is part of the Air Force's Pathways program for recent graduates from qualifying educational institutions and programs. It "offers permanent full-time positions in a wide range of occupations following a 2- to 4-year period with a formal training plan. . . . Upon successful completion of the formal training plan, the PALACE Acquire Program offers a permanent position at AFCS" (U.S. Air Force Civilian Service, "Be Amazing," Students and Careers landing page, n.d.).

made it difficult to find a mentor who is a good fit. Some participants also noted the online nature of the system could be awkward and made it harder to build relationships. For example:

I actually did a MyVECTOR request for a mentor, but it was very cumbersome and apparently maybe the mentors are instructed to communicate only through MyVECTOR, because I tried to take it offline and email and they didn't seem interested in it.

Some participants also mentioned problems with the technical aspects of MyVECTOR, describing difficulties in navigating the tool and problems with the system often being down, making use more challenging. A few female participants also commented that they perceived a lack of female mentors participating in MyVECTOR:

I would like to see more women. I've mainly seen men. . . . If I had my wish, I would wish that more women would sign up for MyVECTOR and know that it's available. . . . It's just an observation that not too many women are signing up as mentors.

Despite these experiences with MyVECTOR, a few participants did report positive mentorship outcomes from using MyVECTOR. For example:

I did utilize the system and made some connections there. It is useful for people out in the field, allowing them to reach out and connect with others. It may be more of a sterile way to connect with a mentor than you want, so I don't know if it's really the best way to go about developing a mentor-mentee relationship, but it's certainly a way for someone unable to access [a mentor] through traditional means. I do think it's useful.

Of note, a greater percentage of focus groups with women than with men had at least one participant who had used MyVECTOR. Similarly, a greater percentage of focus groups with racial/ethnic minorities than with whites had at least one participant noting use of this resource. There are well-studied advantages to creating a social network and acquiring a mentor, but developing these relationships can be challenging for women and racial/ethnic minorities, which may explain why women and racial/ethnic minorities were seeking these relationships through MyVECTOR more often than majority groups. For example, O'Neill and Blake-Beard (2002) discussed that women may have a more difficult time developing mentor-protégé relationships with male mentors, in part because male mentors tend to prefer advising male protégés. However, men have less trouble with developing mentor-protégé relationships with female mentors. Furthermore, research has also shown that male mentors are more effective in providing their protégés with the resources and career support needed for career advancement (Forret and Dougherty, 2004; Ramaswami et al., 2010). Male mentors might have better access to influential social networks that can benefit their protégés. Racial/ethnic minorities also experience challenges with finding suitable mentors, as the career advancement literature finds that racial/ethnic minorities tend to be less satisfied with their mentorship experiences and do not receive as many career benefits from them (James, 2000; Ensher, Thomas, and Murphy, 2001).

James (2000) found that racial/ethnic minorities have fewer close relationships with their mentors and thus may not be able to connect with them. However, Kalev, Dobbin, and Kelly (2006) found that formal mentoring programs were effective in helping the career advancement of women and racial/ethnic minorities because they were able to connect with influential members of the organization. Without these formal programs, women and racial/ethnic minorities may not have been able to make these important connections. It is important to note that despite prior research showing there can be difficulties for women to obtain mentorship, our focus group and interview findings showed that women were slightly more likely than men to have a formal mentor in the Air Force.

Career Development Support

Academic literature emphasizes the use and importance of career development support as it relates to employees' career success. Employees enter organizations with previous experiences that help advance their careers, but organizations can provide opportunities to facilitate their career success. Organizations use formal and informal training and development programs to improve their employees' job skills and prepare employees for higher positions (Allen et al., 2004). In general, employees who participate in training and development programs provided by their organizations tend to achieve greater success than those who do not (Seibert, Kraimer, and Liden, 2001; Ng et al., 2005; Maurer and Chapman, 2013). Training and development programs help improve employees' skills, which can greatly benefit their careers as well as aid the organization in achieving its goals (Eby, Butts, and Lockwood, 2003).

When we asked focus group and interview participants about the career development support they received from the Air Force, they reported mixed experiences with development resources. Many participants commented that access to resources was limited due to a number of factors, with 47 percent of focus groups that discussed career development resources including at least one participant who noted limitations. For example, budget limitations can restrict access to opportunities for career development. Additionally, limited seats are available for certain opportunities, and participants said that being selected can be quite competitive. There is also a perception that military members have priority for some of these opportunities over civilians. Two participants commented as follows:

It's more budgetary. Our limitations are due to the Air Force not having the money to send the civilians to seminars, et cetera. I've applied to go to meetings . . . and have been turned down because there is no money for civilians. That's frustrating, and I made those decisions when I was a deputy commander, so I know where they are coming from.

As an Air Force enterprise, though, [resources are] really just eye candy—seating for these courses is limited. You're competing against all Air Force personnel to get a spot, and active duty get first entry. They need to expand course size or offer more opportunities for civilians to make it accessible.

Another aspect of the competitive process for career development opportunities that participants mentioned was the lack of transparency surrounding some selection decisions for training opportunities. Participants were often unclear how selection decisions were made and how they could make themselves more competitive. A few participants mentioned needing a senior leader to advocate for an employee in order to be selected. For example, according to two participants:

We have some external opportunities for conferences, but we have to submit our name, and how people get selected . . . and why [is vague].

[There are] lots of Career Development Education [courses], and you can apply. For me, I've been through several, and to be honest, the only way I got it, I had a peer coach and management mentor and executive sponsor every time. Otherwise the likelihood of getting into those programs [is] slim to none. Someone has to help make the deal.

Some participants also noted that it was difficult to participate in career development activities because of the workload demands of their jobs, and some even felt they were penalized for being away from their job. For example, as one participant stated:

There are tools but they're difficult because they require time away from duty. And the focus is on performance . . . any time away will penalize you. So it's easier to meet standards now than to try to do something else.

A few participants also commented that while career development opportunities are available, they are often geared toward certain pay grades, and there are gaps at some levels where resources are limited. For example:

We do a good job of training new employees, and when they go to upper management there are AFIT [Air Force Institute of Technology] courses they can go to, but there is a big gap in the middle.

Some participants relayed experiences where they were able to take advantage of career development opportunities. However, there was mixed feedback regarding whether participants felt these opportunities benefited them in terms of preparing them for advancement. Two participants commented as follows:

Every time I've sought some type of development education, the Air Force has supported me 100 percent.

Well, just because you go to a class doesn't mean the colonel in charge will look at you for promotion. That's not how it works here, for sure.

Some participants also felt that communication regarding career development opportunities could be improved to increase awareness.

When we asked participants with disabilities if they felt they had the same access to career development resources as civilians without disabilities, responses were mixed. Some participants thought civilians with disabilities did have the same access, while others noted difficulties with

reasonable accommodations necessary to participate in some career development opportunities. A few participants also noted that travel required to participate in some career development activities can be difficult for civilians with disabilities and even prevent them from participating in temporary duty (TDY) or other in-person activities. Others commented that adequate advance notice for development opportunities is sometimes lacking, which may not allow for enough lead time to arrange accommodations needed for civilians with disabilities to participate. For example, one participant stated:

Everything has to be 15 days, two weeks in advance. But, we will then get an email saying that something is tomorrow, or the day after, and I won't get accommodations because it's not within the two weeks. So, I took things into my own hands and got a new hearing aid that was able to hook into an iPhone that can help out. I've missed out on opportunities because they won't know or won't find out if there will be an interpreter, note-taker, or cart that will allow me to get the accommodations.

Awareness of Promotion Opportunities

Given that a critical component of being able to advance in one's career is knowing what opportunities for advancement or promotion exist, we also asked participants about the extent to which they felt they were aware of promotion opportunities available to them in their Air Force civilian careers. Overall, responses to this question were mixed, with individuals in the same focus groups stating that they felt they had no insight into what opportunities existed and others indicating that they did know or could find out about relevant opportunities. For some individuals, they also described feeling aware of some but not all opportunities. Female and racial/ethnic minority groups more often than groups with white men had participants noting that they did not feel that they were always aware of promotion opportunities (lack of awareness was endorsed by at least one participant in 94 percent of female focus groups, 86 percent of minority focus groups, and 75 percent of white male groups).

Most of the individuals who commented that they felt they were aware of promotion opportunities indicated it was primarily through their own initiative and searching or setting up alerts from USAJOBS; it was usually not from being told or informed directly. As one participant describes it:

I feel like I am [aware of promotion opportunities], but it's because of me seeking it. It's not about the Air Force getting the word out. If I want to know, I have to go hunt it down.

Overall, USAJOBS was mentioned as the primary source of awareness regarding promotion opportunities. However, even with the ability to access USAJOBS, participants described often being frustrated that some jobs never seemed to be listed or that a job was listed for such a short

period of time that they did not get a chance to know there was an opening before it was filled. For example, one participant stated:

... Some positions are not disseminated and all of a sudden, there's a new person put in that position. Like, "Did you see that position?" Everyone's wondering. There's no announcement.

Other sources of awareness regarding promotion opportunities included internal organizational postings and receiving email notifications from one's MAJCOM or career field. Based on participant responses, these types of communication are very specific to an organization and career field, though, and are not something consistent across the Air Force civilian workforce.

Participants also mentioned the importance of "word of mouth" in hearing about promotion opportunities. One participant stated that "it's always the informal communication line in your network and the gossip about who is leaving, retiring, et cetera." Thus, for many participants, they felt that unless they were well connected, they did not always know what opportunities might be available.

Finally, given that leaders can be an important source of information and support for advancement, we also asked participants about the extent to which their leadership helped make them aware of available promotion opportunities. Overall, responses to leadership as a source of information were also mixed. Leadership rarely came up as a source of information when participants were asked how they learned about promotion opportunities more generally. As one participant described the situation:

It depended who my supervisor was and if the supervisor provided feedback and knew I was interested in promotion opportunities.

Others felt strongly that leadership played no role in communicating promotion opportunities. For example, one participant stated:

If you want a promotion and want to progress, you go to USAJOBS, not leadership.

Thus, other than USAJOBS, sources of information on potential promotion opportunities seem to be inconsistent across the civilian workforce, leading many to feel that they do not have a good handle on what is available to them in the first place.

Promotion Factors

We asked participants to identify what factors in general they felt led to Air Force civilians being successful in getting promoted. Across the focus groups and interviews, four key themes emerged as factors that were perceived as important for advancement or promotion. These factors included (1) "who you know" or one's social networks, (2) individual qualifications, (3) individual characteristics, and (4) mobility.

It is important to note, however, that we also had participants voice concerns that they were not aware of what factors were important for getting promoted in their career fields and were not

sure what they needed to do to be able to position themselves to advance (mentioned by at least one participant in 18 percent of groups). This lack of clarity often stemmed from people seeing others get promoted who did not have the qualifications they thought were required to advance or finding themselves not advancing when they thought they had “checked all the necessary boxes.” As one participant stated:

DoD is different from other agencies. In other agencies, it’s clear what you have to do and what you have to attain to get promoted. Here, it’s a very nebulous process. Everyone knows that for a position beyond GS-13 or GS-14, you have to have a master’s degree, but other than that, it’s not clear what you have to do. For enlisted or officers, it’s very clear what you have to do to get promoted.

Thus, not understanding what is required or expected of you in order to advance is a barrier for some people from the start. Below, we now discuss the primary factors participants identified as important for promotion.

Who You Know

Across our focus groups and interviews, the most commonly mentioned promotion factor was the importance of one’s social networks or “who you know” in getting promotions (raised in 60 percent of focus groups). Specifically, participants described the importance of knowing people in higher-level positions or knowing hiring managers as critical to advancing. As discussed in the previous section on awareness of opportunities, “word of mouth” was considered an important source of information, so having a broad social network was described as an important source of information on job openings as well as important for having people who could vouch for your performance and reputation.

In many cases, this “who you know” factor was described negatively as leading to cases of nepotism and was perceived to lead to the hiring of people who were not always as qualified for the job as others. As one participant stated, “People get positions based on who they know and not what they know.” Similarly, as another participant commented:

Sometimes they hire the wrong people because they’re connected. They ended up hiring someone for this position who is married to the son of one of the commanders, and they don’t know the position and can’t do their job.

As will be discussed in more detail in a subsequent section, participants often described these networks as including what was perceived as the “good ole boys” network, with retiring military personnel coming right in to take higher-level jobs due to their connections. As a result, many civilians who are not military veterans felt they were boxed out of those positions because they would never have those same military career connections. Referring to the importance of “the good ole boys network,” one participant stated:

You have to be there forever, and they have to know you. They’re not going to hire Joe Smith who has done it for 25 years and wants a government job.

Consistent with these perceptions, our quantitative findings show that retired officers in particular tend to enter into much higher pay grades.

In discussing the importance of “who you know,” participants also spoke of specific cases where they saw instances of favoritism and individuals being groomed for specific positions (raised in 34 percent of focus groups). In these cases, participants often described job descriptions being written with a specific individual in mind or seeing a position posted and realizing that the hiring authority already had in mind whom they wanted to hire. According to one participant:

They do what they want to do at times to make a square peg fit in a circle. We’ve seen things where some ads are created or written in a certain way to have one particular person move up. And the vacancy is there for a few days and then someone moves up. So, there are favorites and less desirables. . . .

Similarly, another participant stated:

They’ll make the announcement, and they’ll follow the legal hurdles. You know that if an announcement was only open three or four days that they already knew who they were going to fill it with. We’ve seen it, and we know how it goes.

Thus, for many participants, one’s social network was viewed as critical to being able to advance.

In the scholarly literature on career advancement, this is often termed “social capital” and generally refers to the ability of employees to acquire the benefits associated with using social networks and other social structures. Research finds that successful employees often engage in networking or the development and maintenance of personal and professional relationships with others who may help them advance their careers (Forret and Dougherty, 2001). These networks provide employees with access to information and influence that can then be used to assist them in their work or careers (Thompson, 2005). For example, social networks can provide individuals with greater access to resources, information, and career sponsorship, which in turn results in higher salaries and more promotions (Seibert, Kraimer, and Liden, 2001). As such, networking and knowing the right people has been found to be an important antecedent to career success (Metz and Tharenou, 2001).

Individual Qualifications

In addition to the importance of “who you know” or one’s social capital, participants also described the need to meet basic educational, performance, and experience requirements or qualifications to advance to a higher position. These were often considered “check the box” elements that were considered necessary but not always sufficient in and of themselves for promotion. Depending on the career field and position, participants described educational requirements that include having a relevant advanced degree and certifications and having attended key professional military education courses (raised in 34 percent of focus groups).

Participants also described the importance of having relevant experience, time-in-grade, and a strong performance record (raised in 18 percent of focus groups). As one participant stated:

I think the leadership has to believe in you—to keep pushing you along; it’s your reputation—how you are viewed, what can you bring to the table, and what can you do—that’s how it is in my career field.

Similar to the importance of social capital, scholarly research has also found that the individual qualifications described above, often termed “human capital,” are important to career success. For example, previous RAND studies have linked education level to promotion rate, pay, and reaching an SES position within the DoD civilian workforce (Asch, 2001; Guo, Hall-Partyka, and Gates, 2014). This falls in line with the broader career advancement literature, which has also repeatedly shown that education level is tied to salary and promotions (Eby, Butts, and Lockwood, 2003; Ballout, 2007; Ng and Feldman, 2010). Similarly, other research has found that employees with a history of working for an organization or in a similar career field are more likely to receive promotions and are better compensated than more junior employees (Ng et al., 2005; Maurer and Chapman, 2013). Finally, scholarly research has also found that employees who participate in training and development programs provided by their organizations tend to achieve greater success than those who do not (Seibert, Kraimer, and Liden, 2001; Ng et al., 2005; Maurer and Chapman, 2013). Overall, education, work experience, organizational tenure, and engagement in training and development programs are highly valued because they all help improve skills necessary for job performance, which is critical to career success (e.g., Eby, Butts, and Lockwood, 2003; Ng et al., 2005; Judge, Klinger, and Simon, 2010).

Individual Characteristics

In addition to meeting the above basic qualifications, participants described the importance of certain individual characteristics in getting promoted, with the most prominent of these being having self-initiative and drive to perform well and advance (raised in 14 percent of focus groups). For example, as one participant commented:

I would say you have to have initiative. I don’t know if this is Air Force wide, but no one is going to offer the training or development; you have to go seek it. Some people don’t want to, and I get that, but there are others who want to grow professionally. And, if that is what you want, you have to go and get it.

Similarly, another participant stated:

You have to have the kind of drive to want to get promoted. They recognize people who want to be in a leadership-type position and are willing to go after it. For other folks like me who like to actually do the stuff—write, read—we’re happy where we’re at. To get promoted, you need the willingness to take on the responsibilities that you’ll have to take on in a MAJCOM—to gather that experience—and to be mobile. You need that inner drive.

Other individual characteristics mentioned by participants, but not as commonly, included the importance of adaptability, communication skills, and having honesty or integrity.

Mobility

The final major theme we identified across focus groups and interviews was the importance of mobility or a willingness to move to a new organization or location in order to receive a promotion (raised in 42 percent of focus groups). Particularly for smaller bases, there are often very few higher pay grade positions available, and individuals may be blocked from being promoted to a higher pay grade. Therefore, if individuals want to have an opportunity to advance to a GS-14 or GS-15 position, for example, they would need to move to a larger base or headquarters in Washington, D.C. For example, one participant commented:

You always have the person who's waiting for his supervisor to die off or retire and then move into his position, but, of course, there are a lot of people thinking the same thing.

Similarly, another participant described the situation as follows:

If you are looking at a career path, there is an expectation that you are in essence going to move around. . . . To get to GS-14 or 15 levels, they don't exist at some of the installations. If you're at these installations, you'll have to leave a MAJCOM and come to a headquarters element in the D.C. area. There is an expectation.

Other participants also described a perceived expectation that you move around to different locations to build a breadth of experience if you are interested in advancing to the highest pay grades. For example, as one participant commented:

Last week at the squadron meeting there was a question, "How can I go about getting promoted?" The answer was surprising—that breadth is sometimes better than depth, so you should leave and then come back with fresh eyes. Then, we might think about promoting you.

For many individuals, needing to move in order to advance represented a significant frustration if they had personal or family reasons that prevented them from relocating. These participants often expressed a desire to develop further in their careers but felt they did not have many options given their current circumstances. As one participant described it:

She has to move to D.C. to get a 12, and she's a homeowner and has kids in college and can't just make that jump.

Thus, for some individuals, they felt they had little advancement potential at their current location, but they were not able to have the mobility required to improve that potential.

Equal Opportunity for Promotions

Along with asking participants what factors they perceived as playing a role in getting promoted, we also asked them whether they felt they had an equal opportunity for promotion

compared to other Air Force civilian employees and whether they thought gender or race/ethnicity influenced promotion opportunities, or whether disability status influenced promotion opportunities. The line of questioning depended on the type of focus group (i.e., groups composed of individuals with disabilities or veterans with service-connected disabilities were asked specifically about disability status instead of gender or race/ethnicity). We describe the responses below.

Influence of Race/Ethnicity and Gender on Promotion Opportunities

At least one participant in every female and racial/ethnic minority focus group described feeling that gender and race/ethnicity can influence promotion opportunities. However, within these focus groups, there were also participants who indicated that they did not think gender and race/ethnicity played a role in promotions or did not feel their gender or race/ethnicity had affected them personally.

When discussing the role of gender and race/ethnicity, many participants spoke about how they usually saw one type of person in more senior pay grades: a white male. One African American male participant stated:

Race is a factor. Look at the organizations; look at the tops of the organizations and even just below it, and it speaks for itself. They have “preferential selection.” There is discrimination. I believe it exists. It’s just untold.

Similarly, a Hispanic female participant stated:

I never had a supervisor or division chief who was a Hispanic female in the last 27 years—never once.

As discussed previously, for some racial/ethnic minorities, not seeing individuals who “looked like them” in higher-level positions led to a perception that there was not a true opportunity for them to be promoted to higher levels.

Female and racial/ethnic minority participants further noted the significance of having mostly white men at the top of organizations given the role of “who you know” in promotions as well as the resulting lack of diversity on hiring panels. According to one African American male participant:

A lot of times . . . [it’s] unconscious bias. I wouldn’t call it blatant racism. It’s not who you know, but who knows you. It’s how I got my job in the civilian world. I had to qualify and interview, and someone needed to know me.

Similarly, an African American female participant stated:

When you rely so heavily on a network, it lends a breeding-ground for discrimination. It runs so heavily on that it’s hard to combat, because it’s not something you can put your hands on and overcome.

Although most participants noted seeing white men at the top of organizations, in some organizations, participants described seeing mostly women at the top. They felt this too could

lead to a preference for other women, and usually white women. As one African American male commented:

When you look at people in charge they don't look like you. They're white, female, blonde-haired and blue-eyed, and we get it.

In contrast to our female and racial/ethnic minority groups, participants in the white male groups were much more likely to indicate that they did not think gender and race/ethnicity play a role in promotions, although some mentioned they could see how there was the potential for bias. A few white male participants even stated that they thought the Air Force was focused on promoting diversity and actually sometimes favored female and racial/ethnic minorities. For example, one participant stated:

I've seen that early in my career. I saw females placed into positions where they were qualified, but not as qualified as other people who were competing for the same job. And, when I had the conversation with the person who made the decision, I said I understood her decision, because diversity is important to what we do. So, I understand why she did it, but at the same time, it makes me nervous that we have people who are doing all they can do to be successful, but then because of some factor they can't control, they might get passed over.

Another participant commented:

I have had experience with this, but I see the result of the pendulum swinging too far. For example, they got a promotion because of affirmative action, and now I have an incompetent supervisor because they met a quota.

Thus, overall, women and racial/ethnic minorities perceive that they may not always have an equal opportunity for advancement within the current system, while some white men actually perceive that women and ethnic minorities have an advantage.

Scholarly research shows gender differences in the ability to build networks. For example, prior research found that men who engaged in more social networking activities received greater compensation. On the other hand, women did not receive the same salary benefits from social networking (Forret and Dougherty, 2004). Similarly, another study found that women were able to receive greater promotion rates when they networked with others, but only as long as they were not seen as too masculine by their peers (O'Neill and O'Reilly, 2011).

Similar to gender differences in network building, research shows racial/ethnic minorities face challenges building social networks at work. For example, research has shown that racial/ethnic minorities need to be more proactive in developing relationships than whites in order to find mentors and influential people to join their social network (Thomas et al., 2005). These challenges to creating social capital can be a hindrance to career advancement, as women and racial/ethnic minorities need to work harder to get the same benefits.

Further, while racial/ethnic minorities and women often use their social networks when searching for employment, it may not be as effective as their white male counterparts (Taber and Hendricks, 2003). For example, research has found that organizations that tend to rely on

recruiting through informal social networks for hiring decisions are less likely to hire women, while more formalized hiring and recruitment processes lead to more women being hired because applicants relied more on their qualifications and experiences rather than their personal connections (Reskin and McBrier, 2000).

Employees' race/ethnicity and gender can also have an impact on the effectiveness of their human capital. For instance, Tomaskovic-Devey, Thomas, and Johnson (2005) found that due to a variety of economic and social factors, blacks and Hispanics are less likely to acquire the same levels of human capital (i.e., education and training) as whites and are thus less likely to advance to the same career levels over time. In contrast, women generally have similar or higher levels of human capital than men (Ng et al., 2005), and women rely more on their human capital than men for career advancement (Metz and Tharenou, 2001). As most human capital factors depend on objective accomplishments such as degrees attained or the completion of certain trainings, the authors suggest that women can show that they are clearly qualified for certain positions or promotions. The authors further suggest that without these formal credentials or experiences, women may be more susceptible to negative stereotypes about their capabilities.

Influence of Disability Status on Promotion Opportunities

When asked about the potential influence of disability status on promotion opportunities, we heard mixed responses within groups from disability participants. Some participants felt that having a disability did not influence promotion opportunities, while others felt that their disability could influence opportunities due to potential stigmatization.¹⁸ For example, as one participant commented:

When you are hired under 10 points for 30 percent disability, and they don't know what you have—and thankfully for me nothing is life-threatening—but they don't know, so it's, “Why groom her?”

We similarly had participants comment that they did not disclose or discuss with others that they had any type of disability for fear that people would view them differently and it could affect how they were treated within the workplace.

Many responses also largely seemed to depend on the type of the disability, with individuals with mental or psychiatric disabilities (e.g., post-traumatic stress disorder, or PTSD, or anxiety disorders) or disabilities that affected their interactions with others (e.g., trouble hearing) feeling that it may be more likely to influence promotion opportunities. For example, one participant described needing to be at the VA frequently due to his disability and how it led to others perceiving that he was never around and wondering what was wrong with him. Another individual similarly commented on the stigmatization that can occur around disabilities:

¹⁸ While all disability groups had at least one person mention that disability status could influence promotion opportunities, responses within groups were very mixed.

I can't speak for anyone but myself, but I have profound hearing loss and have to ask, what did you really say? And people might think I'm dull, and that could be a potential barrier for advancement.

Thus, individuals with disabilities may face similar challenges in developing the necessary social networks and displaying their true performance and experience, which are perceived as critical to advancement in the Air Force civilian workforce.

Other Key Characteristics

Participants independently raised two other key characteristics that they felt largely affected the ability to have an equal opportunity for promotion compared to other Air Force civilians. These characteristics were veteran status and age. We describe comments about each of these issues in more detail below.

Veteran Status

The influence of veteran status was raised in 45 percent of focus groups, both in response to the question of whether participants felt they had an equal opportunity for promotion as well as in response to the general question regarding what factors participants perceived were important in getting promoted. Across focus groups and interviews, many participants described there being high value put on having previous military experience, with veterans having an advantage through their previously formed social network with other veterans that are now in civil service—what is often termed the “good ole boys’ network,” as mentioned previously. As one participant commented:

A blue suit can retire one day and be a civilian the next day. You don't need degrees. It's who you know.

Although military experience in general was raised as being valuable, civilians who are not military veterans remarked that often position descriptions are seemingly written for a retiring colonel, which left them feeling that higher pay grades were often blocked as retiring colonels would slide directly into those positions instead of someone being promoted upward. This situation was often termed “no colonel left behind” or, as another participant described it, “the brass ceiling.” Another participant stated:

They offer those positions to retired officers. That whole “good ole boys” thing—I've seen a lot of retired colonels step into an SES position. How does that happen? What does that mean for everyone else in the organization? That means that everyone sitting below that SES position will never get it.

As our quantitative analyses found, retired military, particularly retired officers, do tend to start at higher pay grades compared to other civilians (the majority enter at pay grades 12 and 13; roughly 22 percent come in at pay grade 14 or higher). This also has an impact on diversity at higher pay grades given that women and racial/ethnic minorities are underrepresented within the officer corps, particularly at higher levels.

Age

The role of age was not raised to the same extent as veteran status but was still a clear theme mentioned across different groups/interviews and locations (raised in 17 percent of focus groups). In particular, participants described feeling that there was a preference for younger personnel with fresher degrees. When asked if demographics influence promotion, one participant stated:

I think the right person, regardless of gender, ethnicity, and race, is what matters. But the biggest factor, I think, is age.

Similarly, another participant commented:

What I've seen more is maybe age discrimination. The older the people are that I work with, the less they have gotten promoted.

Thus, although not a specific focus of this study, future research may also want to further explore how age may influence promotion opportunities.

Summary of Focus Group and Interview Findings

Overall, participants in our focus groups and interviews expressed strong interest in advancing to higher pay grades. However, we identified several potential barriers that may affect advancement potential. For example, participants' experiences with feedback and mentoring were often lacking both in terms of quality and amount. Similarly, many participants commented that access to career support resources was limited, and they perceived that military members were more likely to be prioritized for some opportunities compared to civilians. In terms of awareness of existing promotion opportunities, we heard mixed responses from participants. Most of the individuals who commented that they felt they were aware of promotion opportunities indicated it was primarily through their own initiative and searching or setting up alerts on USAJOBS; it was usually not from being told or informed directly. In terms of promotion potential, participants identified four key themes they perceived as important: (1) "who you know" or one's social networks; (2) individual qualifications, such as education, experience, and performance; (3) individual characteristics, such as initiative and drive; and (4) mobility, or a willingness to move to a location that is more likely to have a higher pay grade position available.

When we asked participants whether they felt they had an equal opportunity for promotion compared to other Air Force civilian employees, the majority of women and racial/ethnic minorities indicated that they thought that gender and race/ethnicity did and could negatively influence promotion opportunities. In contrast, white men were more likely to comment that they did not think gender and race/ethnicity played a role or that women and racial/ethnic minorities may actually have an advantage in getting promoted due to an Air Force focus on improving diversity. Individuals with disabilities had mixed responses regarding whether their disability status influenced their promotion opportunities. For some individuals, they worried that their

disability status could lead to potential stigmatization or misperceptions regarding their capabilities, which could affect their advancement potential. Finally, although not asked about it specifically, participants also raised the importance of veteran status and age on opportunities for promotion, commenting that veterans as well as younger individuals with “fresh” college degrees were perceived to have an advantage.

4. Barriers to Air Force Civilian Retention

Using a similar format as the last chapter, this chapter provides an overview of our findings from our analysis of barriers to retention for Air Force civilians. We first present findings from our quantitative analyses, followed by our qualitative (focus group/interview) findings. To anchor our qualitative findings, we again integrate relevant research literature where applicable.

Quantitative Findings

While the previous chapter identified differences in advancement along demographic lines, all analyses of advancement implicitly take retention as a given. Demographic differences in retention could further compound advancement differences if underrepresented groups prematurely exit the workforce. In this chapter, we test for aggregate retention differences at each grade level, while also examining retention descriptively to further refine our understanding of the points where there might be barriers to retention for women, racial/ethnic minorities, or employees with disabilities.

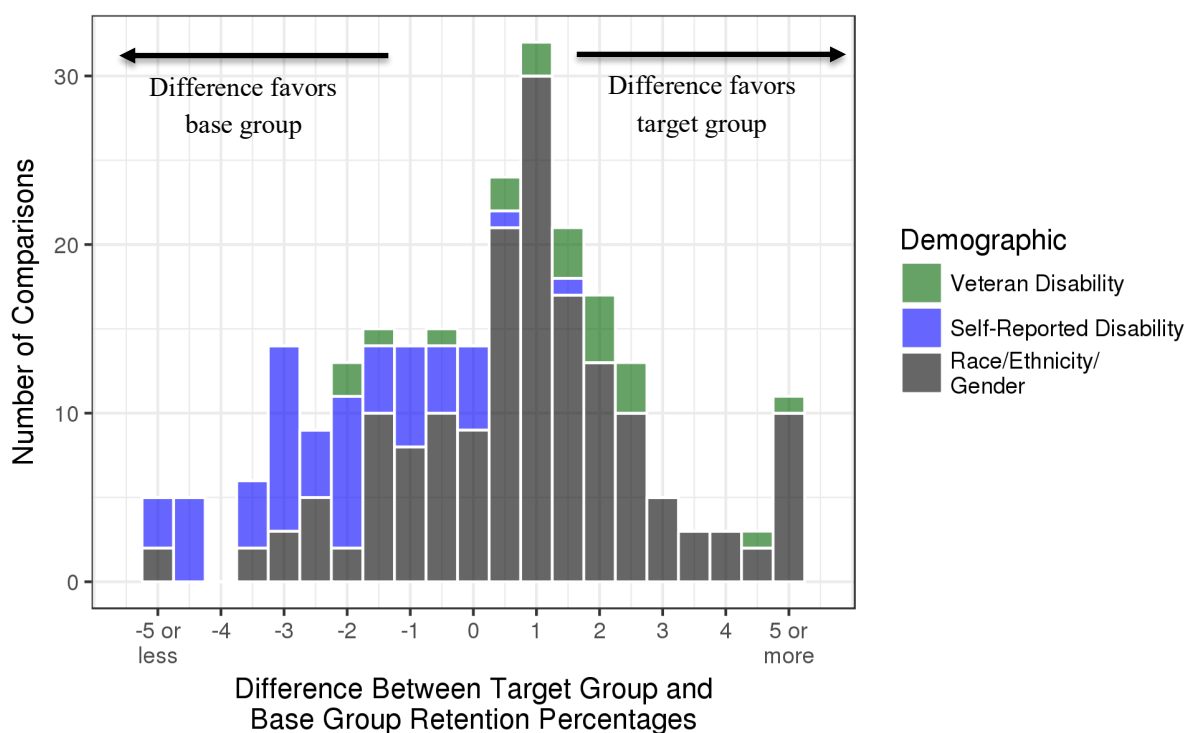
Demographic Differences in Retention Rates

First, we conducted a comprehensive set of retention rate comparisons for each demographic group and grade level (at grades 11 and above, while including SES members and GS-15s), and we repeated each set of comparisons in four time intervals spanning the period covered in the data.¹ For each grade level and time interval, we take all employees in a given demographic group (e.g., white women) and compare them to employees in the same grade level and time interval from the corresponding base group (e.g., white men). White men serve as the base group for all race/ethnicity comparisons, employees without disabilities serve as the base group for disability comparisons, and veterans without a 30-percent VA rating serve as the base group for veteran disability comparisons. As with the analysis of advancement rates in Chapter 3, we used doubly robust regression estimations to compare retention of employees in each target demographic group to similar employees in the relevant base group that is adjusted for a variety

¹ We examined retention in five-year pooled samples of employees from 1995–1999, 2000–2004, 2005–2009, and 2010–2014. We omitted the most recent time period (2015–2016) because a large number of employees transferred from GS pay series to other pay plans, which made retention rates appear implausibly low (since we identify retention based on whether an employee is present in the workforce in subsequent waves of data).

of factors describing their human capital and employment situations.² First, Figure 4.1 depicts the unadjusted differences in retention rates from all comparisons as a histogram, where the height of the bar indicates how many comparisons featured a difference of a given. The higher bars for positive differences (i.e., those favoring the target demographic groups) indicate that target groups tended to have relatively high retention. However, this conclusion is tempered by the fact that most disability comparisons showed differences that were at or below zero, while race/ethnicity/gender comparisons appear more likely to show higher retention for the target group employees.

Figure 4.1. Retention Differences Between Target Demographic Groups Compared to Corresponding Base Group Percentages



SOURCE: Authors' calculations from Air Force personnel data.

NOTE: The plot shows a total of 242 comparisons, one for each demographic group (race/ethnicity/gender and disability category), grade level (11 through 15/SES), and time period (in five-year intervals from 1995 through 2014).

² We adjusted for the same observed factors for the retention analysis as with the advancement analysis, which greatly saved on computation time because it meant we only had to fit the propensity score models once per comparison. We adjusted base group employees to match each target group in terms of the following: years of civilian service, time in current position, potential work experience, retirement eligibility, job series group, location (state level), fiscal year, education level, ranking of education institution, degree field, professional military education completion, total number of different installations, career essential positions, organization types, supervisory positions the employee had worked in, whether the employee received an outstanding performance rating, and the total number and monetary amount of awards received. For race/ethnicity/gender comparisons, we controlled for disability status, and vice versa.

The Doubly Robust Analysis Revealed Only a Small Number of Retention Gaps Disfavoring Target Groups

When taking a global view of the retention patterns in the data, there are very few cases where the retention rates of women, racial/ethnic minorities, and employees with disabilities are lower than similarly situated base group employees. Only 4 percent of the 242 comparisons identified retention differences that were statistically significant, and some of those favored the target group. Comparisons disfavoring the target group were sporadic and did not follow a consistent pattern across demographic groups, grade levels, or fiscal years (Table 4.1).

Table 4.1. Statistically Significant Differences in Retention Rates for Doubly Robust (DR) Demographic Comparisons (5-Percent Significance Level)

Demographic	Grade Level	FY	Raw Difference (Percentage Points)	DR Difference (Percentage Points)	DR Ratio (Target / Base)
Black male	12	1995–1999	0.7	1.5	1.02
	14	2010–2014	1.8	4.3	1.05
Hispanic male	13	2005–2009	2.3	2.2	1.02
White female	12	2010–2014	–1.9	–1.3	0.99
Black female	11	2000–2004	2.3	2.8	1.03
	13	2010–2014	–0.4	2.6	1.03
Targeted disability	11	1995–1999	–2.0	–2.5	0.97
Other disability	13	2000–2004	–4.4	–2.2	0.98
30-percent VA disability	14	2010–2014	–0.7	–1.9	0.98

SOURCE: Authors' calculations from personnel data.

NOTE: The table depicts the nine statistically significant comparisons out of a total of 242 conducted. For each comparison, the demographic group indicated in the first column is compared to white males (for race/ethnicity demographics), employees with no disabilities (for disability comparisons), and veterans without a 30-percent VA rating (for veteran disability comparisons) in the same grade level and FY range. We used the procedure described in Benjamini and Hochberg (1995) to control the false discovery rate at 5 percent within the sets of race/ethnicity and disability comparisons. The p-values were based on the coefficient on an indicator variable for being in the target group (versus the base group) in a weighted logistic regression predicting retention. See footnote 2 in this chapter for a list of controls included in both the propensity score model and the regression model.

Descriptive Analyses of Retention Patterns Reveal Small Differences That Could Point to Barriers

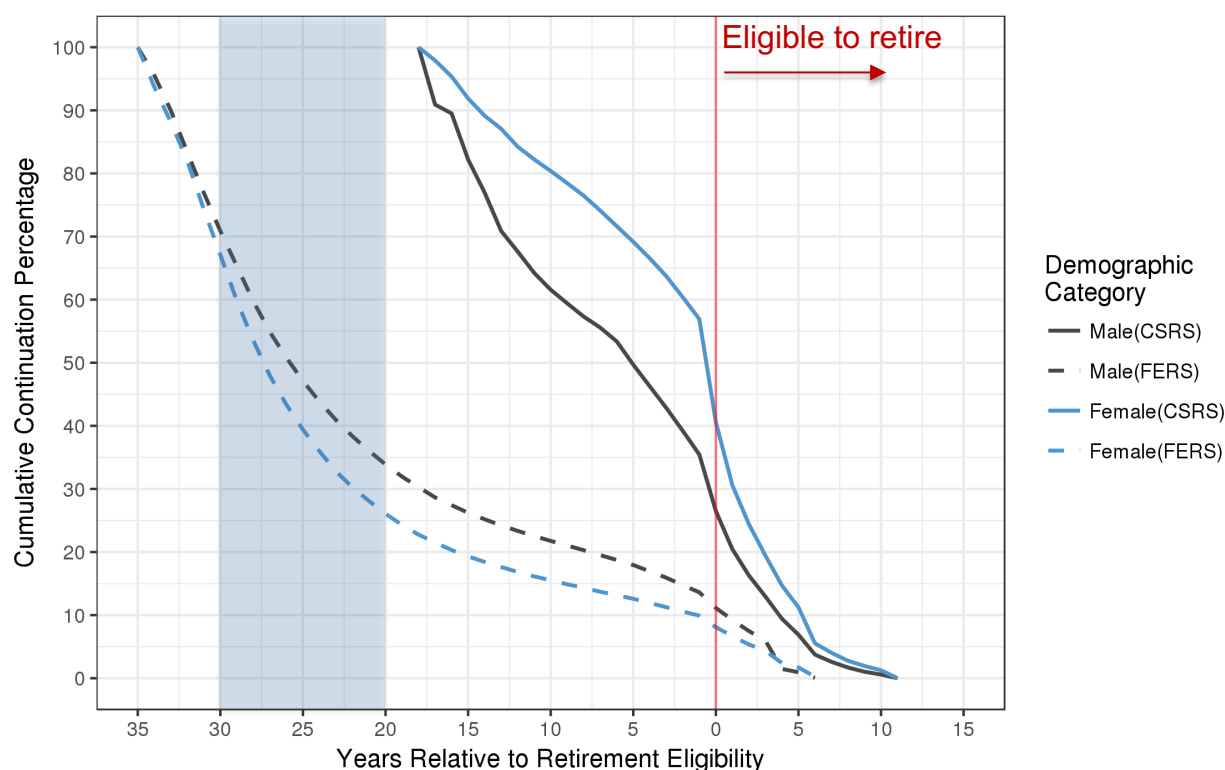
The general similarity of retention patterns across demographic groups initially indicates that disproportionately low retention has not been a barrier to women, racial/ethnic minorities, or employees with disabilities in reaching the highest levels of civilian leadership. However, there are a few areas where we identified meaningful retention differences that warrant further examination. For these descriptive analyses, we examine the entire range of grades 6 through SES.

Expected Retention Could Be Relatively Low for Early-Career Women Going Forward

The previous analyses ensured that female employees within a grade and time period were compared to male employees with a similar distribution of years of service and retirement

eligibility. However, another approach is to compare male and female retention patterns at all points in the career life cycle. In this section, instead of examining retention by grade level, we calculate retention rates for employees in each year of service relative to retirement eligibility (Gates et al., 2013).³ Additionally, we show rates separately for employees covered by the Federal Employees Retirement System (FERS) and those covered under the legacy Civil Service Retirement System (CSRS).⁴ Figure 4.2 shows these retention rates in the form of cumulative continuation percentages. Each of the four retention profiles begins at 100 percent and then applies the annual loss rate from the data for each year group to arrive at the percentage that

Figure 4.2. Cumulative Continuation Percentages, by Gender and Retirement Plan



SOURCE: Authors' calculations from personnel data.

NOTE: Percentages are calculated from FY01 through FY14 continuation rates based on years of retirement eligibility that included at least 100 female employees. Employees who entered after FY10 are not included to ensure there is enough time to observe retention behavior.

³ Retirement eligibility (i.e., the point where an employee can retire with full benefits) depends on retirement plan, age, years of service, and birth year (because there are minimum retirement ages that depend on birth year for FERS employees with 30 YOS). All of this information is available in the personnel records. See Susan M. Gates, Beth Roth, Sinduja Srinivasan, and Lindsay Daugherty, *Analyses of the Department of Defense Acquisition Workforce: Update to Methods and Results Through FY 2011*, Santa Monica, Calif.: RAND Corporation, RR-110-OSD, 2013.

⁴ Appendix A provides a brief description of FERS and CSRS.

would remain through that year and all previous years. The vertical red line marks the point of retirement eligibility, so years (on the horizontal axis) to the left of the red line represent the number of years remaining until retirement, while years to the right of the red line are years of retirement eligibility. Thus, the entire horizontal axis range spans from 35 years prior to retirement through 15 years postretirement to accommodate both retention profiles. The CSRS retention curves only cover part of the YOS range, because no new hires have entered the CSRS since the FERS was introduced in 1987.

The shaded section in Figure 4.2 highlights the fact that continuation rates for women are lower than men for FERS employees who are between 20 and 30 years away from retirement, creating a modest gap in retention. By contrast, the women in the CSRS have remained in the workforce at higher rates than men. Aggregate retention among women in the past, then, is a combination of relatively low FERS retention and relatively high CSRS retention, which partly explains why the doubly robust comparisons did not identify any areas of relatively low female retention. However, as of the most recent wave, nearly all remaining employees are part of the FERS, which means that if the FERS trends continue, low retention among early career women could become more of a problem in the future.⁵

Overall Attrition Among Persons with Targeted Disabilities Has Been Elevated in Recent Years

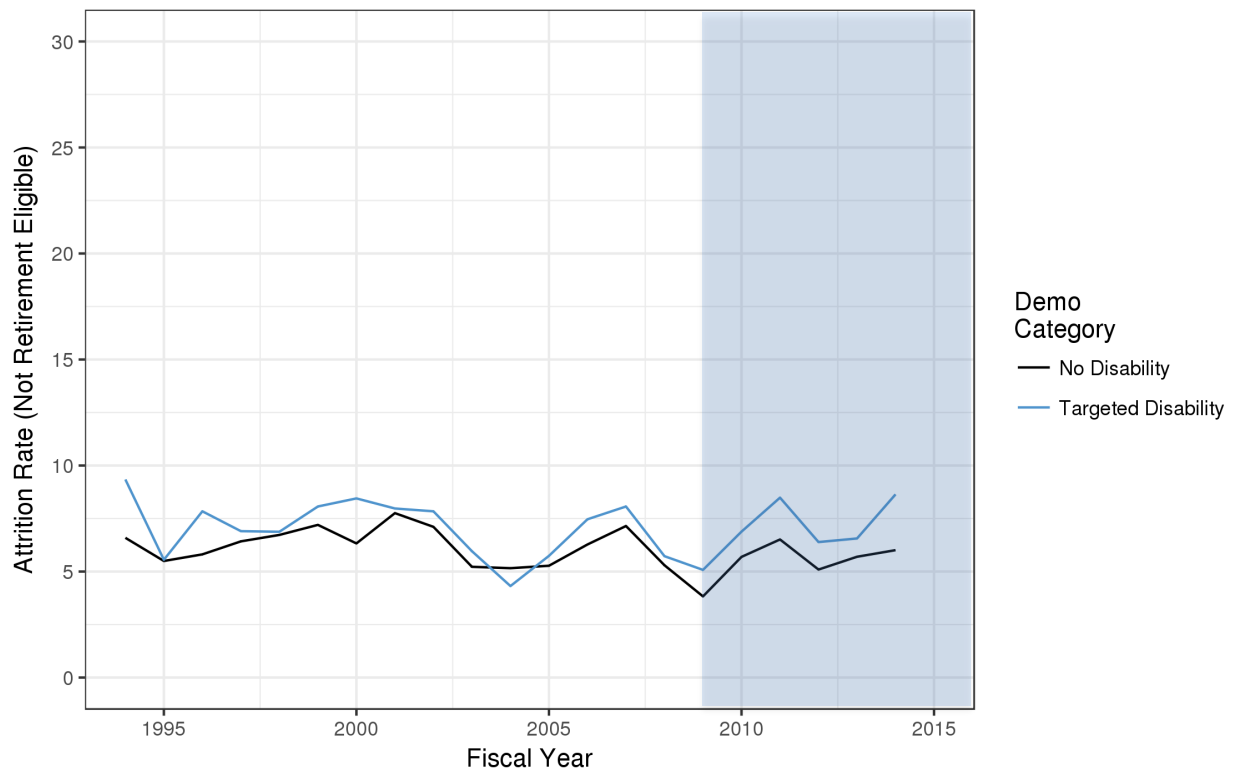
One limitation of the approach we took with the retention comparisons is that the large number of simultaneous tests limits the power available to detect differences among small populations, such as persons with targeted disabilities. Still, one additional noteworthy pattern emerged in this group. Historically, overall retention for persons with targeted disabilities has tracked retention for employees with no self-reported disabilities fairly closely, but targeted disability attrition has been 1 to 2 points elevated since 2009 (Figure 4.3). We attempted to apply decomposition methods to this difference to discern whether other factors in the personnel data could account for it, but they yielded little insight. Therefore, this is simply a pattern that we would nominate for further observation and examination.

Summary of Quantitative Findings

In our comprehensive examination of retention rates across demographic groups, grade levels, and time periods, we found very few cases where women, racial/ethnic minorities, and employees with disabilities remain in the workforce at lower rates than other civilian employees. In general, retention is surprisingly similar across demographic groups. Beyond these findings,

⁵ There is an analogous pattern in female retention when examined separately by racial/ethnic group, although retention gaps for black women and Hispanic women are slightly smaller.

Figure 4.3. Annual Attrition Rates for Non-Retirement-Eligible Persons with Targeted Disabilities and Employees with No Disabilities



SOURCE: Authors' calculations from personnel data.

NOTE: Employees who entered after 2010 are not included in the calculations to ensure there is enough time to observe attrition behavior.

we noted two descriptive patterns that warrant continued observation: (1) Expected retention could be relatively low for early-career women going forward, and (2) overall attrition among persons with targeted disabilities has been elevated in recent years.

Focus Group and Interview Findings

In this section, we describe the key themes that emerged from our focus groups and interviews with Air Force civilians regarding potential barriers to retention. Our findings focus on four areas related to retention: (1) retention factors, (2) influence of race/ethnicity and gender on retention decisions, (3) influence of disability status on retention decisions, and (4) experiences with reasonable accommodations. Where relevant, we also note any differences based on demographic groups and disability status.

Retention Factors

Below, we describe key themes that emerged from our focus groups and interviews with Air Force civilians from different demographic groups related to factors influencing retention decisions. We asked participants about factors that contribute to Air Force civilians leaving the Air Force as well as factors that contribute to Air Force civilians staying in their Air Force careers. We were particularly interested in learning about any potential barriers that may exist for the retention of individuals from different demographic groups.

Where relevant, we cite findings from the 2014 Air Force retention survey—provided to the study team by the Air Force Survey Office (AFSO)—and findings from our team’s analysis of publicly available data from the 2015 Federal Employee Viewpoint Survey (FEVS). Details about our analysis of FEVS data and additional details on both surveys’ findings are in Appendix B.

Factors Influencing Air Force Civilians to Leave the Air Force

When we asked participants about the factors that influence Air Force civilians to leave their Air Force careers, compensation and lack of advancement opportunities were the two factors mentioned most often. Other factors mentioned as reasons to leave focused on work environment and included not feeling valued, leadership, workload stress, government bureaucracy, and furlough risk.

Compensation

Many participants commented that higher compensation outside of the Air Force would be a reason to leave their Air Force civilian careers, and some had seen peers leave for this reason (raised in 23 percent of focus groups). A common theme in the comments related to compensation was that the private sector pays higher salaries often for the same type of work. In some cases, Air Force civilians mentioned even working alongside private-sector contractors supporting the DoD who were doing similar jobs but earning higher salaries. As one participant noted:

Most of my peers jump into a contract that supports the exact same thing we’re doing or supporting the DoD in the same capacity. They usually will leave for money. The financial benefit is typically higher, pay wise.

Participants reported that this trend may be particularly prevalent for certain career fields. Specifically, technical career fields such as engineering, information technology, and cyber are perceived as skill sets that are in demand in the private sector and are attracting significantly higher salaries.

In addition to the private sector, some participants also noted a perception that other federal agencies or even other military services offered higher pay for the same work due to differences in pay scales or pay systems. For example, a participant commented:

I can go to GS-11 in the Army and slide in the pay band and could make \$10 to \$15K more.

Some participants' comments about compensation also addressed the lack of retention bonuses. Not only would retention bonuses provide additional pay, but they would also signal to Air Force civilians that the organization would like to have them remain in their careers. As one participant noted:

It all boils down to pay, you know—what the organization appears to be saying with the compensation, and in words they say, “We’d hate to see you leave.” If a retention bonus was offered to us, that would be a good gesture to say they’d like to keep you on, so here is the 25 percent bonus. That hasn’t happened, and I don’t know if it will. It’s frustrating.

Findings from the 2014 Air Force civilian retention survey and scholarly literature support the assertion that compensation is important for influencing retention decisions. For Air Force civilians who completed the 2014 retention survey, salary is one of the top ten factors that would influence their decisions to leave the Air Force (7 percent selected this factor). Scholarly literature also indicates that employees will be more likely to stay in their organizations if they feel as though they are being adequately compensated for their work (Griffeth, Hom, and Gaertner, 2000; Hom et al., 2012). When most employees feel as though the rewards they receive are tied to their performance, they are typically more satisfied (Pitts, Marvel, and Fernandez, 2011). Likewise, employees who feel fairly compensated are more likely to be committed to their organizations due to satisfaction with their pay as well as the belief that they work for a fair organization (Meyer et al., 2002).

Lack of Advancement Opportunities

Along with compensation, lack of advancement opportunities was one of the top two factors mentioned as reasons Air Force civilians leave the Air Force (raised in 26 percent of focus groups). As noted in Chapter 3, many participants felt there was a lack of promotion opportunities for their career paths in the Air Force. Participants noted that this has retention implications as well. For example, one participant commented:

It’s a lack of promotion potential. They start as GS-11s and there are few GS-12s. With that lack of promotion ability, a lot of people, after a while [say] . . . “If I’m never going to get promoted, I might as well go somewhere else.”

Some participants noted that they are capped or hit a ceiling at a certain grade level and have no opportunities for advancement, which may encourage civilians to leave the Air Force. One participant commented:

If you were working elsewhere, you could work your way up. . . . In many positions here, we can’t—we’re capped out.

Comments related to lack of advancement focused both on missed opportunities for increased pay as well as opportunities to grow and develop new skill sets that would come with higher-level positions. For example, a participant commented:

For me, personally, I just want to grow because that’s why I want to leave, and I don’t see potential of growth here, whether it’s my skills or pay.

While employees desire to be fairly compensated, scholarly literature and surveys with Air Force civilians demonstrate that employees also want to receive professional benefits from their organizations. One of the key ways that organizations can help their employees is through providing adequate organizational support. For example, Allen, Shore, and Griffeth (2003) found that perceived organizational support was created through several human resource practices: participation in decisionmaking, fairness of rewards, and growth opportunities. This perceived organizational support in turn was negatively related to employees' intent to quit. Thus, if civilians are perceiving a lack of growth or advancement opportunities, the literature supports that this could influence Air Force civilians leaving their careers. Additional support for the importance of promotion opportunities comes from the 2014 Air Force civilian retention survey where one of the top factors that respondents selected as influencing decisions to leave the Air Force is (lack of) promotion opportunities (13 percent).⁶

Work Environment Factors

Other factors that participants mentioned as influencing civilians to leave the Air Force focused on the work environment. First, participants reported that not feeling valued by their organization could be a reason that civilians leave the Air Force, with 11 percent of focus groups raising this issue. They commented that not feeling valued leads to diminished loyalty to the Air Force. As one participant noted:

I think [it's] feeling marginalized. I think a lot of employees, that would cross every area, every career field . . . I think a lot feel marginalized and unappreciated.

Participants also wanted to feel like their contributions to the Air Force mission were valued and that they were recognized for these contributions. In a work environment where this is not the case, some participants felt that this could influence civilians to leave the Air Force.

Leadership was also mentioned by some participants as influencing retention decisions, with some focus groups (14 percent) and interview discussions including comments that negative experiences with supervisors or other leaders could cause some civilians to leave the Air Force. Participants commented that perceptions of incompetent supervisors who are not viewed as good leaders lowered morale. Some supervisors also show favoritism, which participants explained also lowers morale and can lead civilians to leave the Air Force. One participant, for example, noted this impact of leadership on retention:

Sometimes it's incompetence at the top. It filters down into the regulations we have to follow, and people say, "That's ridiculous. Why do I have to do that?" and they end up going somewhere else.

⁶ Survey respondents were provided a long list of potential influences on their decisions to leave the Air Force. The list included a "No Items from the List" option. About 22 percent of respondents who completed this section of the survey selected the "No Items from the List" option, making it the most popular option. The second most popular option was promotion opportunities. See Appendix B for more discussion of the survey findings.

While discussions about leadership and retention were predominantly negative, a small number of participants did note that positive supervisors and leadership may encourage civilians to remain in their Air Force careers.

Other participants mentioned the workload stress of the job as a reason that civilians might leave—an issue raised in 9 percent of focus groups. Participants noted that manning reductions with the same level of workload demand has some civilians performing a workload amount that was previously assigned across multiple employees. They commented that being asked to “do more with less” adds stress and may influence retention. Additionally, there is a perception that the workload is not evenly or equitably distributed across employees. Civilians who perform well report that they are only given more work as their reward, while civilians who perform poorly are given less work but often receive the same pay. Two participants’ comments on these issues are as follows:

It’s like they are trying to see what workload will break you.

If you are a good worker, you get more work. If you are a horrible worker, they either have to move mountains of paperwork to get rid of you or they just give your work to someone else.

The academic literature and Air Force civilian surveys also support these findings by providing evidence that characteristics of the work environment can be linked to turnover. According to academic literature, stress and problems with leadership are among factors that can negatively affect retention (Griffeth, Hom, and Gaertner, 2000). On the 2014 Air Force civilian retention survey, leadership of the immediate supervisor was among the top five reasons cited by Air Force civilians for considering leaving the Air Force (10 percent of respondents selected this option). Based on our analysis of 2015 FEVS data, perceptions involving inclusive work environments generally predict lower levels of intentions to leave the Air Force among women, racial/ethnic minorities, and individuals with disabilities. The patterns of prediction vary among demographic groups and type of attrition outcome (e.g., leaving Air Force for another government agency versus leaving government altogether), but the general pattern suggests that inclusive work environment factors influence the retention intentions of Air Force civilians.

Government bureaucracy was another factor identified as potentially influencing civilians to leave the Air Force, raised in 6 percent of focus groups. Some participants felt that the perceived inefficiency related to government-mandated paperwork and “red tape” was frustrating to some civilians and led to dissatisfaction with their Air Force careers. The perception of these participants was that this type of bureaucracy was not an issue in the private sector and that more productive work, governed by fewer rules, would be possible there. As one participant commented:

But when I first came in, the other career civilians that came in like me, they couldn’t take the frustration of the bureaucracy. They just bolted.⁷

⁷ In this quote, “career civilians” refers to civilians who are not military veterans.

In addition to government bureaucracy, some participants had concerns about the risk of government shutdown and subsequent furloughs. This concern was raised in 6 percent of focus groups. Some participants noted less confidence in their job security related to sequestration and other elements of an uncertain political climate. Given these concerns, some participants felt that civilians may be more likely to leave their Air Force careers in response. As one participant noted:

There is vulnerability across DoD at this point because of sequestration. It's easier to cut civilians than it is to cut military positions because military positions are mandated by Congress. That's legislated. There's a lot of uncertainty among civilians about whether your job is going to even be around from year to year.

This is consistent with findings from the literature described previously as related to the influence of compensation on retention decisions. Additionally, recent RAND reports have examined the impact of pay freezes on retention in the federal government. Using an economic model to simulate changes in pay, Asch, Mattock, and Hosek (2014b) found that a permanent 1-percent pay freeze would result in lower retention over time. This would particularly affect employees who are midcareer, meaning they are not yet eligible for retirement yet have been working for significant amounts of time. On the other hand, the simulation of a one-year pay freeze showed that it would not have a discernible effect on retention if pay was immediately restored. However, if it would take longer (e.g., ten years), retention would fall until it is restored. The authors posit that a driving factor in this situation would be the employees' uncertainty over pay restoration. A follow-up to this simulation estimated that permanent pay freezes could result in a 7.3-percent decrease in the retained workforce.

Where Civilians Go When Leaving the Air Force

When discussing the above factors, we also asked participants where civilians go when they leave the Air Force. The primary sources of jobs that civilians noted as alternatives included:

- Other federal agencies
- Other military services
- Private industry (often including the firms contracting for the DoD)

We do not have data on where civilians actually end up going when they leave the Air Force and if more go to private industry or to other federal agencies or military services. However, when discussing alternatives within the focus groups, potential alternative job prospects were generally dependent on the particular occupations. For example, for many occupations, the best alternative job prospects focused on doing similar work to what they were already doing, but within another federal agency or within another military service, often with an increase in pay grade and associated pay increase for doing the same work. For others, the private sector was an attractive alternative, particularly for individuals in more technical occupations who often perceived they could make more money in the private sector. Discussions of the private sector also included

going to work for a contracting agency where individuals would then come back to work for the DoD as a contractor and even sometimes the Air Force itself.

Factors Influencing Air Force Civilians to Remain in the Air Force

We also asked participants about the factors that influence Air Force civilians to remain in their Air Force careers. The factors mentioned most frequently include commitment to the Air Force mission and work, benefits, and job security. A few participants also noted the positive aspects of Air Force civilian work schedules as having positive retention effects.

Commitment to Air Force Mission and Work

Some participants cited commitment to the mission of the Air Force and the substance of their work as a top factor that civilians consider when remaining in their Air Force careers. Commitment was raised in 15 percent of focus groups. Patriotism and wanting to support active-duty service members influenced many participants' retention decisions.⁸ They noted pride in their jobs because of the larger Air Force mission that they are contributing to. For example:

For me, it is patriotism. I'm dedicated, and I believe in our mission, and I'm not going to give that up. The immediate people that I work with believe in the mission, and come hell or high water, we are going to make that mission work. . . . There is a mission here that not everyone is called to do . . . that is at the end of the day what kept me here.

Contributing to a mission viewed as worthwhile leads to job satisfaction, according to many participants. They reported that this sense of service before self and enjoying the substance of their work often outweighs the perceived negative aspects of being an Air Force civilian, such as lower pay compared to the private sector. One participant commented:

It makes me feel good—job satisfaction. Am I getting paid as much, no, but I contribute to the mission and I keep my country safe.

The academic literature supports this finding about the influence of job satisfaction and commitment to an organization and its mission. While one's decision to leave or stay at a job is often tied to professional or material benefits, employees also want to feel good about their jobs. Generally, employees who have positive feelings about their job and enjoy membership in their organizations are more likely to remain (Maertz and Griffeth, 2004). Research on both private-sector and public-sector organizations consistently find that job satisfaction is tied to retention (Choi, 2009; Pitts, Marvel, and Fernandez, 2011; Hom et al., 2012). Organizations can improve job satisfaction in their employees through increased pay, improved benefits, providing opportunities for growth, and many other factors. Likewise, employees may be more satisfied

⁸ Similarly, "patriotism" was cited as a top influencer on intentions to stay in the Air Force by respondents to the 2014 Air Force civilian retention survey, with 12 percent of respondents selecting it as a factor. However, "No Items from the List" was the most popular option, selected by nearly half of participants (47 percent). See Appendix B for more discussion of the survey findings.

with their jobs if it meets their expectations of workload, challenge, and work-life balance (Judge et al., 2001).

Organizational commitment is also closely tied to retention. Like satisfaction, the more committed employees are to an organization, the more likely they are to remain (Holtom et al., 2008; Hom et al., 2012). Meyer et al. (2002) identified three forms of organizational commitment that all lead to decreased turnover. The first was *affective commitment*, meaning an emotional attachment to or identification with an organization. Next was *continuance commitment*, which is the consideration of the costs of leaving the organization. Finally, there is *normative commitment*, which is defined as the perceived obligation to stay with the organization. While all three increase retention, the study showed that affective commitment was the strongest predictor of retention. The authors believe that employees who have an emotional connection to their organizations tend to also be more satisfied, and thus are more likely to stay. Commitment may be particularly relevant to government jobs because federal employees may be committed to their work due to a sense of patriotism and a desire to serve their country (Asch, Mattock, and Hosek, 2014a; Metscher et al., 2011).

Benefits

Participants also mentioned benefits afforded to Air Force civilians as a reason people remain in the Air Force, a factor raised in 20 percent of focus groups. Retirement benefits were noted frequently, with participants noting that many civilians stay in their Air Force careers for these benefits instead of leaving for the private sector where retirement options are perceived as less favorable. Participants also mentioned health care benefits for Air Force civilians as more comprehensive than in the private sector and a reason to remain in their careers. Several participants noted that good health care benefits are particularly important in today's political climate and uncertainty related to national health care policy. Many participants emphasized that these types of benefits outweighed perceived higher salaries in the private sector. For example:

I know for a lot of civilians . . . the benefits package is what keeps us. And it is worth at least as much as our paycheck is.

For me, it's the benefits—no way I can get a job on the outside with the same health benefits.

Beyond retirement and health care, a few participants also mentioned additional benefits as influencing civilians to remain in the Air Force, such as vacation benefits, sick leave, and the privileges that come with installation access (e.g., gym access and child care centers close to work). One participant's comments on vacation and sick leave benefits are as follows:

I took a significant pay cut to come here, but it's worth it for the benefits. The biggest thing is you get an equal amount of sick as vacation time. When I was in the private sector, if I got sick for a week or two, then there'd be no vacation for that year.

Although retirement did not make the top ten list of influences on staying in the Air Force on the 2014 Air Force civilian retention survey, dental and medical insurance made the list (4 percent), suggesting that benefits do factor into Air Force civilians' retention decisions.

Job Security

While some participants commented that the risk of furloughs and other factors of an uncertain political climate have somewhat diminished the job security of Air Force civilians, as described above, some participants still cited job security as a factor that influences civilians to remain in their Air Force careers. This factor was raised in 15 percent of focus groups. Participants noted that this stability in their jobs gives them peace of mind and is something they consider when thinking about career planning. Some participants mentioned that the job security provided by the Air Force outweighs the benefits of potentially higher salaries in the private sector. There is a perception that employment in the private sector is unstable and is often contract to contract. One participant commented:

I don't know why people would leave. . . . I worked [in the private sector] for many years before my federal career, and it isn't pretty. You are an at-will employee, you work at the will of your employer, so he doesn't have to give you a reason when you suddenly don't have a job. You go to work one day, and you don't have a job, and he doesn't have to justify it. . . . So, to me, I can't imagine anybody would leave the protections of federal services to make a few extra bucks off base, and that's why I'm still here: job security.

Additionally, a few participants who were active-duty Air Force spouses noted that there is job security related to permanent change of station (PCS) moves. An Air Force spouse can often more easily find employment at the next installation as an Air Force civilian compared to having to look for new employment in the private sector with each move.

The 2014 Air Force civilian retention survey also found that job security was one of the top five influencers on plans to stay in the Air Force (6 percent). Job security followed patriotism (12 percent), salary (8 percent), and overall job satisfaction (7 percent) as top influencers on staying.

Work Schedules

While commitment to the Air Force mission, benefits, and job security were the factors participants mentioned most frequently, a few participants (across 3 percent of focus groups) noted that aspects of the Air Force civilian work schedule may also influence individuals to remain in their Air Force careers. Participants mentioned that work-schedule flexibility was good for employee morale and promoted a positive work-life balance. One participant commented:

What keeps me going is, we were offered a recurring day off; every pay period I get one day off. That is a flex schedule—I get every other Friday off. That is a good part of the job. If I have a contractor at the house, I can schedule that. I can take care of business at the home. That is also a great day to go golfing.

A few participants also noted that a benefit of the flexible schedule and ease of taking needed time off was accommodation of parenting duties (e.g., dropping children off at school in the morning or staying home with a sick child when needed). Participants also commented that Air Force civilian schedules typically kept to eight hours per day, differing from the longer hours they perceived were expected in the private sector. For example:

It's having a regular workday. [In] private industry . . . I was salaried, but I worked 10 to 12 hours a day, and was tethered to my cell phone. I don't know if government people get cell phones—some do. But in my department, I don't, so I can't read emails late at night, and I think that's amazing. Working eight-hour days is amazing too, compared to what other people have to do [in the private sector].

Individuals with disabilities were slightly more likely than other groups to mention job security and benefits as reasons to remain in the Air Force. There were no other observable trends by demographic group for factors that influence positive retention.

Influence of Race/Ethnicity and Gender on Retention Decisions

We asked participants if they felt that race/ethnicity or gender influenced factors that civilians consider when they are deciding to leave or remain in the Air Force. We received differing responses by demographic groups.⁹ Comments in white male groups focused almost exclusively on race/ethnicity or gender having “no impact” on retention decisions. However, a small number of white men did comment that female civilians might be less mobile and not as willing to move for a position and that might make them more likely to leave the Air Force.

Focus groups and interviews with racial/ethnic minorities and women elicited mixed responses regarding whether race/ethnicity and gender influenced retention decisions. Some white female participants did not believe race/ethnicity and gender have an impact, while others did report they had an influence. However, white women's comments largely focused on the influence of gender rather than the influence of race/ethnicity. While African American participants' responses were also mixed, they were slightly more likely than other demographic groups to think that race/ethnicity or gender influenced civilians to leave the Air Force. Responses from participants from other racial/ethnic minority groups were mixed, with some participants not finding an influence of race/ethnicity or gender on retention, and some participants reporting that race/ethnicity or gender may be a factor influencing civilians to leave the Air Force.

Overall, for participants who felt race/ethnicity or gender factored into retention decisions, those comments were overwhelmingly for a negative influence on retention. Positive influences on retention related to race/ethnicity and gender did not resonate with any demographic group.

⁹ Note that we do not include percentages in this section because these mixed responses result in data points that are not useful in demonstrating findings from our analysis or providing additional insights.

Negative effects on retention mentioned included feelings of discrimination or women and racial/ethnic minorities being passed over for opportunities by the “good ole boys” network, which could lead civilians to leave the Air Force. Others noted that racial/ethnic minorities or women may feel like they do not fit in, which could influence them to leave. Two participants offered the following relevant comments:

A lot of male leaders . . . they see women as emotional creatures; that’s why it’s so interesting to hear how people talk to you. They say, “oh girl,” or, “hey girlfriend,” so you can see a stereotype or bias in their mind and they’re looking to have that confirmed. And if you’re not one of those types, it confuses them. And it’s tiresome trying to not succumb to their stereotypes. And we’ve lost people who don’t know how to play that game, or they don’t want to. They’re looking for purpose in their job that’s being overshadowed by something else.

A fellow who wasn’t white got hired. Within six months, he left. He was doing his work, and it was obvious he was doing his work. Out of the blue, he just left because he didn’t fit in. He was different.

In reviewing the literature, research has shown that the race/ethnicity and gender of employees do not have a direct effect on retention. Generally, racial/ethnic minorities or women show similar quit rates as men or members of the majority (Griffeth, Hom, and Gaertner, 2000; Metscher et al., 2011). However, there are organizational factors that could lead to different retention outcomes for women and racial/ethnic minorities. For example, organizations that cultivate a pro-diversity climate are more likely to retain racial/ethnic minorities and women (McKay et al., 2007; Choi, 2009). Furthermore, organizations that have a more diverse workforce have more success with retaining racial/ethnic minorities and women. In other words, when racial/ethnic minorities and women feel as though racial/ethnic minority and female employees are well represented within the organization, they are more likely to stay (Choi, 2009).

Influence of Disability Status on Retention Decisions

We asked focus group and interview participants with disabilities whether they felt disability status influenced Air Force civilians’ decisions to stay in or leave their Air Force careers. Overall, responses varied: Some participants said disability status had no influence on retention; some said having a disability influenced reasons to leave. Unlike the responses about race/ethnicity and gender, some participants thought having a disability could influence reasons to stay in the Air Force.¹⁰ Some participants commented that employees with disabilities may feel as if they do not fit in at work, which could be a reason they might leave the Air Force.

¹⁰ Similar to the previous section on the influence of race/ethnicity and gender on retention decisions, we do not include percentages in this section because these mixed responses result in data points that are not useful in demonstrating findings from our analysis or providing additional insights.

Others also noted that there may be a stigma associated with employees with disabilities, which could be another negative retention factor.

Participants emphasized that retention effects for employees with disabilities may be driven by their experiences with accommodations at work. If supervisors are not flexible or understanding about needed accommodations, this could result in an employee with a disability leaving the Air Force. Alternatively, if an employee with a disability has had a positive experience with accommodations, the individual may be more likely to stay in an Air Force career to avoid having to reestablish accommodations at a new organization. In fact, a few participants noted perceptions that the private sector may have fewer protections or accommodations available for employees with disabilities compared to the federal government. Two participants' comments are as follows:

I would think if someone is being accommodated, they are less likely to go somewhere else to reestablish accommodations.

And believe me, if a handicapped civilian were to leave government service, the attitudes from what I've read in the civilian sector are not very accommodating; very ruthless.

We now describe our more detailed findings related to experiences with reasonable accommodations below.

Reasonable Accommodations

For our focus groups and interviews of individuals with disabilities and veterans with service-connected disabilities, we asked them about their experiences with reasonable accommodations given the importance of accommodations to one's experience and ability to do the job. Specifically, we asked participants the extent to which they have felt comfortable during their Air Force careers requesting reasonable accommodations and whether they knew the process for doing so.

Overall, responses regarding comfort in requesting reasonable accommodations varied. Some participants indicated that they had requested accommodations and felt they had the support and knowledge to do so. Others described either not requesting reasonable accommodations because they felt they could address their needs themselves, did not know how to request an accommodation, or did not feel comfortable requesting reasonable accommodations.

Individuals who did not know how to request an accommodation described needing to work hard to seek out the information or only knowing what to do or that they were even eligible because someone else let them know. Specifically, of those groups who discussed the extent to which they understood the process for requesting accommodations, at least one person in 88 percent of groups described a lack of knowledge related to the request process. For example, one participant described his experience as follows:

I didn't know the process for [requesting an accommodation]. I didn't ask for accommodations and kept suffering in my chair. And there was a brand-new major who saw me and came over and said, "We're going to move you out of your old office." They put me in a nice office. It was him who, as a new branch chief, took the time to get the letters done, coded it, actually put it together [the workspace] himself—someone taking an interest. But, some branch chiefs sometimes stay in their office and some handicapped folk may be suffering. I didn't know what to do; I was so focused on myself and on the pain. You almost need an outsider to show some compassion, emotional intelligence, to see someone suffering and help out.

Others described the process as confusing and feeling as though they had little support in trying to understand and fill out paperwork. For example, one participant commented:

I've had to work for it [accommodations]; I've had to find it all myself, and I've had to do it all myself. For the paperwork, there was no assistance nor was there anybody working with me trying to help me or be supporting. There was no support.

As another participant stated:

I think it's a hidden or unknown process that may lead to people thinking it's not acceptable to request reasonable accommodations.

For those individuals who did not feel comfortable requesting reasonable accommodations, their discomfort seemed to stem largely from two sources. First, for most participants who indicated they were not comfortable requesting accommodations, they described not wanting to bring attention to their disabilities due to fears of potential misperceptions and stigmatization. For example, one participant stated:

I get the feeling that if it's something I want to bring to my supervisor's attention, it could be used against me. I don't go out of my way to mention anything with respect to my disabilities.

Similarly, another participant commented:

We work really hard to be valued for our skills, productivity, and knowledge, and then when any attention is brought to your disability, then it's all about that and none of your other attributes.

Worries of stigmatization were voiced particularly by individuals who have psychological or nonphysical disabilities. For example, one participant with PTSD stated:

I qualify for a service dog, but I'll be damned if I get one. I see what they can do, but I also don't want to be that guy.

Similarly, another participant commented:

When they see a whole body, it's a nonvisible disability to them. If they see a missing limb, they understand that. Talking about PTSD and TBI [traumatic brain injury], it can get to the point where there's that mentality from people who should know better, thinking and asking about whether someone is violent or

aggressive. That's the conversation you overhear sometimes. There's a disconnect. There's no understanding that having one of those things doesn't make you incompetent.

Second, there were some individuals who described failing to receive a previous request or not feeling like their request would be supported. In particular, participants described the importance of having peer and supervisor support; when support is missing, it can have a negative impact on one's comfort requesting accommodations. For example, when asked about comfort in requesting reasonable accommodations, one participant stated:

It depends on what years you're referring to. When I was at [another organization], I felt comfortable and had the accommodations. I had coworkers and peers that had no problem helping out with these things. Since being at [this organization], it's been considerably less comfortable.

Another participant commented:

I've never been offered, and I could use [accommodations] for vision purposes, bigger screens . . . and they say, "Why are you bothering us with your need and it's an inconvenience." I requested it and was turned down, and I'm having to ask for it multiple times. They always deny my request for one reason or another.

The importance of leadership support was raised in other areas related to experiences of accommodations as well. As mentioned in the previous sections, this was noted in the importance of understanding the process for requesting a reasonable accommodation, receipt of accommodations, and feelings of comfort in requesting an accommodation without being stigmatized. For participants who felt like they had leaders who understood their disabilities and would work with them to accommodate their needs, this led to very positive working experiences. In other cases, participants described supervisors who did not seem familiar with reasonable accommodation requirements or related processes and were not perceived as supportive of their needs. For example, one participant stated:

I have PTSD, and there are times when I need to shut people away and isolate myself. . . . I had a conversation with my boss about it, and it would have been better talking to a rock.

Similarly, another participant commented:

I've had to request it twice. I always received a flurry of questions. The managers didn't know, and they weren't sure of how to be supportive. I fear that as I get older and as my body changes, and the disabilities perhaps become more visible, it may become more physically apparent. So, I'm hoping there will be more education for managers and supervisors so that when someone comes to them in confidence, [they can] say to a person, it may be easier doing your job with this type of screen, or can I offer you this. So, helping someone doing their job [and] approaching them early on, instead of allowing it to become a discipline problem.

In contrast to these experiences, other participants described having very supportive supervisors that made them feel valued. For example, one participant described the following experience:

Where I'm at, they'll do anything within reason to help me out . . . when I was coming in, they realized the women's restroom doesn't have a handicap bathroom—so by the time I got here, they got it in.

Similarly, another participant described also having a supportive experience that made a difference:

They have always gone out of the way. If I needed something, and CAP [Computer/Electronic Accommodations Program] didn't have funding, I guarantee you, my colonel will find local funds and figure it out. I guarantee you, mine would—but it depends on where you work.

Thus, supervisor or leader support was viewed as essential to experiences with accommodations.

Summary of Focus Group and Interview Findings

When we asked focus group and interview participants what factors influence Air Force civilians to leave the Air Force, the two factors mentioned most often were compensation and lack of advancement opportunities. Other factors raised to a lesser extent were related to work environment and included not feeling valued, leadership, workload stress, government bureaucracy, and risk of government shutdown and furlough. When asked to comment on reasons why Air Force civilians remain in their careers, participants most often mentioned commitment to the Air Force mission and work, benefits, and job security. A few participants also noted that Air Force civilian work schedules had a positive influence on retention. Participants had mixed responses when asked whether race/ethnicity or gender influenced retention decisions. Most white males did not think race/ethnicity or gender influenced retention decisions while comments from women and racial/ethnic minorities were mixed, with some not seeing the influence of race/ethnicity or gender and others citing negative retention effects. Participants also had mixed responses when asked whether disability status influenced retention decisions. Some saw no influence from disability status, others reported a negative influence, and still others reported a positive influence on retention for individuals with disabilities. Often comments were connected to experiences with reasonable accommodations. We also asked individuals with disabilities and veterans with service-connected disabilities specifically about their experiences with reasonable accommodations, and the responses were mixed regarding whether they felt comfortable making these requests. For some participants, they indicated that they had requested accommodations and felt they had the support and knowledge to do so. For others, they noted either not requesting reasonable accommodations because they felt they could address their own needs, did not know how to request an accommodation, or did not feel comfortable requesting reasonable accommodations.

5. Conclusion and Recommendations

As Chapter 1 notes, to leverage the best available talent from across the U.S. civilian labor market, the Air Force seeks to ensure that it grows and retains civilian talent across all demographic groups. The goal of this research was to develop a better understanding of the challenges that women, racial/ethnic minorities, and individuals with disabilities may face in advancing to higher pay grades and a clearer picture of the factors they consider when deciding whether to remain with the Air Force. We addressed three key questions:

1. What are current representation levels of women, racial/ethnic minorities, and individuals with disabilities in the Air Force civilian white-collar workforce?
2. What are potential barriers to the advancement and retention of civilian women, racial/ethnic minorities, and individuals with disabilities in this workforce?
3. How can changes to policies and practices help the Air Force grow and retain a diverse civilian workforce?

To address the first question, we determined the representation of women, racial/ethnic minorities, and individuals with targeted disabilities by GS grade categories for FY 2016. In general, women, racial/ethnic minorities, and individuals with targeted disabilities are overrepresented at lower GS grades (GS 6–10) and underrepresented at the highest GS grades (GS 14–15). For example, women make up about 35 percent of GS civilians in the Air Force but only 21 percent of personnel in the top two GS grades. Similarly, black personnel and Hispanic personnel are overrepresented at the lowest GS grades, but they are underrepresented at the top two GS grades. Finally, individuals with targeted disabilities are also underrepresented in the top two GS grades compared to their representation across the civilian workforce.

The rest of this chapter summarizes the key findings that address the second question about potential barriers and provides recommendations that align with the third question.

Key Findings

We summarize findings related to potential advancement barriers, followed by those related to potential retention barriers. Within each of these sections, we identify key findings from our quantitative analyses, followed by findings from our qualitative analyses.

Potential Advancement Barriers

Findings from Quantitative Analyses

The most significant finding of our quantitative analyses, in terms of the impact on barriers to advancement, is that women's advancement to top civilian grades is limited by their lower grade levels at entry. Specifically, our analyses show that grade levels of women at initial entry were

about 1.3 grades lower than men, on average, and women were over 20 percentage points less likely to begin their careers at or above grade 11. This entry-level gap is largely a function of gender differences in job series, veteran status, and work experience. Our analysis of advancement patterns shows that although women progress to higher pay grades at similar rates as men, because they start out at lower grades initially, they fail to make up the initial entry-level gaps, affecting their ability to fill senior GS (and equivalent) grades.

Our finding on gender gaps at entry is not well documented in the broader literature. Other studies that address occupational segregation by gender show that it is related to fewer opportunities for women to reach senior-level positions in the private sector (e.g., Helfat, Harris, and Wilson, 2006) and within communities in the Department of Defense (e.g., Guo, Hall-Partyka, and Gates, 2014). However, we are not aware of studies in the broader sociological and economic literature that quantify the effect of a gender gap in organizational entry level on women's career advancement to senior levels in organizations, while also controlling for several human capital and structural factors.

The study's quantitative analyses also reveal that Asian men do not advance at the rate expected based on their human capital. In comparison to those of women, career advancement patterns among men of different races/ethnicities are more similar. Based on our growth curve models, the differences in senior leadership attainment (defined as reaching GS-14 and above) from that of white men, in percentages, range from 1.6 points for Asian men to 2.1 points for Hispanic men. For Asian men, the gap is entirely an effect of lower advancement, as indicated by the growth curves. Unfortunately, we did not have any Asian male focus groups and had too few interviews with Asian men to identify reasons why Asian men, in particular, may not be advancing at the expected rate.

Although our qualitative analysis did not lend itself to addressing reasons why Asian men in the Air Force civil workforce are not advancing at a rate expected given their educational and work experiences, scholarly literature suggests that Asian Americans do not generally achieve economic parity with Caucasian Americans even when they have similar educational and demographic (e.g., marital status) backgrounds. Using data from the 2003 National Survey of College Graduates, Kim and Sakamoto (2010) found that Asian American men generally do not achieve the same earnings as Caucasian American men with similar educational backgrounds. Similarly, Kim and Zhao (2014) found that Asian American women are less likely than Caucasian American women with similar educational, geographic, and other demographic (e.g., marital status) characteristics to achieve similar employment and earnings outcomes.

Lee and Kye (2016) theorize that the disconnect between Asian American educational attainment and socioeconomic outcomes is evidence of racialized assimilation, whereby Asian Americans show signs of assimilating to the mainstream (Caucasian American) culture (e.g., marrying Caucasian Americans) but still face racial/ethnic biases that keep them from being fully accepted as part of the mainstream culture. Racial/ethnic biases regarding leadership potential might partly explain differences between Asian Americans and Caucasian Americans obtaining

leadership positions in American organizations. For example, Sy et al. (2010) conducted an experimental study where participants were asked to evaluate hypothetical Asian American employees or Caucasian American employees in terms of technical and leadership attributes. The study found that Asian Americans were perceived as “less ideal leaders than are Caucasian Americans” (p. 913). Moreover, study participants differed in how they viewed Asian American and Caucasian American leaders such that Asian Americans were viewed in terms of “competent” leadership prototypes (e.g., technically proficient) and Caucasian Americans were more likely to be considered “agentic” leaders (p. 914). These findings suggest that “Asian Americans may be disadvantaged relative to Caucasian Americans when organizational leaders make decisions about whom to promote to managerial positions” (p. 914).

Finally, the quantitative analyses from our study show that veterans who enter with a 30-percent or higher VA disability rating have similar, yet slightly lower, grade attainment with those who do not. Although the entry grade analysis and the multilevel growth model show similar trajectories across self-reported disability categories, they also show a slight disadvantage for veterans with 30-percent disability ratings. However, because of the small size of the effect and the small size of disability populations, we do not find a major impact of entry-level grade gap on senior civilian grade attainment for veterans with 30-percent or higher VA disability ratings.

Findings from Qualitative Analyses

Our qualitative analysis related to advancement topics identified themes of interest in advancement, career feedback and mentoring, career development support, awareness of promotion opportunities, key promotion factors, and the extent to which participants felt they had an equal opportunity for advancement. Overall, most participants expressed high interest in promotion opportunities, but many reported a perception that there are a limited number of positions at higher grades. Participants identified both structural factors that limit opportunities (e.g., few high-level positions in their career fields) and perceptual barriers. For example, a small number of racial/ethnic minority participants noted that promotion opportunities were lacking because they did not see Air Force civilians who “looked like them” in higher-level positions, leading to perceptions of their inability to be promoted to higher levels.

Many participants reported that career feedback, mentoring, and career development support are limited or lacking and, when available, are not always helpful. Several participants also reported a perception that supervisors do not feel a responsibility to provide feedback to their staff, or that they may not be able to balance providing feedback with their other job duties. Moreover, some participants reported a lack of transparency surrounding selection decisions for training opportunities, as well as other barriers to career development support (e.g., budget cuts, workload demands restricting time to go to training, etc.).

We got a variety of responses across focus groups and interview categories when we asked whether participants were aware of promotion opportunities. However, female and racial/ethnic

minority groups, as well as our groups of individuals with disabilities (including veterans with service-connected disabilities) were more likely than white men to report that they did not feel they were always aware of promotion opportunities. In general, most of the participants who said they were aware of promotion opportunities indicated they learned about opportunities primarily through their own initiative by searching on USAJOBS.

When we asked participants about what factors are important to getting promoted, we identified four main themes: (1) who you know, or one's social networks; (2) individual qualifications, such as education, experience, and performance; (3) individual characteristics, such as initiative and drive; and (4) mobility or the willingness to move to a location where a higher pay grade position is more likely to be available. In particular, participants reported that knowing people in higher-level positions, or knowing hiring managers, is critical to advancement, and some participants used such phrases as "word of mouth" and "good ole boys' network" in their responses. Some participants even stated that they believed that position descriptions (PDs) for civilian vacancies are written with certain individuals in mind. It is also important to note that a small subset of participants voiced a concern that they did not know what factors are related to success in promotion.

Finally, we asked participants whether they felt that, compared with other Air Force civilian employees, they had an equal opportunity for promotion, and whether they thought that gender or race/ethnicity influence promotion opportunities, or whether they thought that disability status influences promotion opportunities. In general, the majority of women and racial/ethnic minorities indicated that they thought that gender and race/ethnicity can influence promotion opportunities. In contrast, participants in the white male focus groups were much more likely to indicate that they did not think gender and race/ethnicity play a role in promotions, although some mentioned they could see how there was the potential for bias. People with disabilities gave mixed responses about whether their disability status influenced their promotion opportunities. Some reported worrying that their disability status could lead to stigmatization or misperceptions about their capabilities, which could affect their advancement potential. Finally, although we did not ask them about this specifically, participants also raised the importance of veteran status and age on opportunities for promotion, reporting that veterans and younger people with "fresh" degrees appear to have an advantage.

Potential Retention Barriers

Findings from Quantitative Analyses

In general, our retention analyses—which control for observed factors in personnel data—did not yield many significant results. Specifically, only 4 percent of the 242 comparisons identifying retention differences were statistically significant. Comparisons disfavoring women, racial/ethnic minorities, or individuals with disabilities were sporadic and did not follow a consistent pattern across demographic groups, grade levels, or fiscal years.

However, raw attrition rates among individuals who have targeted disabilities have been elevated in recent years: specifically, 1 to 2 points elevated since 2009. Our retention analyses cannot account for these recent elevations, in part because disability populations are small. Disability populations are also diverse, in terms of types of disabilities, and hard to measure because of challenges in ensuring employees with disabilities self-identify.

Although we did not find large retention differences between men and women, our analysis of gender differences in cumulative retention rates split out by retirement system (CSRS versus FERS) suggests a gender gap that merits monitoring. Specifically, continuation rates for women are lower than men for FERS employees who are 20 to 30 years away from retirement, whereas women in the CSRS have remained in the workforce at higher rates than men. Aggregate retention among women in the past, then, is a combination of relatively low FERS retention and relatively high CSRS retention, which partly explains why our other retention analyses did not identify significant gender retention gaps. If the FERS trends continue, low retention among early-career women could become more of a problem in the future.

Findings from Qualitative Analyses

When we asked participants about the factors that influence Air Force civilians to leave their Air Force careers, compensation and lack of advancement opportunities were the two factors mentioned most often. Other factors mentioned as reasons to leave focused on the work environment and included leadership, workload stress, government bureaucracy, furlough risk, and not feeling valued. We also asked participants about factors that influence Air Force civilians to remain with the Air Force. The factors mentioned most frequently for remaining in the Air Force were commitment to the Air Force mission and work, benefits, and job security.

We also asked participants whether they felt that race/ethnicity or gender influence the factors that civilians consider when deciding whether to leave or remain with the Air Force. Different demographic groups gave different responses. We got mixed responses from women and racial/ethnic minority groups, but nearly all white male participants responded that race/ethnicity or gender do not influence Air Force retention decisions.

In the case of the disability focus groups and interviews, we asked participants whether they felt that disability status influenced reasons to leave or remain with the Air Force. Responses varied, with some participants reporting that disability status has no influence on retention and others stating that having a disability influences reasons to leave. Unlike the race/ethnicity and gender focus group and interview participants, some of the participants in the disability focus groups and interviews reported that having a disability could influence reasons to stay in the Air Force. Among those who said that disability status could potentially affect retention, some emphasized that retention effects for employees with disabilities might be driven by their experiences with reasonable accommodations at work. When asked about their experiences with reasonable accommodations, participants gave mixed responses about whether they felt comfortable making requests. People who did not request accommodations most commonly

said that they felt they could address their own needs, did not know how to request an accommodation, or were often concerned about drawing attention to their disability for fear of stigmatization.

Recommendations

We grouped our recommendations into three overarching recommendations: (1) Identify root causes for the entry-level gap for women and other minority groups, (2) ensure that supervisors and managers take responsibility for the career development and disability management of their staff, and (3) monitor the advancement and retention of different civilian demographic groups that have lower-than-expected advancement or retention rates.

Some of our recommendations directly address demographic diversity challenges, whereas others address broader issues for civilian personnel that could have an indirect impact on the demographic diversity of the Air Force civilian workforce. In addition, the recommendations we offer for improving the support of advancement opportunities for Air Force civilians should also indirectly affect retention, given that, across focus groups and interviews, perceptions of a lack of advancement opportunities emerged as one of the top two reasons that civilians might leave the Air Force.

We wish to note that some of our findings concern factors or situations that are outside the Air Force's control or that can be very difficult to change. For example, the Air Force might not have the resources to add senior-level civilian positions to create more advancement opportunities for civilians at certain bases or to raise salary levels to compete with certain private-sector jobs. Therefore, the recommendations we offer are designed to address the most critical and actionable areas of improvement that we identified through our analyses.

We also wish to note that participants reported that benefits (e.g., health care, retirement) are one of the key positive motivators for remaining with the Air Force. Therefore, changes to these benefits should be made with caution.

Identify Root Causes for the Entry-Level Gap for Women and Other Minority Groups

Our quantitative analyses revealed that some minority groups—particularly women—tend to enter the Air Force civil service at lower grades than white men. This entry gap has negative repercussions for women's ability to reach senior GS (and equivalent) grades. To identify policy solutions to address this barrier to advancement, we recommend that the Air Force conduct root-cause analysis to determine why women (and relevant racial/ethnic groups) tend to enter the Air Force civil service at lower grades than white men. Analyses should take into consideration factors that our analyses show at least partly explain entry-level gaps: job (occupational) series, work experience, and veteran status. For example, analysis of civilian applicant data might reveal that fewer women than men apply for jobs in occupations that typically hire directly into higher GS grades. If women have lower application rates for these jobs than men, root causes could

relate to limitations in the applicant pool (e.g., fewer qualified women enter into these occupational areas), recruiting (e.g., jobs are not adequately marketed to women who would be qualified for the jobs), hiring and selection practices (e.g., local hiring officials having a preference for male candidates or veterans, who tend to be male), or some combination of all three. Similar analyses could be conducted for racial/ethnic groups that also have lower entry grades than white men.

Ensure That Supervisors and Managers Take Responsibility for Career Development and Disability Management of Their Staff

Data from focus groups and interviews with Air Force civilians suggest that some staff are not convinced that their supervisors and managers consider career development (e.g., providing career feedback, mentorship, and general support) part of their responsibility as supervisors and managers. Focus group and interview participants also indicated that they think “who you know” affects promotion opportunities, which can be particularly problematic for women and racial/ethnic minorities, as research shows they experience challenges in creating and using social networks that help them with career opportunities. Because civilian hiring and promotions are based on local hiring authorities, those involved in hiring and promotion decisions (e.g., hiring managers) should be accountable for taking concrete steps for staff career development, understanding and disseminating disability policies and procedures, and ensuring that position descriptions for higher-graded vacancies align with official career field guidance. We identify three interrelated ways to address this issue.

Staff Career Development Should Be a Formal Requirement for Supervisors and Managers

Many organizations use performance management systems¹ as the primary means for supervisors to provide performance and career-related feedback to employees. Research and practitioner guidance on feedback within performance management systems suggest that organizations need to encourage supervisors through rewards, goal setting, and evaluation of how well they manage their subordinates in order to foster consistent, effective feedback systems. A system based solely on voluntary interactions between supervisors and subordinates without organizational support to help motivate supervisors can be ineffective (Adler et al., 2016). We therefore recommend that the Air Force make career development a formal requirement for supervisors and managers, at some level. For example, supervisors could be required to present career development information to their civilian employees on a periodic (e.g., annual) basis. These presentations could include information about career paths and

¹ Performance management systems attempt to assist organizational performance by focusing on employee-level motivation, goal setting, supervisor feedback, and incentives (see Angelo S. DeNisi and Robert D. Pritchard, “Performance Appraisal, Performance Management and Improving Individual Performance: A Motivational Framework,” *Management and Organization Review*, Vol. 2, No. 2, 2006, pp. 253–277).

expected requirements for advancement in their staff members' occupations, the latest vacancies, and how to identify career resources (e.g., how to find a mentor and be a mentor on MyVECTOR).

A briefing requirement is, of course, just one option among many others that agencies could consider. The choice of format and frequency of activities can be determined at the local level with the expectation that the requirement will yield, at a minimum, improvements in employee knowledge about career paths and career options.

Education on Disability Requirements Should Be a Formal Requirement for Supervisors and Managers

Similarly, we recommend that educating all staff on disability requirements be made a formal requirement for supervisors and managers. Our research shows that, for individuals with disabilities, it is critical that supervisors and managers play an active role in making them aware of organizational requirements regarding their disabilities, understand processes for requesting reasonable accommodations, and show support regarding their needs. As in the case of career development, meeting this requirement could be accomplished through presentations (perhaps even delivered in the same session) that include information relevant to individuals with disabilities, such as the requirements and processes for requesting a reasonable accommodation. Requiring supervisors and managers to present this disability information to their staffs would also ensure that the supervisors and managers themselves understand their responsibilities when it comes to workers with disabilities. We emphasize that supervisors and managers educate *all* staff because some staff members might not have disclosed that they have disabilities and therefore they would find the information useful.

Ensure That Position Descriptions Align with Official Air Force Career Guidance

To address concerns that PDs are written for specific individuals, thus creating perceptions of a “good ole boys” network, the Air Force should take measures to determine whether PDs align with career development plans from official sources (e.g., career field managers). Our recommendation is to enhance existing Air Force policy guidance regarding PDs. Specifically, the Assistance Deputy Chief of Staff for Manpower, Personnel, and Services issued a policy memorandum that directed that PDs not include language that indicates “attributes that can only be gained through uniformed service” and that each PD be reviewed by the “Career Field Team, hiring official, or staffing specialist prior to posting a job announcement for a new vacancy or during development for a new position” (Fore, 2017).

To ensure this policy directive is effective, the Air Force can develop an audit mechanism to review PDs against official career development information after those PDs have been used. This audit mechanism could fall within existing Air Force Personnel Center (AFPC) central

classification activities for Standard Core Personnel Documents (SCPDs).² If there is significant misalignment, the career field manager or other appropriate leader should reach out to the hiring officials for the career field to determine how to address the misalignment. One possible reason for a misalignment could be that the career guidance (e.g., education and experience requirements for different pay grades) is out of date or does not fully reflect the needs of the entire career field. If career field guidance is deficient, the Air Force can host ad hoc committees that include hiring officials so that the guidance can be updated. These committees would not only help ensure that information is up to date and relevant but could have the added benefit of obtaining buy-in from the hiring officials who play a key role in developing PDs. Involving the hiring officials in this process would, ideally, ensure that they also feel accountable to their staffs for making sure that there is alignment between the career guidance they provide, the PDs they write, and the qualifications of the people who are hired.

Monitor the Advancement and Retention of Different Civilian Demographic Groups That Have Lower-Than-Expected Advancement or Retention Rates

Our quantitative analyses found few demographic group differences in advancement rates and career trajectories. However, to discern what barriers might prevent advancement to senior GS (and equivalent) grades, the Air Force should continue to monitor advancement trends for the few cases where differences were found. In particular, our analysis shows that Asian men do not advance to senior GS (and equivalent) grades at rates one would expect based on their observed human capital (e.g., education and experience). A focused effort to understand their advancement patterns could help determine the reason for the finding. For example, promotion data might reveal Asian men are not applying for higher-level positions at the same rate as their white male peers, or climate survey data might suggest certain negative workplace issues affect Asian men more than others. Likewise, analysis of training and education data could identify if civilians from different demographic or veteran groups receive a sufficient number of slots for training and education courses that could improve promotion opportunities. At a minimum, the Air Force should continue to monitor advancement patterns for Asian men and other demographic groups to discern what barriers might prevent them from advancing to senior GS (and equivalent) grades.

Similarly, although we did not find retention to be a significant issue for most demographic groups, there are some differences that warrant continued monitoring. For example, although raw retention rates among individuals who have targeted disabilities have been elevated in recent years, due to the small sample size of this group and the diversity of types of disabilities, our retention analyses were not able to account for these differences. Further, if current trends for women in the FERS retirement system continue, low retention among early-career women could become more of a problem in the future.

² See Appendix A for a brief description of the civilian hiring process, which describes the purpose of SCPDs.

To enhance monitoring of retention trends for different demographic groups, the Air Force can capitalize on its existing survey data to track factors that might explain retention behavior. Focus group participants cited commitment to the Air Force mission and work, benefits, and job security as reasons to stay in the Air Force. Individuals with disabilities also noted positive experiences with accommodations as a possible reason to stay. To determine how these factors relate to retention behavior, the Air Force can link civilian retention and exit survey data with personnel records and then estimate the impact of survey responses about these factors on future retention behavior.

Summary

As in its military workforce counterpart, the Air Force experiences challenges in maintaining a demographically diverse civilian workforce. This study was designed to develop a better understanding of the challenges that women, racial/ethnic minorities, and individuals with disabilities may face in advancing to higher pay grades and a clearer picture of the factors they consider when deciding whether to remain with the Air Force. We use a mixed-methods approach by analyzing Air Force personnel data to identify differences in advancement and retention patterns and by conducting focus groups and interviews with close to 300 participants from across the civilian workforce to better understand potential advancement and retention barriers. Based on our quantitative analyses, we found that entry-level gaps for women and, to a lesser degree, career trajectory gaps for Asian men and a few other groups may present barriers to advancement. Through analysis of focus group and interview data, we identified several advancement and retention themes that cut across several demographic groups and suggest that at least some Air Force civilians feel they do not have a clear sense of their career paths and whether they are valued by their leadership. Individuals with disabilities (including veterans with service-connected disabilities) might also be experiencing challenges with stigma in the workplace and knowing how to acquire reasonable accommodations. Our recommendations for potential changes to Air Force policies and practices are designed to help the service grow and retain civilian talent from across all demographic groups.

Appendix A. The Civilian Personnel System

The Air Force civilian workforce is not only large—encompassing over 179,000 people—but also represents a wide range of skills and experience, from entry all the way to senior executive levels.¹ To manage this large and diverse workforce, the Air Force must follow legal and regulatory guidance for federal government civilian personnel in Title 5 of the U.S. Code (5 USC) and from the U.S. Office of Personnel Management (OPM). Within the context of legal and regulatory requirements, the Air Force establishes and executes policies for managing its civilian workforce to achieve its varied missions.

This appendix provides an overview of the Air Force civilian personnel system. We begin by discussing how the Air Force civilian workforce is structured in terms of funding sources, terms of employment (e.g., permanent versus temporary), and pay plans that tie to pay grades. We then discuss other features of the workforce and civilian personnel system, including how vacancies for civilian positions are filled and what civilian retirement plans are available. In the latter half of the appendix, we discuss additional considerations for civilian employment of individuals with disabilities.

Air Force Civilian Workforce Structure

A basic structural feature of the Air Force civilian workforce involves the source of funding used to pay for civilian employees. There are two main sources of funds for civilian positions: appropriated funds and non-appropriated funds. Appropriated funds (APF) refer to moneys allocated through legislation passed by Congress and signed by the president (FederalPay.org, 2017a) and can be used only for the purpose they have been appropriated for. Non-Appropriated funds (NAF) refer to revenue earned by government departments, organizations, and agencies by means other than taxation. NAF employees tend to be hired for part-time work.² For example, an Air Force Base might have an Enlisted Club that includes a bar that raises revenue through sales. Those funds can then be used to hire summer lifeguards for the pool on the base, making those employees NAF civilians, as would the staff of the Enlisted Club itself. Of the roughly 179,000

¹ Based on data from the Air Force Personnel Center (AFPC), the Air Force civilian workforce included 179,408 people as of June 30, 2017. Other references to Air Force civilian personnel numbers in this appendix are based on AFPC data from June 30, 2017, unless stated otherwise.

² NAF employment can be flexible or regular. According to the NAF Jobs website (“About Us,” n.d.): “Flexible employees have work schedules that depend on the needs of the activity. These employees may work a minimum of zero hours to a maximum of 40 hours per week, and do not receive benefits. Regular employees work between 20 and 40 hours a week, depending on position requirements, and are entitled to receive benefits.”

Air Force civilian employees, about 21,000 are NAF employees while the other 158,000 are paid for with appropriated funds.

Another basic structural feature of the civilian workforce relates to categories of employment. Categories of employment laid out in Title 5 of the Code of Federal Regulations (5 CFR) include Career and Career-Conditional Employment (Part 315) and Temporary and Term Employment (Part 316). A term employee is one who is appointed for a period of more than one year but not more than four years when the need for the employee's service is not permanent, and a temporary employee is one whose service is needed for less than a year. Career and career-conditional employees are those who are not considered temporary or term employees (i.e., are permanent). The vast majority of civilians—almost 144,000 out of roughly 179,000 Air Force civilians—are in career or career-conditional (permanent) positions.³

Finally, pay plans and associated pay grades provide another basic element for how the Air Force civilian workforce is structured. According to OPM, a pay plan “is a two-digit alphabetical code used to identity Federal civilian pay systems,” with pay plan codes approved by OPM for “agency use” (OPM, n.d.e.). The Air Force uses over 90 pay plans for its civilian workforce. The most common for white-collar civilian positions is the General Schedule, or GS. The wage grade (WG) pay plan is used for many traditional blue-collar positions, and senior executives are typically identified by the ES and EX pay plans. In general, the distribution of Air Force civilians from the many pay plans can be represented as about 21 percent wage grade, 0.2 percent senior executives, and 78.8 percent GS or GS equivalents. Because the bulk of the full-time civilians are in the GS (and equivalent) pay plan, our study focused on GS and equivalent (e.g., GG) employees. Below, we provide examples of Pay Plan Codes available in the Defense Civilian Personnel Data System (DCPDS):⁴

AD	Administratively Determined
AL	Administrative Law Judge
ES	Senior Executive Service
EX	Executive Schedule
GS	General Schedule
SL	Senior-Level Positions
ST	Scientific and Professional Positions
SV	Transportation Security Administration
VN	Department of Veterans Affairs Nurses
WG	Wage Grade

³ Most of the permanent civilian employees are also U.S. citizens because U.S. law (Public Law 114-113) requires government employees in duty posts within the continental United States to be U.S. citizens or lawfully in the country (e.g., permanent residents). The Air Force does employ local nationals (i.e., citizens of foreign countries doing work for the Air Force in their home countries), but they only represent about 11,000 of the roughly 179,000 Air Force civilian employees. Therefore, roughly 140,000 are permanent full-time employees and U.S. citizens.

⁴ The DoD uses DCPDS to track civilian personnel throughout the department.

A pay grade is the rank someone has within a pay plan. Within the GS pay plan, personnel are assigned pay grades ranging from GS-1 to GS-15. Each of these pay grades contains ten steps (e.g., GS-5, step 1 through GS-5, step 10). The steps represent incremental pay points within a grade on the civilian pay tables. Each step increase for GS-3 and higher represents a fixed pay increase on the pay tables. For example, on the 2017 pay tables, a GS-5, step 1 going to step 2 after a year of satisfactory service sees an annual increase in pay increase from \$28,545 to \$29,497, which is an increase of \$952. Each step advance within the GS-5 grade is accompanied by that same increase in pay. A periodic increase from one step to the next is based on time served in each step and acceptable performance in that step (5 USC § 5335). Personnel may increase in step faster than the periodic increase during the annual appraisal cycle, when a supervisor can grant the employee something called a “quality step increase.” Going from one pay grade to the next higher pay grade (GS-5 to GS-6) requires a promotion, which will be discussed in a later section in this report.

Filling a Civilian Vacancy

Unlike the military, where there is decentralized recruiting but mostly centralized hiring determination, the civilian hiring process in the Air Force (and across the federal government in general) is mostly decentralized to local managers who get to choose from a pool of applicants. Publicly available documentation on the actual steps used by Air Force local managers to hire civilians is limited, but guidance for federal hiring managers suggests there are five basic steps they can use to fill a vacancy to hire an employee: (1) Understand your workforce, (2) partner with human resources, (3) recruit a pool of qualified candidates, (4) hire the best person for the job, and (5) onboard the new employee (Partnership for Public Service, 2010). In the sections below, we describe each step and include references to specific Air Force organizations and processes as relevant.

Understanding Your Workforce. The hiring manager⁵ should maintain a list of employee positions, know when a position is or will be vacant, and decide if a position needs to be filled. If the manager has funding to fill a vacant position, the manager can begin the process by working with the civilian personnel section (CPS), which is the focal point for civil service employee management on an Air Force Base.

Partner with Human Resources. Once a vacancy and a need are identified, and it is determined the manager wants to fill a vacant position, the hiring manager can use an existing position description (PD) that describes the work required or choose to write a new one. It is each manager’s responsibility to develop and maintain employee PDs on what are called Core Personnel Documents (CPDs) and review these with employees annually. When updating tasks

⁵ By “hiring manager,” we mean either a manager, hiring authority, or selecting official.

or duties on the CPD, the manager is supposed to review the Standard Core Personnel Document (SCPD) library to see if one already exists that matches the role of the position. The Air Force Manpower Agency maintains a library of common job SCPDs that have already been classified and are advertised as a way to greatly cut down the time it takes to fill a vacant civilian position. If the hiring manager submits a CPD that is not close enough to one already classified in the SCPD library, then it must be classified manually by the AFPC Central Classification Division or by a servicing Operating Location, which provides on-site civilian personnel specialists at Air Force Material Command and the Air Force District of Washington locations due to the large size of civilian populations at these locations. If a new CPD has been selected or if the level of work has changed since the position was last classified, the PD might need to go through classification⁶ to determine the pay grade required to perform the work. Classification is the process of identifying the pay plan and grade of civilian positions using the consistent application of standards. Using standardized classification is a way to ensure similar jobs across the Air Force all receive the same pay plan and grade. The final CPD includes the pay plan, the grade of the position, the title of the position, the occupational series, statements explaining the duties of the job, performance standards, and recruitment information such as knowledge, skills, and abilities (KSAs) needed for the position (Civilian Personnel Section, 2011).

Recruit a Pool of Qualified Candidates. Before hiring managers can recruit applicants for the vacant position, the process for filling the position needs to be considered. OPM (n.d.e.) notes that there are three main types of federal civil service: competitive, excepted, and senior executive. *Competitive service* requires applicants to undergo a competitive process to be hired—namely, by meeting education and experience requirements. *Excepted service* does not provide competitive status to the employee once hired, and positions that are excepted service can be filled with a noncompetitive process. *Senior executive service* (SES) involves positions at the top of civilian leadership.

Before the position can be advertised, the local (or servicing) CPS first checks for employees who are eligible for priority or mandatory placement. The Priority Placement Program (PPP) is one such priority program. PPP is a DoD program for employees affected by reduction in force (RIF), base closures, realignments, and consolidations (DoD, 2011). PPP operates through a system that generates a “stopper list” of employees who have been affected by management actions through no fault of their own and have a legal right to be considered for vacant positions they are well qualified for (DoD, 2011). Another priority program is the Reemployment Priority List (RPL), which gives priority to employees separated or being separated by an RIF or those employees who separated or accepted a lower-graded position due to a compensable injury and

⁶ Classification is typically conducted at AFPC’s central classification division but can be done at a servicing Operating Location (OL) for some positions.

are fully recovered.⁷ Yet another program is the Interagency Career Transition Assistance Plan (ICTAP), a government-wide program that gives consideration to employees displaced from other agencies. Once the local CPS reviews the lists from priority programs and they are cleared (i.e., no eligible applicants), either the selecting official or the human resources (HR) official fills out a Standard Form (SF)-52, Request for Personnel Action (RPA), to initiate the hiring process.⁸ An RPA is submitted by either a selecting official or the HR official to initiate a fill action on a vacancy and begin recruitment (AFAFO, 2016).

Once the stopper lists are cleared, agencies can use various hiring authorities, including those that allow noncompetitive placement of a qualified applicant (OPM, n.d.e.). For example, Title 5, U.S. Code, Section 3112 states that “an agency may make a noncompetitive appointment leading to conversion to a career or career-conditional employment of a disabled veteran who has a compensable service-connected disability of 30 percent or more.” Another special appointment authority for veterans is called the Veterans Recruitment Appointment (VRA) authority. According to the OPM veteran’s guide (OPM, n.d.h.), the VRA allows the agency to “appoint eligible veterans without competition to positions at any grade level through General Schedule 11 or equivalent.”

If the hiring authority does not have a noncompetitive appointment to make, the RPA continues to the advertising stage. Advertising the position vacancy is done through a job announcement to inform the target audience of a vacancy. The vacancy can be advertised internally (to current agency employees, military spouses, or former federal employees with reinstatement eligibility), externally (the general public including veterans or current employees from a different federal agency), or both. The positions can also be open to special groups, like military spouses and persons with disabilities. Some items included in the announcement are the major duties from the CPD, the salary range, qualifications, KSAs or required job elements, any special conditions of employment (e.g., an educational requirement), and instructions on how to apply for the vacancy. OPM requires job announcements to be posted on the USAJOBS website for a minimum of five workdays.

Interested candidates apply for positions on OPM’s USAJOBS website. On the website, candidates can apply for multiple government positions and set up their account so that the website will automatically notify them when a new position announcement that meets certain criteria is posted. After individuals apply for a position on USAJOBS, the first step for the hiring

⁷ A complete and ranked list of these priority placement programs is listed in Table 2.3 in U.S. Air Force, “Staffing Civilian Positions,” Air Force Manual 36-203, January 11, 2017a.

⁸ An RPA can be used to request different actions. The hiring manager can use the SF-52 to request establishment of a new position, reclassification of an existing position, filling a position, appointment or promotion of an employee, or items that involve both the position and the employee. Employees can use the SF-52 for name changes, to notify the agency of their resignation or retirement, or to request leave without pay. The personnel office can use the SF-52 for staffing, classification, and other personnel actions. See OPM, “Requesting and Documenting Personnel Actions,” in *Guide to Process Personnel Actions*, Chapter 4, Washington, D.C., March 2017.

authority staffing team is to verify each applicant meets the basic requirements stated in the position description. All qualified applicants will then be given a rating score based on additional qualifications listed in the job announcement, with some veterans receiving additional points for veterans' preference,⁹ and the highest scoring applications will be forwarded to the hiring manager for consideration on the referral certificate (Crosby, 2004). These applicants will typically be placed into three ranking categories: best qualified (rating score of 90 or above), fully qualified (rating score of 80–89), and basically qualified (rating score of 70–79).

A Certification for Referral is the list of names of all eligible candidates in the best-qualified score ranking. If at least five candidates did not receive the best-qualified scoring, then candidates from the fully qualified scoring category can be referred. These referral certificates are issued to the hiring manager for 25 calendar days, and if a selection is not made within those 25 days, the certificate expires. The hiring manager is encouraged to make a selection from the certificate list within the first 15 days. Extensions are unlikely but can be granted for an additional 25 days. In all cases, the USAJOBS website should notify all applicants if they were qualified and referred, qualified but not referred, or not qualified.

Hire the Best Person for the Job. The hiring manager reviews the résumés of the candidates, possibly conducts interviews, and ultimately decides if he or she wants to select from the referral certificate ("cert list"). Interviews of the candidates on the certification list are not required, but if this method of reviewing candidates is used, the same list of questions must be used for each interview. If the position is for a GS-14/GS-15 equivalent position, a hiring panel must be used based on current policy (U.S. Air Force, 2017a). It is not necessary to interview all candidates, but the hiring manager is required to document the reasons for not interviewing those candidates and keep a record of how each candidate was evaluated (U.S. Air Force, 2017a).

Making a selection from the qualified applicants is the role of the hiring manager, who must review the application package of all candidates referred. After the selection process has been completed and the hiring manager has made a choice, the hiring manager returns the certificate list to the HR staffing office with the notification of the individual who was selected. If the hiring manager decides not to hire anyone from the referral certificate list, the hiring manager can return the list to the HR specialist, without action. All nonselected candidates who were on the referral certificate list should then be notified that they were considered but not selected.

If a hiring manager decides to hire a candidate, the HR office specialist makes a tentative job offer to the selected individual. If the applicant accepts the offer, a firm job offer is extended to the individual with an entrance-on-duty (EOD) date. If no candidate on the referral certificate list is selected by the hiring manager, the certificate is returned without action and the hiring

⁹ OPM ("Veterans Services, Vet Guide," n.d.h.) outlines the number of points that military veterans can receive based on conditions of service, such as wartime service, rank or grade, disability status, and sole survivorship, among others. Points are either 0, 5, or 10, with 10 points given to veterans who meet criteria disability criteria.

manager would need to start the entire RPA fill action process from the beginning. A new fill action may be delayed because a certificate list is good for 90 days.

Onboard the New Employee. Onboarding happens after the acceptance of the tentative offer is made. The onboarding or Enter on Duty process depends on whether the selected individual is currently a civil servant. If the selected candidate is already a civil service employee, the gaining and losing CPS (same CPS if the employee is at the same installation as the vacant position) coordinate with the gaining and losing supervisors for an entrance-on-duty date. If the person selected is not currently a civil service employee, all the paperwork that might not have been attached to the application needs to be turned into the HR office. Some of the information that new employees need to submit can include official transcripts, a DoD form (DD-214) if veteran's preference was used, and other forms necessary for federal employment. These documents are then reviewed, and any security investigation, if needed, is either confirmed as current or a new one is initiated. Also at this time, the hiring manager can submit a request for pay that is higher than the basic pay setting (step 1), based on superior qualifications and special needs of the agency. This request must be completed before the employee enters on duty, as there is no provision to approve a higher pay setting retroactively.

Civilian Advancement

Once an individual enters Air Force civil service, the next main segment of the civilian personnel system that applies is promotion. Section 335.102 of 5 CFR grants government agencies that employ civil servants the authority to promote, demote, or reassign those employees. In the sections below, we define two categories of promotions for civilian employees. We follow with a short section on formal mentoring options available to Air Force civilian employees at an institutional (AF-wide) level.

Types of Civilian Promotions

Permanent Promotions. A promotion occurs when a civil service employee is increased from one pay grade or pay band¹⁰ to a higher one (OPM, n.d.f.). Most permanent promotions result from current civil service employees applying for and getting selected for positions posted on the USAJOBS website. A permanent promotion usually comes with a sizable pay raise. Per Section 5334(b) of 5 USC, the promoted employee "is entitled to basic pay at the lowest rate of the higher grade which exceeds his existing rate of basic pay by not less than two step-increases of the grade from which he is promoted or transferred." This statement means that promoted employees receive a minimum of two step increases in the next higher pay grade to start their

¹⁰ Some civil service employees are in pay plans organized into broad bands, not pay grades, to give the supervisor more flexibility into the pay they can offer their employees. Pay bands often take the 15 grades in the GS pay plan and compress them into four or five pay bands (FederalPay.org, "What Are Pay Bands?," 2017b).

new position. To be considered for a permanent promotion, a candidate needs to have spent at least a year in the current grade.

In addition to applicant experience requirements, government agencies are expected to follow equal opportunity principles for promotion. As stated in Section 2301(b)(2) of 5 USC: “All employees and applicants for employment should receive fair and equitable treatment in all aspects of personnel management without regard to political affiliation, race, color, religion, national origin, sex, marital status, age, or handicapping condition, and with proper regard for their privacy and constitutional rights.”

Temporary Promotions. Section 335.102(f) of 5 USC grants agencies the authority to “make time-limited promotions to fill temporary positions, accomplish project work, fill positions temporarily pending reorganization or downsizing, or meet other temporary needs for a specified period of not more than 5 years, unless OPM authorizes the agency to make and/or extend time-limited promotions for a longer period.”¹¹ Not only does the employee receive the salary of the higher position, the employee also gains valuable experience and accrues time in the grade of the higher position.

Mentoring

Air Force Manual 36-2643 provides the foundational policy guidance for mentoring Air Force personnel, whether military or civilian (U.S. Air Force, 2017b). The manual outlines responsibilities for mentoring and provides definitions, principles, and guidance on developing a mentoring strategy and tools for executing a mentoring strategy. Responsibility for executing mentoring strategies resides at the local level. Specifically, the manual states that major commands (MAJCOMs) and local units facilitate mentoring while leaders “are expected to ensure Airmen are provided mentoring opportunities as described in this Manual” (p. 3). Airmen (who would be the mentees) are also “expected to follow the process outlined in this Manual and become an active partner in their career development and management” (p. 3).

The manual defines mentoring as “a type of professional relationship in which a person with greater experience and wisdom guides another person to develop both personally and professionally” and states that mentoring is voluntary and can be formal or informal (p. 3). The manual also describes mentoring as a means for promoting diversity and inclusion: “Mentoring promotes a climate of inclusion that can help foster and develop the diverse strengths, perspectives, and capabilities of all Airmen” (p. 3).

The key tool to assist with the Air Force mentoring program is MyVECTOR, which “is a web-based resource for Total Force Airmen that lets them access career field, education, and training information from one website customized to each user’s needs” (U.S. Air Force, 2017b,

¹¹ Temporary promotions are also called time-limited appointments.

p. 22). Personnel can access MyVECTOR on the Air Force Portal website; and the tool allows personnel to access their records, chat with peers, request a mentor, and engage with a mentor.

The mentoring section of MyVECTOR contains information to assist mentors and mentees alike as they establish career goals and objectives. Mentees can connect with their mentors using this platform, and the mentor will be able to view their mentee's developmental progress to provide feedback and recommendations (U.S. Air Force, 2017b, p. 22).

MyVECTOR was designed, in part, to help Air Force personnel find mentors in cases where geography or scheduling conflicts limit opportunities to find mentors locally.

Civilian Retirement Systems

As with the rest of the civil service system, OPM provides guidance on the civilian retirement system. We describe two retirement systems: the Civil Service Retirement System (CSRS) and the Federal Employee Retirement System (FERS). FERS replaced CSRS in 1987. Of the 140,000 Air Force permanent full-time employees who are U.S. citizens, roughly 5,200 are in the CSRS retirement system, and a little over 134,500 are in FERS.

Civil Service Retirement System. Per OPM (n.d.b.), the Civil Service Retirement Act of (1920) established a retirement system for federal employees under what was called the Civil Service Retirement System. CSRS included a defined benefit based on contributions made by the employee and matching funds by the employing agency. CSRS employees do not contribute to Social Security, but they must pay the Medicare tax. They may also participate in the 401(k)-type program for federal employees by making contributions into the Thrift Savings Plan (TSP), but these contributions are not matched by the agency under CSRS.

The defined benefits from CSRS are based on age and years of creditable service at the time of retirement. There are several ways employees under CSRS can declare retirement if they meet certain conditions. Most employees will file for immediate retirement benefits¹² under the “optional” plan by completing five years of creditable service by age 62, 20 years by age 60, or 30 years by age 55. However, meeting basic eligibility conditions for retirement does not mean an employee will retire; plenty of employees continue to work for years after becoming retirement eligible.

OPM's website lists other eligibility categories for CSRS employees. One category is a special disability retirement for disabled employees who have completed five years of creditable service no matter what age they are. The disability must occur while in a position subject to CSRS and be a result of a disease or injury that prevents the employee from successfully performing at a satisfactory level in the employee's current position. The employing agency must certify that it is unable to make necessary accommodations for the disability and that it has

¹² Immediate retirement benefits mean that retirement pay begins within 30 days of when the employee stops working.

considered the employee for other vacant positions in the same grade, pay level, and commuting area. The employee must apply for the disability retirement before or within a year of separation and the disability must be expected to last more than a year (OPM, n.d.c.).

Federal Employee Retirement System. The Federal Employee Retirement System, which went into effect on January 1, 1987, replaced CSRS. Any new employee as of that date was no longer eligible for CSRS and was covered by FERS. One major difference between CSRS and FERS is that employees covered under FERS contribute to Social Security in addition to the basic (defined) benefit and TSP. Employees make biweekly payments into the basic benefit and Social Security, and if they contribute 5 percent into TSP, the agency will match the 5 percent. If the employee chooses not to contribute to TSP, the agency makes an automatic 1-percent contribution each pay period regardless of the amount the member contributes.

The eligibility for the different categories of retirement under FERS are like CSRS, but with some exceptions. FERS introduces the minimum retirement age (MRA) between 55 and 57 years of age, depending on the employee's birth year. Like CSRS, FERS has an immediate retirement benefit that is based on age and years of creditable service. Specifically, employees are eligible for immediate retirement benefit when they have over five years of service by age 62, 20 years by age 60, or 10 to 30 years by the MRA. If the employee does not have 30 years of service by the MRA but has at least 10 years of service, the benefit is reduced by 5 percent for each year that the employee is under age 62. Unlike CSRS, FERS has a deferred retirement option that allows employees who have five years of creditable service but have not yet reached age 62 to leave civil service with retirement benefits. These members can petition their agency's personnel and payroll office for their defined benefit (based on the number of years of service) to begin pension payments when they reach age 62. This allows a federal employee with at least five years of service to leave civil service with both their 401(k) and their earned benefit when they turn 62. There is also a retirement offered to disabled FERS participants of any age after they have completed 18 months of service.

Additional Considerations for Individuals with Disabilities

The federal government provides definitions, guidelines, and policies that the U.S. Air Force and other federal agencies are to use when addressing the employment of certain groups of civilians, including persons with disabilities. Below, we review federal definitions of disability and describe policies and practices for the employment of persons with disabilities in the federal civilian workforce. In addition, we briefly review recent information regarding the representation of persons with disabilities within the federal civilian workforce and the U.S. Air Force, specifically.

Federal Disability Categories and Representation Goals

The federal civilian workforce, which includes the U.S. Air Force, defines a person with a disability as someone who meets at least one of three qualities: “(1) has a physical impairment or mental impairment (psychiatric disability) that substantially limits one or more of such person’s major life activities; (2) has a record of such impairment; or (3) is regarded as having such an impairment” (OPM, 2010; 2016b, 2016c). This definition is contained within SF-256, the form used by the federal government for self-identification of disability among federal civilian employees. It draws from the definition used by federal law—namely, the Rehabilitation Act of 1973, amended (Public Law 93-112). In January 2017, the Equal Employment Opportunity Commission (EEOC), the federal organization responsible for enforcing laws against discrimination, established a 12-percent federal employee representation goal for persons with disabilities across all federal agencies (EEOC, 2017). A representation goal for this group had not been established previously.

In addition to the recent 12-percent representation goal for persons with disabilities, the federal government has maintained a 2-percent representation goal for individuals with a particular subset of disabilities, known as targeted disabilities, for several years (EEOC, 2017). The federal government’s definition of targeted disabilities has changed over time. For example, Table A.1 lists the disabilities targeted by the federal workforce from July 2010 to August 2016 and the targeted disabilities after August 2016 (OPM 2010; 2016b; 2016c).¹³ For ease of presentation, we provide high-level category labels in the first column. The four categories below the heavy line were added to the August 2016 list.

Within their employment practices and analyses of employment data, federal agencies also explicitly consider the disability status of certain U.S. military veterans (OPM, 2016a; 5 USC 2108). For example, federal agencies may noncompetitively appoint veterans who have received a 30-percent or more disability rating when they retired from active duty and veterans who have a compensable service-connected disability of 30 percent or more. A Physical Evaluation Board determines the disability rating of active-duty personnel and veterans (DFAS, 2017). This board assigns a numerical disability rating, which addresses a person’s ability to perform work and daily activities, based on each service-connected injury or illness a person has incurred.

¹³ Formatting changes were made to the August 2016 version of the SF-256 and are contained within the October 2016 version of this form. In addition, the description of psychiatric disorders changed from “psychiatric disability” to “Significant Psychiatric Disorder, for example, bipolar disorder, schizophrenia, PTSD, or major depression.” Otherwise, the targeted disabilities listed within the August 2016 version of the SF-256 remained unchanged from August to October 2016.

Table A.1. Federally Targeted Disabilities

Category	Before August 2016	August 2016 Onward
Blindness	Blindness (no vision beyond light perception or inability to read ordinary size print that is not correctable by glasses)	Blind or serious difficulty seeing even when wearing glasses
Deafness	Total deafness in both ears (with or without understandable speech)	Deaf or serious difficulty hearing, benefiting from, for example, American Sign Language, CART, hearing aids, a cochlear implant, and/or other supports
Dwarfism	Dwarfism	Dwarfism
Epilepsy	Epilepsy	Epilepsy or other seizure disorders
Intellectual disability	Severe intellectual disability	Intellectual disability
Missing extremities	Missing certain extremities (missing one arm/leg, missing both hands/arms, missing both feet/legs, missing one hand/arm and one foot/leg, missing one hand/arm and both feet/legs, missing both hands/arms and one foot/leg, missing both hands/arms and both feet/legs)	Missing extremities (arm, leg, hand, and/or foot)
Paralysis	Partial paralysis of certain body parts (because of brain/nerve/muscle impairment, including palsy/cerebral palsy; some loss of ability to move or use a part of the body, including both hands, any part of both arms or legs, or one side of body including one arm and one leg, and/or three or more major body parts)	Partial or complete paralysis (any cause)
Paralysis	Complete paralysis of certain body parts (because of brain/nerve/muscle impairment, including palsy/cerebral palsy; complete loss of ability to move or use part of body, including both hands, one or both arms/legs, lower half of body, one side of body including one arm and one leg, and/or three or more major body parts)	
Psychiatric disability	Psychiatric disability	Psychiatric disability
Developmental disability		Developmental disability—for example, autism spectrum disorder
Disfigurement		Significant disfigurement—for example, disfigurements caused by burns, wounds, accidents, or congenital disorders
Mobility impairment		Significant mobility impairment, benefiting from the utilization of a wheelchair, scooter, walker, leg brace(s), and/or other supports
Traumatic brain injury		Traumatic brain injury

NOTE: Formatting changes were made to the August 2016 version of the SF-256 and are contained within the October 2016 version of this form. In addition, the description of psychiatric disorders changed from “psychiatric disability” to “Significant Psychiatric Disorder, for example, bipolar disorder, schizophrenia, PTSD, or major depression.” Otherwise, the targeted disabilities listed within the August 2016 version of the SF-256 remained unchanged from August to October 2016.

Disability Law, Policies, and Practices

As suggested within the above description, different policies and practices exist to promote the employment of persons within disabilities in the federal civilian workforce. These include various regulations and agency efforts.

Federal Laws and Regulations

Three federal laws and regulations that apply to disability employment within the federal workforce include the Rehabilitation Act of 1973 (29 USC 791), the Schedule A hiring authority (5 CFR 213.3102[u]), and veterans' preference for hiring (5 USC 2108). Section 501 of the Rehabilitation Act of 1973, as amended, prohibits harassment and discrimination against persons with disabilities in the federal sector and mandates that each federal agency establish affirmative action program plans to address the hiring, placement, and advancement of persons with disabilities within that agency. This law also requires federal agencies to provide reasonable accommodations to qualified employees and applicants with disabilities, unless doing so would cause undue hardship to the agency. The Schedule A hiring authority permits federal agencies to hire "people with severe physical disabilities, psychiatric disabilities, and intellectual disabilities" who can provide proof of their disability, such as a record or statement from a licensed medical professional or rehabilitation specialist, separately from the traditional hiring process used by the federal government. Finally, the veterans' preference for hiring provides eligible disabled veterans with ten additional points that are added to their overall applicant score when a federal agency uses a point system to evaluate their applicants.

In addition to these laws and regulations, several executive orders address the employment of persons with disabilities in the federal workforce. These complement the above laws and regulations by further demonstrating federal support for, and commitment to, the employment of persons with disabilities. These executive orders include the following:

- 13163: Increasing the Opportunity for Individuals with Disabilities to Be Employed in the Federal Government
- 13164: Requiring Federal Agencies to Establish Procedures to Facilitate the Provision of Reasonable Accommodation
- 13548: Increasing Federal Employment of Individuals with Disabilities
- 13583: Establishing a Coordinated Government-Wide Initiative to Promote Diversity and Inclusion in the Federal Workforce

DoD Policies and Practices

The DoD has also implemented different efforts to promote employment of persons with disabilities. In 1987, the DoD established a 2-percent representation goal for persons with targeted disabilities (PWTD), which was later incorporated into the representation goals for the entire federal government (DoD, 2014). Several programs have also been created to assist DoD employees with disabilities. For example, the Workforce Recruitment Program (WRP) for

college students and recent graduates was started by the DoD, and it is now a federal government-wide program that provides employment opportunities for college students and recent graduates with disabilities (WRP, 2017). In addition, the Computer/Electronic Accommodations Program (CAP) is a DoD-run program that offers assistive technology, devices, and support services to employees across the federal government. Further, the DoD also has a disability program within its Office of Diversity Management and Equal Opportunity (ODMEO) that has implemented efforts to promote representation of persons with disabilities, including development of an e-mentoring course for civilian employees with disabilities and assisting components with processing disability complaints.

Air Force Policies and Practices

In accordance with federal requirements, the U.S. Air Force has developed a plan for addressing federal and DoD regulations and policies regarding the employment of persons with disabilities (U.S. Air Force, 2011). The plan outlines the Air Force's strategies for recruitment and placement, career development, and provision of reasonable accommodations. It also describes the Air Force's monitoring and evaluation of its efforts to increase representation of persons with disabilities in its workforce.

The Air Force also maintains a barrier analysis working group (AFBAWG) that addresses barriers to employment in the Air Force's civilian workplace (U.S. Air Force, 2015). This group includes a team that focuses on barriers to employment for persons with disabilities (Carlock, 2016). Employment barriers this team reviews and addresses include policies, procedures, and practices that limit opportunities for persons with disabilities and persons with targeted disabilities, including wounded warriors. In 2016, the team successfully increased funding for reasonable accommodations among Air Force civilians and assisted the Air Force with receiving the best military service disability program for four consecutive years (Carlock, 2016).

Summary

Air Force civilians are part of the federal government civil service, which means they are subject to laws (5 USC), regulations (5 CFR), and OPM policies. The Department of Defense and the Air Force also manage civilians through civilian personnel systems. This first part of this appendix provided a high-level overview of the major features of civilian personnel systems—namely, how the Air Force funds civilian positions, categories of employment, pay plans, how civilian positions are filled, and civilian retirement systems.

The second part of the appendix covered additional considerations for individuals with disabilities working for the federal government. The federal government considers several different categories of individuals with disabilities when considering disability representation. These include PWTD, individuals with disabilities, and disabled veterans with a 30-percent or higher disability rating. Various policies and programs are in place to promote employment of persons with disabilities in the federal government and the DoD, specifically.

Appendix B. Relevant Survey Results of Air Force Civilians

To supplement our main analyses, we had hoped to analyze Air Force exit and retention survey data. Unfortunately, due to language in the surveys' consent forms, the data could not be provided to RAND. We therefore focused our survey analyses on publicly available data on the Federal Employee Viewpoint Survey (FEVS), which the U.S. Office of Personnel Management (OPM) fields on federal government civilian employees on an annual basis. This appendix provides background on FEVS and our analyses of FEVS publicly available data. Although we were not able to conduct our own analyses, we also provide an overview of the Air Force Survey Office's findings from previous Air Force exit and retention surveys.

Federal Employee Viewpoint Survey Results

To supplement our main analyses, we analyzed data from the Federal Employee Viewpoint Survey. FEVS is an annual, web-based survey of civilian employees employed within the federal government. The survey is conducted by the U.S. Office of Personnel Management. According to OPM, FEVS is “a tool that measures employees' perceptions of whether, and to what extent, conditions characterizing successful organizations are present in their agencies” (OPM, n.d.d.).

We used publicly available data from the 2015 FEVS, which was the latest version of FEVS data available for public use at the time of this project.¹ The 2015 FEVS included 98 questions and covered eight topic areas: personal work experiences, work unit, agency, supervisor, leadership, satisfaction, work-life programs, and demographics. The 2015 survey's government-wide response rate was 49.7 percent, with a response rate of 35.3 percent for the DoD overall and 28.2 percent for the Department of the Air Force (OPM, circa 2015).

Methodology

Our analysis focused on turnover intentions among Air Force civilians who responded to the 2015 FEVS and reported that they were not retiring within the next five years. We excluded those who were planning to retire because the factors that predict retirement might be expected to differ from those that predict job turnover (e.g., Pitts, Marvel, and Fernandez, 2011). When considering all Air Force civilians who responded, 18,776 employees responded to the 2015 FEVS. Excluding those who indicated they were planning to retire in five years, 12,955 Air Force civilians responded. We weighted data using the FedView-provided weighting, which adjusts results to represent employees covered by the survey.

¹ Although we inquired with an OPM representative about obtaining 2016 FEVS data, which was not publicly available at the time we conducted our project, we were not able to obtain this data.

We used a multinomial logistic regression model to examine intentions to leave or stay with the Air Force's civil service. Intentions to stay or leave were measured with a single question phrased as follows: "Are you considering leaving your organization within the next year, and if so, why?" Response options to this question included:

- No (reference group)
- Yes, to take another job within the federal government
- Yes, to take another job outside the federal government
- Yes, other²

Within the model, we controlled for respondents' age and military service. We included reported disability status (coded as 0 = *No, not an individual with a disability*, 1 = *Yes, an individual with a disability*), reported racial/ethnic minority status (coded as 0 = *Not a minority*, 1 = *Minority*), and gender (coded as 0 = *Male*, 1 = *Female*) within the model. In separate analyses, we included employee perceptions regarding an inclusive environment, measured by constructs within the FEVS, as predictors with participant demographics. We included the following constructs: empowerment (four questions, e.g., "I feel encouraged to come up with new and better ways of doing thing"; $\alpha = 0.84$), supportive environment (five questions, e.g., "My supervisor supports my need to balance work and other life issues"; $\alpha = 0.91$), cooperative environment (two questions, e.g., "Managers promote communication among different work units"; $\alpha = 0.93$), fair environment (five questions, e.g., "In my work unit, steps are taken to deal with a poor performer who cannot or will not improve"; $\alpha = 0.88$), and open environment (four questions, e.g., "Creativity and innovation are rewarded"; $\alpha = 0.83$).³ Each question asked respondents for their level of agreement with the statement, with agreement levels ranging from 1 = *Strongly disagree* to 5 = *Strongly agree*.

Results

We describe results for analyses involving each of the inclusive environment constructs below. Our descriptions address the extent to which these constructs and participant demographics predict intentions to stay in or leave Air Force employment focusing on three different reasons for why an individual might leave Air Force employment: (1) Take another job in the federal government, (2) take another job outside the federal government, or (3) leave for some other reason. Table B.1 provides a summary of these results. The entries in the columns for

² For additional information regarding the items and response options contained within the publicly available 2015 FEVS data set, see the OPM website ("Federal Employee Viewpoint Survey," n.d.a.). It provides access to reports and publicly available data files.

³ Before conducting our models, we estimated Chronbach's alpha (α) for each construct. Chronbach's alpha is a measure of internal consistency reliability for a set of questions (i.e., survey items). Values range from zero to one, with higher values indicating the items are internally consistent. Values above 0.70 tend to be considered sufficient for internal consistency of survey items.

Table B.1. Inclusive Environment Predictors of Intentions to Stay in Air Force Civilian Employment

Inclusive Environment Factor	Women	Racial/Ethnic Minorities	Persons with Disabilities
Empowerment	Inconsistent	Inconsistent	Inconsistent
Supportive environment	Inconsistent	Consistent	Inconsistent
Cooperative environment	Inconsistent	Not a predictor	Not a predictor
Fair environment	Inconsistent	Inconsistent	Consistent
Open environment	Inconsistent	Inconsistent	Consistent

the three demographic categories (women, racial/ethnic minorities, and persons with disabilities) indicate whether an inclusive environment factor (e.g., empowerment) was a consistent predictor of the three outcomes, an inconsistent predictor (i.e., predicted one or more outcomes but not all three), or did not predict any of the three outcomes. Details on which inclusive environment factors predicted which outcomes follows in the sections after the table.

Perceptions of Empowerment

Empowerment perceptions reflect the extent to which employees feel they can do well and are encouraged to do well in their work. Our results suggested that greater perceptions of empowerment among racial/ethnic minorities ($b = -0.26$, Wald $X^2 [1] = 59.54$, $p < 0.001$), women ($b = -0.12$, Wald $X^2 [1] = 12.51$, $p < .001$), and persons with disabilities ($b = -0.19$, Wald $X^2 [1] = 25.11$, $p < .001$) are associated with lower intentions of leaving an Air Force job for nonemployment reasons. Empowerment perceptions are also associated with lower intentions of leaving for another job inside the federal government among racial/ethnic minorities ($b = -0.08$, Wald $X^2 [1] = 15.28$, $p < 0.001$) and women ($b = -0.11$, Wald $X^2 [1] = 26.77$, $p < 0.001$), but not persons with disabilities. Empowerment perceptions are not significantly associated with, and therefore do not appear to influence, intentions to leave Air Force employment for a job outside the federal government among racial/ethnic minorities, women, or persons with disabilities.

Perceptions of a Supportive Environment

A supportive environment reflects the extent to which employees feel respected and assisted by their supervisors. Perceptions of a supportive environment are consistently associated with lower intentions to leave Air Force civilian employment among racial/ethnic minorities. Specifically, these perceptions are associated with lower intentions to leave for nonemployment reasons and with lower intentions to leave for another job inside the federal government among racial/ethnic minorities ($b = -0.19$, Wald $X^2 [1] = 34.31$, $p < 0.001$; $b = -0.12$, Wald $X^2 [1] = 42.59$, $p < 0.001$, respectively) and women ($b = -0.08$, Wald $X^2 [1] = 7.03$, $p < 0.01$; $b = -0.16$, Wald $X^2 [1] = 75.16$, $p < 0.001$, respectively), but not persons with disabilities. These perceptions are also associated with lower intentions to leave for another job outside the federal

government among racial/ethnic minorities ($b = -0.11$, Wald $X^2 [1] = 8.84$, $p < 0.01$) and persons with disabilities ($b = -0.08$, Wald $X^2 [1] = 4.49$, $p < 0.05$), but not women.

Perceptions of a Cooperative Environment

A cooperative environment addresses the extent to which managers are perceived as promoting communication and collaboration. Results showed that perceptions of a cooperative environment are associated with lower intentions to leave Air Force civilian employment for nonemployment reasons among women ($b = -0.24$, Wald $X^2 [1] = 72.88$, $p < 0.001$), but not racial/ethnic minorities or those with disabilities. These perceptions are also associated with lower intentions to leave the Air Force for another job within the federal government among women ($b = -0.11$, Wald $X^2 [1] = 42.81$, $p < 0.001$), but not racial/ethnic minorities or persons with disabilities. Results showed that perceptions of a cooperative environment are associated with greater intentions to leave Air Force employment for a job outside the federal government among women compared to men ($b = 0.18$, Wald $X^2 [1] = 25.13$, $p < 0.001$) and persons with disabilities compared to persons without disabilities ($b = 0.08$, Wald $X^2 [1] = 5.84$, $p < 0.05$), but are not significantly associated with racial/ethnic minority intentions.

Perceptions of a Fair Environment

A fair environment addresses perceptions regarding actions taken to address poor performance and reward good workplace performance. Perceptions of a fair environment are consistently associated with lower intentions of leaving among persons with disabilities, such that they are associated with lower intentions of leaving for nonemployment reasons ($b = -0.09$, Wald $X^2 [1] = 5.90$, $p < 0.05$), leaving for a job inside the federal government ($b = -0.04$, Wald $X^2 [1] = 3.81$, $p = 0.05$), and leaving for a job outside the federal government ($b = -0.15$, Wald $X^2 [1] = 14.24$, $p < 0.001$). Results were less consistent among racial/ethnic minorities and women. These perceptions were associated with lower intentions of leaving for a job outside the federal government among racial/ethnic minorities ($b = -0.09$, Wald $X^2 [1] = 5.54$, $p < 0.05$), but not women. They were associated with lower intentions of leaving for a job inside the federal government or for nonemployment reasons among women ($b = -0.14$, Wald $X^2 [1] = 62.53$, $p < 0.001$; $b = -0.23$, Wald $X^2 [1] = 50.96$, $p < 0.001$, respectively), but not racial/ethnic minorities.

Perceptions of an Open Environment

An open environment involves perceived commitment to creativity and diversity. Perceptions of an open environment are consistently associated with lower intentions of leaving among persons with disabilities. Results were less consistent among racial/ethnic minorities and women, but in general, perceptions of an open environment appear to be associated with lower intentions of leaving among these groups as well. Therefore, perceptions of an open environment were associated with lower intentions of leaving for nonemployment reasons among women

($b = -0.28$, Wald $X^2 [1] = 63.97$, $p < 0.001$), persons with disabilities ($b = -0.30$, Wald $X^2 [1] = 61.73$, $p < 0.001$), and racial/ethnic minorities ($b = -0.09$, Wald $X^2 [1] = 7.29$, $p < 0.01$). These perceptions were also associated with lower intentions of leaving for another job in the federal government among women ($b = -0.19$, Wald $X^2 [1] = 83.56$, $p < 0.001$), persons with disabilities ($b = -0.07$, Wald $X^2 [1] = 10.09$, $p = 0.001$), and racial/ethnic minorities ($b = -0.06$, Wald $X^2 [1] = 10.10$, $p = 0.001$). Considering intentions of leaving for another job outside the federal government, these perceptions were associated with lower intentions of leaving among persons with disabilities ($b = -0.11$, Wald $X^2 [1] = 7.30$, $p < 0.01$), greater intentions of leaving among women compared to men ($b = 0.12$, Wald $X^2 [1] = 7.12$, $p < 0.01$), and not significantly associated with racial/ethnic minority intentions.

Summary

Overall, results suggested that perceptions of a supportive environment are consistently associated with lower intentions of leaving Air Force civilian employment among racial/ethnic minorities. In addition, perceptions of a fair and open workplace environment are consistently associated with lower intentions of leaving among persons with disabilities. Many other results did not show consistency across the different reasons regarding why a person might leave Air Force civilian employment.

Air Force Retention and Exit Survey Results

The Air Force Survey Office (AFSO) conducts surveys designed to understand what factors influence civilians' decisions to remain with or voluntarily leave the Air Force. The AFSO administered a civilian exit survey from November 2014 to November 2015 (Carlock and Rabago, 2016). Prior to that effort, AFSO administered a civilian retention survey from June to August 2014 (Carter, n.d.). Results from these past surveys help highlight retention factors to assist Air Force efforts to enhance diversity and inclusion.

Exit Survey Results

AFSO administered a civilian exit survey in 2015 to provide senior leadership insight on the reasons civilians leave the Air Force. The aim was to help develop future marketing, recruitment, and retention strategies. AFSO sent out 6,475 invitations, which were ultimately refined to 5,864. The overall participation rate was 2,851 (49 percent), with 80 percent (2,280) of those respondents indicating they were voluntarily retiring and 20 percent (570) indicating they were voluntarily separating/transferring from the Air Force. Survey respondents were compared across several demographic characteristics including age, gender, race, and disability status.

The survey presented respondents with 63 factors to select as influential for their decisions to leave. The items centered on money, job satisfaction/security, age/years of service, alternative employment opportunities, and personal circumstances.

Respondents rank-ordered their top five “very strong influence to leave” factors. A summary of results shows that among those voluntarily separating/transferring, promotion opportunities (19.1 percent), personal circumstances (18 percent), salary (15.3 percent), desiring a change (14.6 percent), and job satisfaction (13.3 percent) topped the list of reasons civilians were electing to leave the Air Force (Figure B.1). Other influences cited in groups excluding those retiring included leadership issues, opportunities outside the Air Force, and perceived favoritism.

Figure B.1. Top Influencers for Civilians Voluntarily Separating/Transferring from the Air Force in 2015



Focusing solely on respondents who were voluntarily separating/transferring, job satisfaction (promotion and leadership), money, and the catchall item “personal circumstances” consistently topped the rankings for most demographic groups. Males and females shared the sentiment (37.1 percent males, 38 percent females) that a (lack of) promotion opportunities⁴ and personal circumstances were the top two reasons for leaving. Results were similar with respect to race. Of those who identified as white, the majority (39.2 percent) also attributed personal circumstances and promotion as the top two factors leading to their decisions to leave the Air Force. The majority of black respondents (26.8 percent) cited promotion opportunities and salary as the top two reasons for those voluntarily separating/transferring. Roughly 40 percent of Hispanic respondents cited salary and unit/organizational leadership as the top influencers. Individuals

⁴ The survey does not specify whether “promotion opportunities” means that promotion opportunities are available or they are lacking. We make the assumption that when promotion opportunities are cited as a reason for leaving, it is due to the latter.

with disabilities selected notably different factors, such that age and years of service topped the list with a combined 32.1 percent of the population sample.

The AFSSO compared the results of the 2015 exit survey with the same survey given in 2013. Interestingly, lack of promotion opportunities was the single most important factor influencing decisions to leave during both time periods. But perhaps in a sign of the times,⁵ job security figured far more prominently in decisions to leave in 2013, with over 55 percent ranking a combination of issues such as budget cuts and the potential for furloughs or a government shutdown among top influencers for leaving. In 2015, just 15 percent of those leaving cited the same concerns.

Retention Survey Results

The AFSSO designed the 2014 Civilian Retention Survey to understand factors that affect retention/attrition rates among civilian members of the Air Force. The item list included 57 variables covering topics such as salary, promotion opportunities, benefits, job security, leadership, age/years of service, patriotism, and alternative employment opportunities. As with the 2014 civilian exit survey, the survey assessed results by age, gender, race, and disability status.

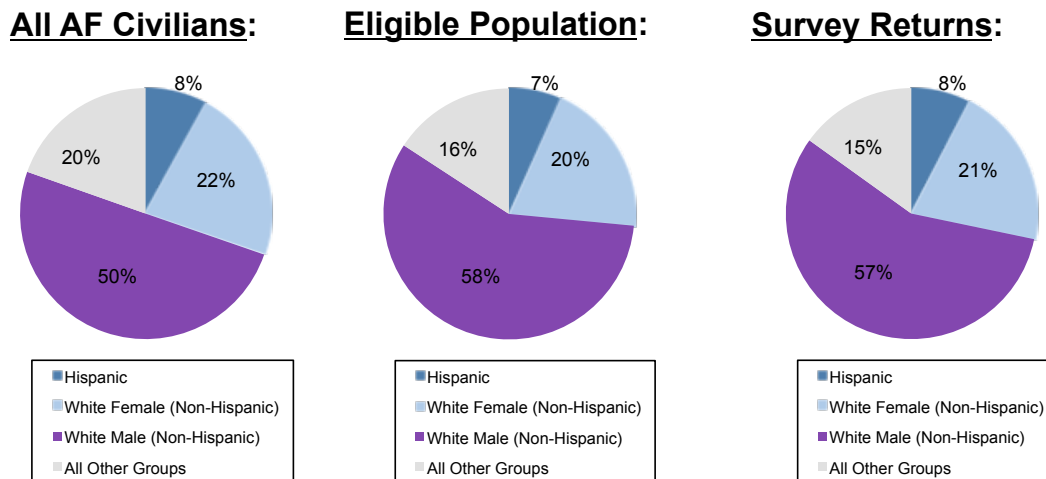
The survey was administered from June to August 2014, with invitations sent to an original population of 34,672 Air Force civilians (out of 56,546 eligible civilians). A total of 16,115 employees responded to the survey, for a response rate of 49 percent.⁶ Figure B.2 below shows survey returns were roughly representative of the percentages of all civilians in the Air Force based on racial identity.

The 2014 civilian retention survey found that about 10 percent of respondents were leaning toward leaving the Air Force within a year's time. As with the 2015 civilian exit survey, the strongest influences/factors contributing to stated intentions to leave the Air Force pertained to money, job satisfaction/security, and age/years in service. These factors were similar across

⁵ Toward the end of 2012, the White House announced a sequestration plan that would mandate significant cuts to defense spending (see Suzy Khimm, "The Sequester, Explained," *Washington Post*, September 14, 2012). Shortly after, the Air Force, along with the other military services, announced plans to scale back the civilian workforce. That said, to the extent possible, it appears the Air Force used voluntary separation incentives to meet the reduction demands. Of those who elected to take advantage of these incentives, 65 percent (109 respondents) selected these programs as the top influencer for leaving the Air Force. Notably, the Air Force "involuntarily separated only 193 civilians in 2012, 64 in 2013, and none in the first half of 2014." See Maria C. Lytell, Kenneth D. Kuhn, Abigail Haddad, Jefferson P. Marquis, Nelson Lim, Kimberly C. Hall, Robert Stewart, and Jennie W. Wenger, *Force Drawdowns and Demographic Diversity: Investigating the Impact of Force Reductions on the Demographic Diversity of the U.S. Military*, Santa Monica, Calif.: RAND Corporation, RR-1008-OSD, 2015, p. 147.

⁶ Initial email invitations were extended to 34,672 civilian employees with established dates of separation. That list was first reduced to 32,880 due to undeliverable email addresses and respondents who indicated they were not eligible to participate (reasons unspecified in briefing). The sample was later adjusted to exclude candidates who self-reported they had no strong influences on their decisions to stay or leave.

Figure B.2. Demographic Comparisons



SOURCE: 2014 Civilian Retention Survey: Final Results.

demographic groups. Factors contributing to decisions to stay were also consistent across various groups and included money, job satisfaction/security, and a sense of patriotism. These results suggest respondents' reported intentions to stay or leave are highly sensitive to these factors. Table B.2 provides the top five influencers contributing to civilians' reported intentions to stay or leave the Air Force within one year.

Table B.2. Retention/Attrition Factors

Top 5 Influencers for Leaving	Top 5 Influencers for Staying
Promotion opportunities*	Patriotism
Leadership of my immediate supervisor	Salary*
My age/years of service*	Overall job satisfaction*
Overall job satisfaction*	Job security**
Potential for furloughs**	Ability to contribute to the unit mission

SOURCE: 2014 Civilian Retention Survey: Final Results.

*The survey results noted that several items made it onto both lists.

**Two other influencers were also similar enough in description though not identified as such in the survey results summary.

Influencing factors were relatively similar across age, gender, racial/ethnic groups, and individuals with targeted disabilities. For civilians who intended to leave, the (lack of) promotion opportunities was among the top reasons on the items listed for all age groups except those 60 and older. Somewhat intuitive, age/years of service were among the top reasons for leaving for the latter group. A sense of patriotism was the top influencer chosen from the item list for staying in the Air Force across all age groups, followed by job security, salary, and job satisfaction.

When looking at gender, male and female civilians equally cited lack of promotion opportunities as the most significant factor attributing to their decisions to leave the Air Force.

For both men and women who intended to remain in the Air Force, patriotism and salary were among the top influencers.

Patriotism and salary were also among the top factors for staying based on racial/ethnic groupings (Hispanic, white non-Hispanic, and “other”). Hispanics and white females listed “Leadership of my immediate supervisor” as a top reason on the available item list for leaving. White males and “other” racial group respondents listed lack of promotion opportunities as a more significant factor.

The survey also sought to identify factors influencing retention among individuals with targeted and nontargeted disabilities. As with other groups, individuals with targeted disabilities selected patriotism from the item list as the strongest influencer on their decision to stay. Those who decided to leave cited “Leadership of my immediate supervisor” as the most significant factor for leaving, with over 21 percent, followed equally (7 percent) by unit/organizational leadership, discrimination, Voluntary Early Retirement Authority (VERA) incentives, and age/years of service.

It is worth noting that in most cases the list of 57 items in the retention survey actually failed to capture respondents’ top reasons for leaving or staying (see Figures B.3 and B.4 below). For example, every demographic selected “No Items from the List” as the number-one reason for staying. Males, females, every racial/ethnic group, and age groups 50 and above all ranked “No Items from the List” as the number-one “reason” they chose to leave the Air Force. Overall, 38 percent of all respondents cited that the number-one factor affecting their decisions to stay

Figure B.3. Strongest Influence to Stay Overall Results

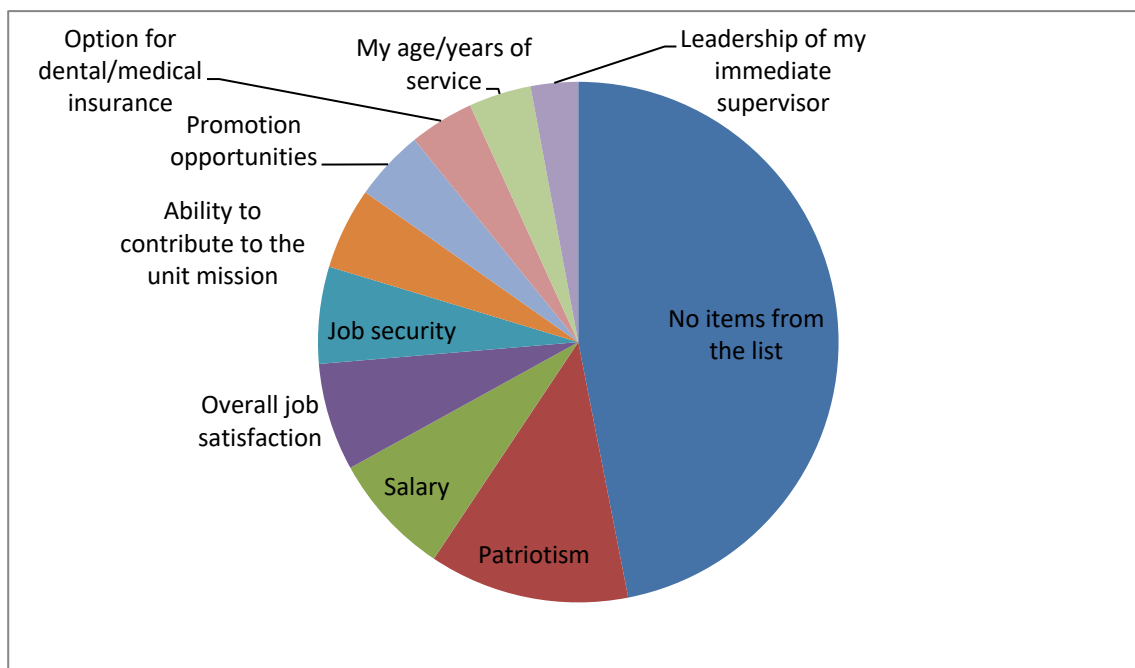
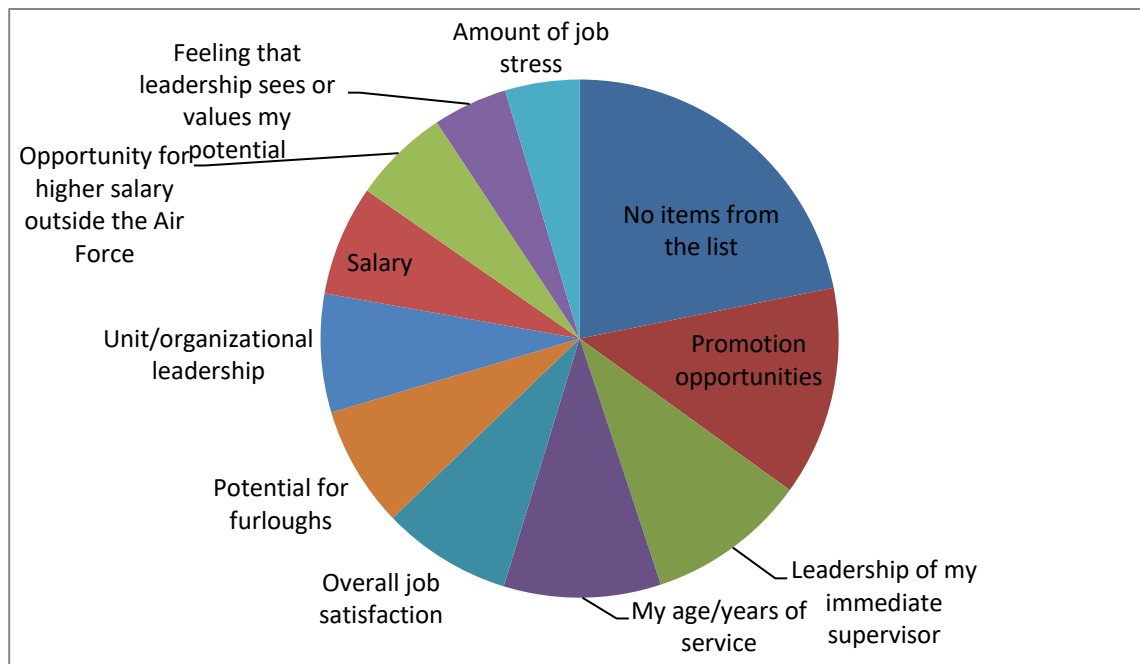


Figure B.4. Strongest Influence to Leave Overall Results



was not included in the item list presented in the survey. Patriotism was the second most consistently reason cited by civilians choosing to stay, but by just 10 percent of participants. The remaining eight items on the top ten list were separated by less than a percentage point. The same result occurred for respondents' strongest influence for leaving. Lack of promotion opportunities was second in line as the number-one influence to leave by just over 8 percent of respondents. About 14 percent did not find their reason for leaving on the item list. This suggests a far more dynamic set of influencers are in play.

Summary

Overall, many of the factors identified in previous Air Force retention and exit surveys are consistent with the factors identified through our focus groups and interviews. It is the hope of this study that our qualitative approach provides additional insight and context into these factors that can enable policymakers to have a better understanding of how these barriers might be able to be addressed.

Appendix C. Base Selection Methodology

This appendix describes how we selected Air Force bases for our focus groups and interviews. This appendix is intended for technical audiences who want more details about how we selected bases than what is provided in the main report.

To select locations for focus groups, we aimed to pick a representative sample of bases given time and other resource constraints. We sought representation along these dimensions:

- Demographics (gender, race/ethnicity, disability status)
- MAJCOMs
- Career fields
- Pay grades (GS or equivalent)
- Geographic region

We used a two-part approach to select sites. We first ran optimization models with the goal of narrowing down the list of the 124 locations in the continental United States (CONUS) to ten locations.¹ Specifically, we ran integer linear programs using the OPTMODEL procedure in the SAS for Windows software, version SAS 9.4. An optimization model can either maximize or minimize an objective function subject to certain constraints. In this case the models were used to minimize the number of locations selected for the focus groups, while the constraints ensured locations were selected such that enough prospective participants of different types were at the chosen locations. The models summed the number of GS-14 or GS-15 employees at these locations, knowing that if there were a sufficient number of high-graded civilians, then there would be many more lower grades at the locations. The constraints ensured potential representation of the following: civilians from different gender, racial/ethnic, and disability categories; regions of the country (Midwest, Northeast, South, and West); districts within those regions; major commands; and career fields. The models produced the initial set of locations in Table C.1.

Using the initial list in Table C.1 as our starting point, we next considered cost constraints for collecting data at different bases. We prioritized bases with large Air Force civilian populations (e.g., Wright Patterson), that would cover different MAJCOMs, and that would be cost-efficient for data collection (i.e., near RAND offices where study staff are located—Washington, D.C., and Los Angeles, California, areas).

Table C.2 provides the final list of bases selected for data collection, as well as the reasons we selected these bases. This list includes two bases, Andrews and Los Angeles, which were not on the initial list but were added to the final list because of their proximities to RAND offices.

¹ We limited site selection to CONUS locations because data collection at OCONUS locations (outside the continental United States) would have been cost- and time-prohibitive. The same logic applies to our constraint of approximately ten locations.

Table C.1. Initial List of Bases Selected for Focus Group Data Collection

Base	Location (Geographic Region)	Primary Tenant or MAJCOM
Barksdale	LA (West South Central)	Air Force Global Strike Command (AFGSC)
Joint Base San Antonio	San Antonio, TX (West South Central)	Air Education and Training Command (AETC)
Hanscom	Bedford, MA (Northeast)	66th Air Base Group (under Air Force Materiel Command, AFMC)
Joint Base Langley-Eustis	Hampton, VA (South Atlantic)	Air Combat Command (ACC)
Kirtland	Albuquerque, NM (Mountain West)	AFGSC
Offutt	Omaha, NE (Midwest)	U.S. Strategic Command (USSTRATCOM)
Pentagon	Arlington, VA (South Atlantic)	Headquarters Air Force (HAF)
Peterson	Colorado Springs, CO (Mountain West)	Air Force Space Command (AFSPC)
Scott	Near St. Louis, MO (Midwest)	Air Mobility Command (AMC) and U.S. Transportation Command (USTRANSCOM)
Tyndall	Panama City, FL (South Atlantic)	325th Fighter Wing (under ACC)
Vandenberg	Santa Barbara County, CA (Pacific West)	AFSPC
Wright Patterson	Dayton, OH (East North Central)	AFMC

Table C.2. Final List of Bases Selected for Focus Group Data Collection

Base	Location (Geographic Region)	Reason for Selection
Andrews	Near Washington, D.C. (South Atlantic)	Proximity to RAND Arlington office
Joint Base San Antonio	San Antonio, TX (West South Central)	Large AF civilian population and headquarters of AETC
Joint Base Langley-Eustis	Hampton, VA (South Atlantic)	Proximity to RAND Arlington office and headquarters of ACC
Kirtland	Albuquerque, NM (Mountain West)	One of two AFGSC bases and in Mountain West region (not covered by others in final list)
<i>Los Angeles*</i>	<i>Los Angeles, CA (Pacific West)</i>	<i>Proximity to RAND Santa Monica office</i>
Pentagon	Arlington, VA (South Atlantic)	Large AF civilian population and location of HAF
Scott	Near St. Louis, MO (Midwest)	Headquarters of two commands (AMC and USTRANSCOM) and in Midwest region (not covered by others in final list)
Vandenberg	Santa Barbara County, CA (Pacific West)	Proximity to RAND Santa Monica office and one of two AFSPC bases on list
Wright Patterson	Dayton, OH (East North Central)	Large AF civilian population and headquarters of AFMC

NOTE: *The study team approached Los Angeles AFB for participation in the study, but leadership at the base elected not to participate.

Appendix D. Full Race/Ethnicity and Gender Results on Entry Grade-Level Analysis

Chapter 3 summarized major findings concerning the contribution of observed factors to demographic differences in grade levels at entry. The chapter content included the results from decompositions of gender differences and white male versus racial/ethnic minority male differences in the percentage of new hires who enter directly into grade 11 or higher. This appendix summarizes the full results, which examined demographic differences in average grade at entry in addition to the percentage entering at/above grade 11. These results also show additional detail in categorizing employees into demographic groups by comparing white male employees to employees of every other combination of race/ethnicity and gender. This appendix may be useful to readers who want finer-grained details about the findings from Chapter 3.

One additional area of potential concern for the Blinder-Oaxaca decomposition results is in the strong methodological assumptions. First, calculating the contribution of the observed factors to the demographic gaps requires the researcher to choose the form of the reference coefficients—which represent the relationships that would theoretically prevail in the absence of systematic barriers (Neumark, 1988). We defaulted to using the base group coefficients so that the reference population remained consistent while comparing different demographic groups, but other options exist, such as using coefficients from a pooled regression model including both groups (Asch, Miller, and Weinberger, 2016). Second, the analysis parses the explained versus unexplained components assuming a standard linear functional form with no interaction effects, but this might not approximate the relationship between the observed factors and the outcomes very well. In addition to the detailed decomposition results below, we also present an alternative estimate of the outcome difference that remains after accounting for observed factors using the doubly robust regression approach. This approach relaxes both sets of assumptions but is less accessible when it comes to identifying the contribution of the individual observed factors.

Tables D.1 through D.4 present the decomposition results for both outcomes and each race/ethnicity and gender combination. Across the comparisons, job series is consistently the most influential observed factor in accounting for grade differences at entry, but the magnitude varies across groups. Asian men are an exception to this rule, as job series was of lesser importance in the white male versus Asian male decomposition. Work experience, veteran status, and education levels also appear to play a role in understanding gaps even conditional on job series (which, as discussed in Chapter 3, likely functions as a proxy for some of these other observed factors). Finally, the doubly robust estimates of the remaining differences (i.e., the “unexplained components”) are generally close to the estimates of the unexplained component from the decomposition analyses, suggesting that the linear models underlying the decompositions are a good approximation of the patterns determining entry grade levels.

**Table D.1. Decomposition Results of Average Grade Levels at Entry,
White Versus Racial/Ethnic Minority Men**

	Black	Hispanic	Asian	AI/AN
Average Grade Level				
Base group	10.35 (10.33, 10.38)	10.35 (10.33, 10.37)	10.35 (10.33, 10.38)	10.35 (10.33, 10.38)
Target group	9.53 (9.46, 9.59)	9.54 (9.46, 9.61)	9.80 (9.71, 9.89)	9.95 (9.75, 10.15)
Difference	0.83 (0.77, 0.89)	0.82 (0.74, 0.89)	0.56 (0.46, 0.65)	0.40 (0.21, 0.60)
Explained component	0.43 (0.37, 0.48)	0.59 (0.53, 0.66)	0.36 (0.28, 0.43)	0.19 (0.06, 0.31)
Detailed decomposition				
Cohort/location	-0.08 (-0.09, -0.06)	0.04 (0.02, 0.06)	0.03 (0.01, 0.05)	0.05 (0.01, 0.09)
Other demos	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)
Education	0.11 (0.10, 0.13)	0.10 (0.09, 0.12)	-0.08 (-0.10, -0.06)	0.02 (-0.02, 0.06)
Veteran status	0.14 (0.12, 0.15)	0.08 (0.06, 0.09)	0.10 (0.09, 0.12)	0.05 (0.02, 0.08)
Job series	0.38 (0.35, 0.42)	0.35 (0.30, 0.39)	0.01 (-0.04, 0.06)	0.05 (-0.02, 0.11)
Work experience	-0.13 (-0.15, -0.11)	0.03 (0.00, 0.05)	0.29 (0.25, 0.33)	0.02 (-0.05, 0.09)
Unexplained component	0.40 (0.36, 0.45)	0.22 (0.17, 0.28)	0.20 (0.13, 0.27)	0.22 (0.07, 0.37)
Doubly robust estimate	0.28 (0.24, 0.33)	0.21 (0.15, 0.27)	0.20 (0.13, 0.28)	0.27 (0.13, 0.41)

SOURCE: Authors' calculations from personnel data.

NOTE: Ninety-five-percent confidence intervals, which are based on standard errors calculated with the nonparametric bootstrap method, are shown in parentheses. Actual work experience is not available in the data, so the analysis uses potential work experience (age minus years of education minus 5). Other demos include self-reported disability status. Location refers to the employee's state.

**Table D.2. Decomposition Results of Percentage Entering Grade 11 or Higher,
White Versus Racial/Ethnic Minority Men**

	Black	Hispanic	Asian	AI/AN
Percentage in Grade 11 or Higher				
Base group	58.2 (57.8,58.7)	58.2 (57.8,58.7)	58.2 (57.7,58.7)	58.2 (57.8,58.7)
Target group	43.4 (42.0,44.7)	43.4 (41.7,45.1)	48.1 (46.0,50.1)	51.2 (47.2,55.2)
Difference	14.8 (13.4,16.3)	14.8 (13.0,16.6)	10.1 (8.0,12.3)	7.0 (3.0,11.1)
Explained component	6.9 (5.9, 7.9)	9.9 (8.7,11.1)	6.4 (5.1, 7.8)	2.5 (0.5, 4.5)
Detailed decomposition				
Cohort/location	-1.2 (-1.5, -0.9)	0.5 (0.1, 0.9)	0.1 (-0.4, 0.6)	0.5 (-0.2, 1.2)
Other demos	0.0 (-0.1, 0.0)	0.0 (0.0, 0.0)	0.0 (-0.1, 0.0)	0.1 (0.0, 0.2)
Education	2.2 (1.9, 2.4)	1.9 (1.6, 2.2)	-2.0 (-2.5, -1.5)	0.2 (-0.7, 1.1)
Veteran status	1.8 (1.6, 2.1)	0.9 (0.7, 1.1)	2.0 (1.6, 2.4)	0.7 (0.3, 1.2)
Job series	6.7 (5.9, 7.4)	6.1 (5.2, 7.0)	0.7 (-0.1, 1.5)	0.6 (-0.6, 1.8)
Work experience	-2.5 (-3.0, -2.1)	0.5 (0.0, 1.0)	5.7 (4.9, 6.4)	0.4 (-0.9, 1.6)
Unexplained component	8.0 (6.7, 9.2)	4.9 (3.5, 6.4)	3.7 (2.0, 5.4)	4.5 (1.3, 7.8)
Doubly robust estimate	6.0 (-1.5,13.6)	4.4 (-5.7,14.5)	3.8 (-7.6,15.2)	5.0 (-16.3,26.2)

SOURCE: Authors' calculations from personnel data.

NOTE: Ninety-five-percent confidence intervals, which are based on standard errors calculated with the nonparametric bootstrap method, are shown in parentheses. Actual work experience is not available in the data, so the analysis uses potential work experience (age minus years of education minus 5). Other demos include self-reported disability status. Location refers to the employee's state.

**Table D.3. Decomposition Results of Average Grade Levels at Entry,
White Men Versus White and Racial/Ethnic Minority Women**

	White	Black	Hispanic	Asian	AI/AN
Average Grade Level					
Base group	10.35 (10.33,10.38)	10.35 (10.33,10.38)	10.35 (10.33,10.38)	10.35 (10.33,10.38)	10.35 (10.33,10.38)
Target group	8.99 (8.96, 9.03)	8.58 (8.51, 8.65)	8.55 (8.44, 8.67)	8.91 (8.76, 9.06)	8.85 (8.55, 9.15)
Difference	1.36 (1.31, 1.41)	1.78 (1.70, 1.86)	1.80 (1.68, 1.92)	1.44 (1.29, 1.59)	1.50 (1.20, 1.81)
Explained component	1.19 (1.15, 1.24)	1.25 (1.17, 1.33)	1.47 (1.36, 1.57)	1.02 (0.92, 1.13)	1.03 (0.78, 1.29)
Detailed decomposition					
Cohort/location	0.02 (0.01, 0.03)	-0.10 (-0.12, -0.08)	0.00 (-0.03, 0.02)	-0.04 (-0.07, 0.00)	0.09 (0.02, 0.15)
Other demos	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (-0.01, 0.00)	0.00 (-0.01, 0.00)
Education	0.03 (0.02, 0.04)	0.06 (0.04, 0.07)	0.08 (0.05, 0.10)	-0.06 (-0.09, -0.03)	0.02 (-0.04, 0.08)
Veteran status	0.11 (0.09, 0.13)	0.13 (0.12, 0.15)	0.13 (0.11, 0.15)	0.14 (0.12, 0.17)	0.15 (0.12, 0.18)
Job series	0.65 (0.62, 0.69)	0.87 (0.81, 0.93)	0.79 (0.71, 0.87)	0.43 (0.35, 0.51)	0.50 (0.33, 0.67)
Work experience	0.39 (0.37, 0.41)	0.29 (0.27, 0.32)	0.47 (0.42, 0.53)	0.55 (0.49, 0.61)	0.28 (0.18, 0.39)
Unexplained component	0.17 (0.13, 0.20)	0.53 (0.46, 0.59)	0.33 (0.24, 0.43)	0.42 (0.31, 0.53)	0.47 (0.23, 0.71)
Doubly robust estimate	0.18 (0.14, 0.22)	0.46 (0.40, 0.52)	0.43 (0.33, 0.52)	0.41 (0.30, 0.52)	0.48 (0.25, 0.71)

SOURCE: Authors' calculations from personnel data.

NOTE: Ninety-five-percent confidence intervals, which are based on standard errors calculated with the nonparametric bootstrap method, are shown in parentheses. Actual work experience is not available in the data, so the analysis uses potential work experience (age minus years of education minus 5). Other demos include self-reported disability status. Location refers to the employee's state.

**Table D.4. Decomposition Results of Percentage Entering Grade 11 or Higher,
White Men Versus White and Racial/Ethnic Minority Women**

	White	Black	Hispanic	Asian	AI/AN
Percentage in Grade 11 or Higher					
Base group	58.2 (57.8,58.7)	58.2 (57.8,58.6)	58.2 (57.7,58.7)	58.2 (57.7,58.7)	58.2 (57.8,58.7)
Target group	33.2 (32.4,34.1)	26.0 (24.4,27.5)	25.3 (22.9,27.7)	30.9 (28.2,33.7)	31.1 (25.3,36.9)
Difference	25.0 (24.0,25.9)	32.3 (30.8,33.8)	32.9 (30.5,35.4)	27.3 (24.5,30.1)	27.2 (21.4,33.0)
Explained component	22.0 (21.1,22.8)	22.9 (21.6,24.2)	27.0 (24.8,29.1)	18.8 (16.9,20.8)	19.7 (15.7,23.7)
Detailed decomposition					
Cohort/location	0.3 (0.1, 0.5)	−.5 (−1.9, −1.1)	−0.1 (−0.6, 0.4)	−1.0 (−1.6, −0.4)	1.4 (0.2, 2.7)
Other demos	0.0 (−0.1, 0.0)	0.0 (−0.1, 0.0)	0.0 (−0.1, 0.0)	−0.1 (−0.1, 0.0)	0.0 (−0.1, 0.0)
Education	0.3 (0.1, 0.4)	0.8 (0.5, 1.1)	1.1 (0.6, 1.6)	−1.3 (−1.8, −0.8)	0.3 (−0.8, 1.3)
Veteran status	2.3 (1.7, 2.8)	2.3 (2.0, 2.7)	2.7 (2.2, 3.3)	3.0 (2.3, 3.6)	3.1 (2.4, 3.8)
Job series	11.6 (10.9,12.3)	15.5 (14.6,16.4)	14.2 (12.7,15.7)	7.7 (6.1, 9.2)	9.6 (7.0,12.2)
Work experience	7.6 (7.2, 8.0)	5.7 (5.1, 6.3)	9.1 (8.2,10.0)	10.6 (9.6,11.6)	5.4 (3.3, 7.5)
Unexplained component	3.0 (2.0, 4.0)	9.4 (8.2,10.6)	6.0 (3.6, 8.3)	8.4 (5.8,11.1)	7.4 (2.5,12.4)
Doubly robust estimate	4.0 (−4.2,12.2)	8.4 (−3.2,19.9)	8.0 (−9.2,25.3)	8.8 (−9.7,27.2)	8.8 (−26.5,44.0)

SOURCE: Authors' calculations from personnel data.

NOTE: Ninety-five-percent confidence intervals, which are based on standard errors calculated with the nonparametric bootstrap method, are shown in parentheses. Actual work experience is not available in the data, so the analysis uses potential work experience (age minus years of education minus 5). Other demos include self-reported disability status. Location refers to the employee's state.

Appendix E. Focus Group Background Questionnaires and Protocols

This appendix provides the materials used to collect the qualitative data from our focus group and interview participants. This information may be of interest to readers who would like to better understand how we solicited information from participants.

BACKGROUND INFORMATION SHEET

[FOR PARTICIPANTS IN DISABILITY GROUPS ONLY]

1. What is your disability status? *Mark all that apply.*

- ☐ Have a disability
- ☐ Have a targeted disability (according to Standard Form 256)
- ☐ Are a veteran who is 30 percent or more disabled

*NOTE: According to Standard Form 256, **Targeted** Disabilities include:*

- *2- Developmental disability; for example, autism spectrum disorder*
- *3- Traumatic brain injury*
- *19- Deaf or serious difficulty hearing, benefiting from, for example, American Sign Language, CART, hearing aids, a cochlear implant, and/or other supports*
- *20- Blind or serious difficulty seeing even when wearing glasses*
- *31- Missing extremities (arm, leg, hand, and/or foot)*
- *40- Significant mobility impairment, benefiting from the utilization of a wheelchair, scooter, walker, leg brace(s), and/or other supports*
- *60- Partial or complete paralysis (any cause)*
- *82- Epilepsy or other seizure disorders*
- *90- Intellectual disability*
- *91- Psychiatric disability*
- *92- Dwarfism*
- *93- Significant disfigurement; for example, disfigurements caused by burns, wounds, accidents, or congenital disorders*

2. Have you self-identified your disability with the Air Force using Standard Form 256, Self-Identification of Disability?

3. Were you hired under the Schedule A hiring authority for individuals with disabilities?

4. Were you noncompetitively appointed under the hiring authority for veterans who are 30 percent or more disabled?

[FOR PARTICIPANTS IN ALL GROUPS]

5. What is your gender?
 - ☐ Female
 - ☐ Male
 - ☐ Do not wish to answer
6. Are you Spanish/Hispanic/Latino?
 - ☐ Yes
 - ☐ No
 - ☐ Do not wish to answer
7. What is your race? *Mark one or more races to indicate what race you consider yourself to be.*
 - ☐ American Indian or Alaska Native
 - ☐ Asian (e.g., Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese)
 - ☐ Black or African American
 - ☐ Native Hawaiian or other Pacific Islander (e.g., Samoan, Guamanian)
 - ☐ White
 - ☐ Other (*Please state:* _____)
 - ☐ Do not wish to answer
8. What is your age?
9. How many years have you been an Air Force civilian employee?
10. Were you **previously** a civilian employee in another federal agency or department? If so, please indicate which agency or department below.
 - ☐ Other DoD entity (e.g., Army)
 - ☐ Non-DoD agency or department (e.g., Department of Labor)
 - ☐ Other (*Please state:* _____)
11. What, if any, **previous** active duty, Reserve, or National Guard experience do you have?
 - ☐ Army (active duty)
 - ☐ Army Reserves
 - ☐ Army National Guard
 - ☐ Marine Corps (active duty)
 - ☐ Marine Corps Reserves
 - ☐ Navy (active duty)
 - ☐ Navy Reserves
 - ☐ Air Force (active duty)
 - ☐ Air Force Reserves
 - ☐ Air National Guard

12. Are you **currently serving** in the Reserve or National Guard? If so, please indicate service below.

- Army Reserves
- Army National Guard
- Marine Corps Reserves
- Navy Reserves
- Air Force Reserves
- Air National Guard

13. What is your current civilian grade?

14. What is your current career field (e.g., Human Resources)?

15. What is your current occupational series (e.g., 0201)?

PROTOCOL FOR GENDER-BY-RACE/ETHNICITY GROUPS

Provide Study Overview and Administer Consent

Icebreaker Background Questions

1. Thank you for filling out your background information on the sheet in front of you. So that I understand some background about you, I'm going to begin with a few of those questions.
(*Go around the table to ask these of each participant.)
 - a. How many years have you been an Air Force civilian employee?
 - b. What is your current career field?

Promotion Factors

2. To what extent are you interested in advancing to a higher pay grade?
 - a. Probe: (two options depending on GS level of the group)
 - i. Do you consider senior Air Force civilian leadership (i.e., GS-15 or SES) to be one of your career goals? Why or why not?
 - ii. Do you consider being a supervisor, manager, or a senior leader to be one of your Air Force civilian career goals? Why or why not?
3. How would you describe the quality and amount of feedback you received about your career path and career potential as an Air Force civilian?
 - a. Probe: Do you have or have you had a formal mentor during your Air Force civilian career? If so, how and when did you find that mentor?
 - i. What impact did your mentor have on your career?
 - b. Probe: Do you have, or have you had, an informal mentor during your Air Force civilian career? If so, how and when did you find that mentor?
 - i. What impact did your mentor have on your career?
 - c. Probe: Are you aware of MyVECTOR? (*Have participants raise hands if they are aware.)
 - i. If you have used MyVECTOR, have you found it to be a useful tool to connect with potential mentors?
4. In what ways does the Air Force support your career development?
 - a. Probe: What tools, resources, training, and other developmental opportunities are available to prepare you for promotion in your Air Force civilian career?
 - i. Do you have a career plan? If so, have you found this to be a useful tool?
 - b. Probe: (Ask to GS-14/15) What resources are available to prepare you to write executive core qualifications (ECQs) for senior executive service (SES) applications in the future?

5. In general, what factors do you feel lead to Air Force civilians being successful in getting promoted?
6. Do you feel you are aware of promotion opportunities that are available to you in your Air Force civilian career?
 - a. Probe: How do you become aware of promotion opportunities? Has your leadership during your Air Force career made you aware of promotion opportunities?
7. In general, do you think that you have an equal opportunity for promotion compared to other Air Force civilian employees?
 - a. Probe: Do you think gender or race/ethnicity influence opportunities for promotion? If so, how?
 - b. Probe: How, if at all, do characteristics of your career field, specifically, contribute to difficulty in being promoted?
8. How might the Air Force better prepare you for and support your promotion?

<i>Retention Factors</i>

We are interested in hearing about your own thoughts with regard to your Air Force civilian career, as well as what you know regarding reasons your peers have chosen to stay in or leave their Air Force civilian careers. We are interested in learning about barriers that may exist for retention of individuals from all demographic groups.

9. In general, what factors contribute to Air Force civilians leaving the Air Force?
 - a. Probe: Do you think gender or race/ethnicity influence the reasons that civilians leave the Air Force? If so, how?
 - b. Probe: Are there characteristics of certain career fields that may contribute to individuals deciding to leave their Air Force civilian careers? If so, what are these?
 - c. Probe: When civilians leave the Air Force, where do they tend to go (e.g., other DoD civilian employment, other federal government employment, private sector, choose to no longer work)?
 - d. When providing factors as to why civilians leave their Air Force careers and where they tend to go, on what information did you base your responses (e.g., personal experience, experiences of peers, Air Force exit survey results)?
10. In general, what factors do you think contribute to civilians remaining in their Air Force careers?
 - a. Probe: Do you think gender or race/ethnicity influence any of these factors?

11. OPTIONAL Probes (if participants do not offer retention factors):
- a. How, if at all, do issues related to the following influence decisions made by Air Force civilians to stay with or leave their civilian Air Force positions:
 - i. Family or personal lives?
 - ii. Work-life balance or flexibility (e.g., telework options)?
 - iii. Leadership?
 - iv. Salary?
 - v. Benefits?
 - vi. Promotion opportunities?
 - vii. Job security?
 - viii. Others?
12. How could the Air Force better assist its civilian employees with the issues you have mentioned?
- a. Probe: What changes to or additional Air Force civilian benefits, programs, or policies would lead civilians to consider *remaining* in their Air Force careers for longer periods of time?
 - b. Probe: Do you think that policies, programs, or practices for improving civilian retention would be affected by gender or race/ethnicity?

<i>Closing Questions</i>

13. Do you believe you have been treated differently during your Air Force civilian career because of your gender/race/ethnicity? If so, how?
- a. Do you believe you have been treated differently during your Air Force civilian career because you are a civilian rather than a military member? If so, how?
14. Do you have any additional suggestions for changes that can be made that could improve the Air Force's ability to retain civilians from a variety of backgrounds or to improve the career and working environment more generally?

PROTOCOL FOR INDIVIDUALS WITH DISABILITIES GROUPS

Provide Study Overview and Administer Consent

Icebreaker Background Questions

1. We are first going to begin with general background questions. (*Go around the table to ask these of each participant.)
 - a. How many years have you been an Air Force civilian employee?
 - b. What is your current career field?

Promotion Factors

2. To what extent are you interested in advancing to a higher pay grade?
 - a. Probe: (two options depending on GS level of the group)
 - i. Do you consider senior Air Force civilian leadership (i.e., GS-15 or SES) to be one of your career goals? Why or why not?
 - ii. Do you consider being a supervisor, manager, or a senior leader to be one of your Air Force civilian career goals? Why or why not?
3. How would you describe the quality and amount of feedback you received about your career path and career potential as an Air Force civilian?
 - a. Probe: Do you have, or have you had, a formal mentor during your Air Force civilian career? If so, how and when did you find that mentor?
 - i. What impact did your mentor have on your career?
 - b. Probe: Do you have, or have you had, an informal mentor during your Air Force civilian career? If so, how and when did you find that mentor?
 - i. What impact did your mentor have on your career?
 - c. Probe: Are you aware of MyVECTOR? (*Have participants raise hands if they are aware.)
If you have used MyVECTOR, have you found it to be a useful tool to connect with potential mentors?
4. In what ways does the Air Force support your career development?
 - a. Probe: What tools, resources, training, and other development opportunities are available to prepare you for promotion in your Air Force civilian career?
 - i. Do you have a career plan? If so, have you found this to be a useful tool?
 - b. Probe: Do you feel you have the same access to these tools, resources, and other development opportunities as Air Force civilians without disabilities?
 - c. Probe: Are needed accommodations offered so that you can access these opportunities?

5. In general, what factors do you feel lead to Air Force civilians being successful in getting promoted?
6. Are you aware of promotion opportunities that are available to you in your Air Force civilian career?
 - a. Probe: How do you become aware of promotion opportunities? Has your leadership during your Air Force career made you aware of promotion opportunities?
7. In general, do you think that you have an equal opportunity for promotion compared to others?
 - a. Probe: Do you think disability status influences the opportunities for promotion?
 - b. Probe: How, if at all, do characteristics of your career field, specifically, contribute to difficulty in being promoted?
8. How might the Air Force better prepare you for and support your promotion?

<i>Retention Factors</i>

We are interested in hearing about your own thoughts with regard to your Air Force civilian career, as well as what you know regarding reasons your peers have chosen to stay in or leave their Air Force civilian careers. We are interested in learning about barriers that may exist for retention of individuals from all groups.

9. In general, what factors contribute to Air Force civilians leaving the Air Force?
 - a. Probe: Do you think disability status influences the reasons that civilians leave the Air Force?
 - b. Probe: Are there characteristics of certain career fields that may contribute to individuals deciding to leave their Air Force civilian careers? If so, what are these?
 - c. Probe: When civilians leave the Air Force, where do they tend to go (e.g., other DoD civilian employment, other federal government employment, private sector, choose to no longer work)?
 - d. When providing factors as to why civilians leave their Air Force careers and where they tend to go, on what information did you base your responses (e.g., personal experience, experiences of peers, Air Force exit survey results)?
10. In general, what factors do you think contribute to civilians remaining in their Air Force careers?
 - a. Probe: Do you think disability status influences any of these factors?
11. Throughout your Air Force career, have you felt comfortable requesting needed reasonable accommodations, and have you always known the process to do so? Why or why not?

- a. Throughout your Air Force career, have you received the accommodations requested to meet your needs? Please describe your experiences.
 - i. Probe: Have they been received in a timely manner?
 - ii. Probe: Have reasonable accommodations requests been supported and addressed in a positive manner by your leadership?

12. OPTIONAL Probes (if participants do not offer retention factors):

- a. How, if at all, do issues related to the following influence decisions made by Air Force civilians to stay with or leave their civilian Air Force positions:
 - i. Family or personal lives?
 - ii. Work-life balance or flexibility (e.g., telework options)?
 - iii. Leadership?
 - iv. Salary?
 - v. Benefits?
 - vi. Promotion opportunities?
 - vii. Job security?
 - viii. Availability of reasonable accommodations?
 - ix. Others?

13. How could the Air Force better assist its civilian employees with the issues you have mentioned?

- a. Probe: What changes to or additional Air Force civilian benefits, programs, or policies would lead civilians to consider *remaining* in their Air Force careers for longer periods of time?
- b. Probe: Do you think that policies, programs, or practices for improving civilian retention would be affected by disability status?

<i>Closing Questions</i>

14. Do you believe you have been treated differently during your Air Force civilian career because of your disability? If so, how?

- a. Do you believe you have been treated differently during your Air Force civilian career because you are a civilian rather than a military member? If so, how?

15. Do you have any additional suggestions for changes that can be made that could improve the Air Force's ability to retain civilians from a variety of backgrounds in the Air Force or to improve the career and work environment more generally?

Appendix F. Qualitative Coding Guide

This appendix offers details on how we coded the qualitative data from our focus groups and interviews. The appendix is intended for technical audiences who want more information on the qualitative coding methodology than what is provided in the main report.

Participant Characteristic Codes

To capture background characteristics of focus group participants, coders will first code all text by type of focus group—either demographic diversity or disability characteristics. This information can be gathered by the file name of the focus group transcript. Every participant will also be coded for tenure and career field. The first couple of questions of the focus groups were icebreaker questions in which participants described their tenure and career field. Code all text spoken by each participant according to the designated characteristic codes. Level 1 codes are the broadest, with level 2 and level 3 codes becoming increasingly specific. Coders should code at the most specific level of code possible and not code the associated broader code levels. The participant characteristic codes are in Table F.1.

Table F.1. Participant Characteristic Codes

Level 1	Level 2	Level 3	Description	Corresponding Protocol Question
Gender				Determined by file name or on background sheet
	Male		Participant identifies as male; only code for Gender/Race focus groups	
	Female		Participant identifies as female; only code for Gender/Race focus groups	
Race				Determined by file name or on background sheet
	Am Indian		Participant identifies as being American Indian or Alaska Native; only code for Gender/Race focus groups	
	Asian		Participant identifies as being Asian, such as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or other; only code for Gender/Race focus group	
	Black		Participant identifies as being black or African American; only code for Gender/Race focus group	
	Islander		Participant identifies as being Native Hawaiian or other Pacific Islander such as Samoan, Guamanian, or other; only code for Gender/Race focus group	
	White		Participant identifies as being white; only code for Gender/Race focus group	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Question
	Other		Participant identifies as being a race that is not listed; only code for Gender/Race focus group	
	NA		Participant preferred to not answer the race question; only code for Gender/Race focus group	
Ethnicity			Describes the ethnicity of the participant	Determined by file name or on background sheet
	Hispanic		Participant identifies as being Spanish, Hispanic, and/or Latino	
Disability			Describes the disability status of the participant	Determined by file name or on background sheet
	IWD		Participant was an individual with disabilities, not service-related; only code for Disability focus groups	
		TD	Participant has a targeted disability defined by Standard Form 256	
		A	Participant was hired under the Schedule A hiring authority for individuals with disabilities	
	Vet		Participant identified as a veteran with disabilities; only code for Disability focus group	
		TD	Participant has a targeted disability defined by Standard Form 256	
		V30	Participant is a veteran who is 30 percent or more disabled; only code for Disability focus group	
		A	Participant was hired under the Schedule A hiring authority for individuals with disabilities	
		NC30	Vet was noncompetitively appointed under the hiring authority for veterans who are 30 percent or more disabled.	
Age			Describes the age of the participant	Determined on background sheet
	< 40		Participant is less than 40 years old	
	40–59		Participant is 40–59 years or older	
	60+		Participant is 60 years old or greater	
Service			Describes the prior service roles of the participant	Determined on background sheet
	AFActive		Participant has prior Air Force service experience	
	OtherActive		Participant has other service branch experience that does not include Air Force	
Pay grade			Describes the pay grade of the participant	Determined on background sheet
	WG		Participant was under the working grade (WG) pay scale	
	GS 5–10		Participant is at the pay grade of GS-10 or less (or equivalent)	
	GS 11–13		Participant is at the pay grade of GS-11, 12, or 13 (or equivalent)	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Question
	GS 14–15		Participant is at the pay grade of GS-14 or GS-15 (or equivalent)	
	SES		Participant was an SES	
Tenure				How many years have you been an Air Force civilian employee?
	Senior		Over 20 years	
	Mid		Between 5 and 19 years	
	Early		Less than 5 years	
Occupational series				
	00		Miscellaneous Occupations	
	01		Social Science, Psychology, and Welfare	
	02		Human Resources Management	
	03		General Administrative, Clerical, and Office Services	
	04		Accounting and Budget Group	
	05		Medical, Hospital, Dental, and Public Health Group	
	06		Veterinary Medical Science Group	
	07		Engineering and Architecture Group	
	08		Legal and Kindred Group	
	09		Information and Arts Group	
	10		Business and Industry Group	
	11		Miscellaneous Occupations	
	12		Copyright, Patent, and Trademark Group	
	13		Physical Sciences Group	
	14		Library and Archives Group	
	15		Mathematical Sciences Group	
	16		Equipment, Facilities, and Services Group	
	17		Education Group	
	18		Inspection, Investigation, Enforcement, and Compliance Group	
	19		Quality Assurance, Inspection, and Grading Group	
	20		Supply Group	
	21		Transportation Group	
	22		Information Technology Group	
Interview			Participant was part of a supplementary interview, not a focus group.	

Content Codes

Once coders have captured participant characteristics, we will code the discussion text for content and themes. This coding will not focus on the individual participant level but the discussion content in general. Code all text that addresses the topics as defined below. Make sure coded text captures enough of the discussion to provide necessary context for comments made. Corresponding protocol questions are provided for reference, but coders should code text on each theme throughout the notes, not just in response to the corresponding protocol question. In many instances, a question may not specifically be asked because the theme emerged organically in the discussion.

Level 1 codes are the broadest codes, with levels 2 and 3 becoming increasingly specific with each level. Coders should code at the most specific level of code possible and do not need to code the associated broader code levels (indicated below). Code as many content codes as are relevant to the comment. Do not code the icebreaker/background questions.

Table F.2 provides the content codes used in the study.

Table F.2. Content Codes

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
Interest in advancement			Discussion of interest in advancing to a higher grade, including any interest in senior leadership or management/supervisor goals.	To what extent are you interested in advancing to a higher pay grade?
	Positive interest		Discussion of interest in advancement.	
	Negative interest		Discussion of not having interest in advancement.	
	Unsure or neutral interest		Discussion about being unsure about interest in advancement or not having a positive or negative opinion about advancement.	
	Lack of opportunity		Discussion citing lack of opportunity for advancement.	
Feedback			Description of the quality and amount of feedback regarding career path and potential.	How would you describe the quality and amount of feedback you received about your career path and career potential as an Air Force civilian?
	Lacking or limited		Description of feedback to be lacking or limited in quality or amount.	
	Mixed or mediocre		Description of feedback is mixed or mediocre in quality or amount.	
	Beneficial or positive		Description of quality or amount of feedback being beneficial to the participant; participant relayed positive descriptions of feedback quality or amount.	
	Have to seek out		Discussion of participants having to request or seek out feedback.	
	Military-civilian issues		Discussion of issues related to receiving feedback from military supervisors.	
	Improvements		Description of suggested improvements to ways in which the Air Force can better provide feedback to civilians.	
Mentorship			Description of any formal or informal mentors, how and when participants found mentors, and the impact of the mentor on their career. Also, includes discussions of mentorship more generally even if not about personal experiences.	Do you have or have you had a formal/informal mentor during your Air Force civilian career? If so, how and when did you find that mentor? What impact did your mentor have on your career?
	None or lacking		Description of having not received mentorship or of mentorship that is lacking.	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
	Received mentorship		Description of mentorship received.	Are you aware of MyVECTOR? If you have used MyVECTOR, have you found it to be a useful tool to connect with potential mentors?
		Informal	Description of informal mentorship received.	
		Formal	Description of formal mentorship received.	
	Have to seek out mentors		Discussion of participants having to request or seek out mentors and mentorship.	
	Mentorship improvements		Description of suggested improvements to ways in which the Air Force can provide better mentorship to civilians.	
	MyVector		Discussion of the extent to which participants are aware of MyVECTOR, use of MyVECTOR, and its helpfulness.	
		Not aware or familiar	Discussion of participants not being aware or familiar with MyVECTOR.	
		Aware but have not used	Discussion of participants being aware of MyVECTOR but not having used the tool.	
		Used	Description of experiences uses MyVECTOR.	
		Improvements	Suggested improvements to MyVECTOR to better support Air Force civilians.	
Career development support			Discussion of tools, resources, training, and other developmental opportunities the AF provides for career development support.	In what ways does the Air Force support your career development?
	Limited support or resources		Discussion of career development support or resources being limited or lacking.	
	Resources available		Description of career development resources available and experiences with use.	
	Career plan		Discussion of career plan tools and their usefulness.	Do you have a career plan? If so, have you found this to be a useful tool?
		Do not have a career plan	Description of not having a career plan.	
		Have used a career plan	Discussion of experiences using a career plan.	
	ECQ tools		Descriptions of any resources available.	What resources are available to prepare you to write executive core qualifications (ECQs) for senior executive service (SES) applications in the future?

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
Promotion factors			Discussion of factors that influence civilians' success in getting promoted.	In general, what factors do you feel lead to Air Force civilians being successful in getting promoted?
	Who you know		Discussion of the importance of who you know in getting promoted (e.g., nepotism, social networks).	
	Mobility		Discussion of the importance of being willing to be mobile (i.e., move to another Air Force location for a position).	
	Max position		Discussion of hitting a ceiling or topping out at a certain grade level and not having available higher positions for promotion.	
	Black box		Discussion related to a lack of transparency and ambiguity in the promotion process.	
	Performance; experience		Discussion of the importance of prior performance and experience in getting promoted.	
	Personal characteristics		Discussion of personal or individual characteristics that influence civilians' success in getting promoted (e.g., personality, drive).	
	Groomed; favoritism		Discussion of civilians being groomed for promotion or leaders showing favoritism for who is promoted.	
	Priority placements		Discussion of priority placements (e.g., noncompetitive hires, veterans' preference, spousal preference) and impact on promotion.	
	Vet status		Discussion of the influence of Air Force veteran status on promotion.	
	Education and training		Discussion of the importance of education and training in getting promoted.	
	Other		Discussion of other promotion factors.	
Promotion awareness			Description of whether participants feel aware of promotion opportunities and how they become aware of those opportunities.	Do you feel you are aware of promotion opportunities that are available to you in your Air Force civilian career? How do you become aware of promotion opportunities?
	Unaware		Description of participants not being aware of promotion opportunities.	
	Aware		Description of participants being aware of promotion opportunities.	
	Sources of awareness		Discussion of how participants become aware of promotion opportunities.	
		USAJOBS postings	References to USAJOBS postings as a source of awareness.	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
		Email notifications	References to receiving email notifications as a source of awareness.	
		Word of mouth	Discussion of the importance of “word of mouth” or social networks as a source of awareness.	
		MAJCOM	References to communication from one’s MAJCOM as a source of awareness.	
		Career field	References to communication from one’s career field as a source of awareness.	
		Leadership	Discussion of leadership/supervisors in providing information on promotion opportunities.	
		Other	References to other sources of awareness.	
Promotion equality			Code in response to this specific question as well as other instances in which promotion inequality is discussed. This will likely be double-coded with gender, race/ethnicity, disability, career field, and civilian/mil influence sub-codes.	In general, do you think that you have an equal opportunity for promotion compared to other Air Force civilian employees?
	No		Discussion of participants not feeling as though they have an equal opportunity for promotion compared to other Air Force employees.	
	Unsure		Discussion of participants feeling unsure if they have an equal opportunity for promotion compared to other Air Force employees.	
	Yes		Discussion of participants feeling as though they do have an equal opportunity for promotion compared to other Air Force employees.	
AF promotion improvements			Description of recommendations for steps the Air Force could take to better support promotion and advancement efforts.	How might the Air Force better prepare you for and support your promotion?
	Awareness of openings		Suggested improvements to promotion or career advancement support related to awareness of position openings.	
	Awareness of requirements, process		Suggested improvements to promotion or career advancement support related to awareness of requirements for promotion or the promotion process.	
	Leader support		Suggested improvements to promotion or career advancement related to support from leadership.	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
	Leader accountability		Suggested improvements to promotion or career advancement related to holding leaders accountable for assisting with promotion of civilians.	
	Provide opportunities for growth		Suggested improvements to promotion or career advancement support related to providing opportunities for civilian career growth.	
	Feedback on path and potential		Suggested improvements to promotion or career advancement support related to providing feedback on the civilian career path and civilians' career potential.	
	Other		Other suggested improvements to promotion or career advancement.	
Retention factors			Description of factors that lead civilian employees to leave and stay in the Air Force.	In general, what factors contribute to Air Force civilians leaving the Air Force? In general, what factors do you think contribute to civilians remaining in their Air Force careers?
	Compensation		Discussion of factors related to compensation that contribute to civilians staying in or leaving the Air Force.	
	Job security		Discussion of factors related to job security that contribute to civilians staying in or leaving the Air Force.	
	Lack of advancement opportunities		Discussion of factors related to lack of advancement or promotion opportunities that contribute to civilians staying in or leaving the Air Force.	
	Schedule		Discussion of factors related to schedule that contribute to civilians staying in or leaving the Air Force.	
	Commitment to mission and work		Discussion of factors related to participants' commitment to the Air Force mission or substance of work that contribute to civilians staying in or leaving the Air Force.	
	Benefits		Discussion of factors related to Air Force benefits (e.g., retirement, health care, base amenities) that contribute to civilians staying in or leaving the Air Force.	
	Not feeling valued		Discussion of participants not feeling valued by supervisors or the organization as a factor contributing to civilians staying in or leaving the Air Force.	
	Leadership		Discussion of factors related to leadership that contribute to civilians staying in or leaving the Air Force.	
	Workload stress		Discussion of factors related to workload stress (e.g., feeling overburdened, too many work hours, being undermanned) that contribute to civilians staying in or leaving the Air Force.	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
	Bureaucracy		Discussion of factors related to government bureaucracy (e.g., paperwork, red tape, slow to change) that contribute to civilians staying in or leaving the Air Force.	
	Furlough risk		Discussion of factors related to furlough risk, government shutdown, or other elements of an uncertain political climate that contribute to civilians staying in or leaving the Air Force.	
	Other		Discussion of other factors that contribute to civilians staying in or leaving the Air Force.	
	Career-field specific		Discussion of factors specific to certain career fields that contribute to civilians staying in or leaving the Air Force.	Are there characteristics of certain career fields that may contribute to individuals deciding to leave their Air Force civilian careers? If so, what are these?
Next job			Discussion of <u>where</u> civilians tend to go if they decide to leave Air Force employment.	When civilians leave the Air Force, where do they tend to go?
	Retire		Description of retirement as where civilians go when leaving the Air Force.	
	Other services		Description of positions with other military services that Air Force civilians take when they leave the Air Force.	
	Federal agencies		Description of positions with federal agencies that Air Force civilians take when they leave the Air Force.	
	Private sector		Description of positions in the private sector that Air Force civilians take when they leave the Air Force.	
		Contractor	Description of positions with private-sector contracting, including contracting for DoD, that Air Force civilians take when they leave the Air Force.	
	Other		Description of other places of employment or other places civilians go when they leave the Air Force.	When providing factors as to why civilians leave their Air Force careers and where they tend to go, on what information did you base your responses (e.g., personal experience, experiences of peers, Air Force exit survey results)?
	Response basis		Description of information that participants based responses on regarding where civilians go when they leave the Air Force.	
		Personal experience	Description of personal experiences that participants based responses on regarding where civilians go when they leave the Air Force.	
		Peers	Description of experiences of peers that participants based responses on regarding where civilians go when they leave the Air Force.	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
		Survey results	Description of survey results that participants based responses on regarding where civilians go when they leave the Air Force.	
Accommodations			Discussions of experiences related to reasonable accommodations for individuals with disabilities; do not double-code for “disability” when using this code.	Throughout your Air Force career, have you felt comfortable requesting needed reasonable accommodations, and have you always known the process to do so? Why or why not? Are needed accommodations offered so you can access these opportunities (tools, resources, training)?
	Comfort in request		Discussion of participants feeling comfortable requesting needed accommodations.	
		Uncomfortable	Descriptions of feeling uncomfortable.	
		Comfortable	Descriptions of feeling comfortable.	
		Did not request	Descriptions of choosing not to request accommodations and reasons for not requesting (e.g., felt they could handle it themselves).	
	Understanding of process		Description of understanding the process to request reasonable accommodations in the Air Force.	
		Lack of understanding	Discussion of not knowing the process or finding it confusing.	
		Positive understanding	Discussion of having an understanding of process.	
	Receipt of accommodations		Discussion of experiences receiving reasonable accommodations as an Air Force civilian.	
		Positive	Descriptions of a positive experience.	
		Negative	Descriptions of a negative experience.	
	Timeliness		Discussion of the timeliness or lack thereof of receiving accommodations.	
	Leader support		Discussion of the degree of support from leaders in requesting and receiving needed accommodations.	
		Positive	Descriptions of a positive experience.	
		Negative	Descriptions of a negative experience.	
	Stigma		Discussion of the stigma experienced or feared connected with disability status and how this affects requests for accommodations.	
	Nonphysical		Discussion of accommodation experiences related to nonphysical disabilities (e.g., mental health); may be double-coded with above sub-codes.	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
Retention improvements			Description of recommendations for ways the Air Force can better assist civilian employees to address retention factors.	How could the Air Force better assist its civilian employees with the issues you have mentioned? What changes to or additional Air Force civilian benefits, programs, or policies would lead civilians to consider remaining in their Air Force careers for longer periods of time?
	Awards		Suggested improvements to retention related to awards (e.g., performance awards, other recognition).	
	Leadership		Suggested improvements to retention related to leadership.	
	Opportunities for growth		Suggested improvements to retention related to providing opportunities for career growth.	
	Pay and benefits		Suggested improvements to retention related to pay and benefits (e.g., retirement, health care).	
	Other		Other suggested improvements to retention.	
Influence of background characteristics/ treated differently			Code at level 1 in response to general question about equal treatment when participants do not specify what demographic or other background characteristic has affected them having been treated differently.	There are various questions throughout the protocol about influence of the demographics or other background characteristics as well as a specific question on equal treatment. For example, Do you believe you have been treated differently during your Air Force civilian career because of your disability? If so, how so?
	Gender influence		Influence of gender on workplace experiences or ways participants were treated differently because of gender; should usually be double-coded with other codes.	
	Race/ethnicity influence		Influence of race/ethnicity on workplace experiences or ways participants were treated differently because of race/ethnicity; should usually be double-coded with other codes.	
	Disability influence		Influence of disability status on workplace experiences or ways participants were treated differently because of disability; should usually be double-coded with other codes.	
	Career-field influence		Influence of career field on workplace experiences; should usually be double-coded with other codes.	
	Civilian-military influence		Influence of civilian status on workplace experiences or ways participants were treated differently because of civilian status compared to <u>active-duty military</u> ; should usually be double-coded with other codes.	
	Civilian-vet influence		Influence of veteran status on workplace experiences or ways veterans are treated differently than civilians with no prior Air Force military experience; also include discussions related to influence of Air Force military experience compared to experience in other military services (e.g., Navy); should usually be double-coded with other codes.	

Level 1	Level 2	Level 3	Description	Corresponding Protocol Questions
	Age influence		Influence of age on workplace experiences; should usually be double-coded with other codes.	
	Other influence		Influence of other characteristics. Code in response to questions about equal opportunity or equal treatment; should usually be double-coded with other codes.	
Other AF improvements			Ways to improve the AF more generally, not specific to promotion or retention.	No specific question; may come up when answering questions asking for suggested improvements related to promotion and retention of Air Force civilians.
For discussion			Used if a passage needs to be discussed with other researchers.	N/A
Of note			Used for a particularly relevant quote or clear evidence of a theme.	N/A

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5 USC—See U.S. Code, Title 5.

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- WRP—*See* Workforce Recruitment Program



The U.S. Air Force experiences challenges in maintaining a demographically diverse civilian workforce. This report documents the results of a study designed to better understand the challenges that Air Force civilian women, racial/ethnic minorities, and individuals with disabilities in General Schedule (GS) (and equivalent) positions may face in advancing to higher pay grades as well as factors they consider when deciding whether to remain with the Air Force. The study analyzed Air Force personnel data to identify demographic differences in advancement and retention patterns and conducted focus groups and interviews with close to 300 participants to better understand potential advancement and retention barriers. The report describes key findings related to differences in advancement and retention and provides recommendations for potential changes to Air Force policies and practices to help grow and retain civilian talent from across all demographics.

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