



**NAVAL  
POSTGRADUATE  
SCHOOL**

**MONTEREY, CALIFORNIA**

---

**MBA PROFESSIONAL PROJECT**

---

**FEMALE RETENTION IN THE U.S. NAVY SUPPLY  
CORPS**

---

**June 2022**

**By: Jami Garrett  
Madeleine Fuentes**

**Advisor: Latika Hartmann  
Co-Advisor: Erik Helzer**

*Approved for public release. Distribution is unlimited.*

THIS PAGE INTENTIONALLY LEFT BLANK

<b>REPORT DOCUMENTATION PAGE</b>			<i>Form Approved OMB No. 0704-0188</i>
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC, 20503.			
<b>1. AGENCY USE ONLY (Leave blank)</b>	<b>2. REPORT DATE</b> June 2022	<b>3. REPORT TYPE AND DATES COVERED</b> MBA Professional Project	
<b>4. TITLE AND SUBTITLE</b> FEMALE RETENTION IN THE U.S. NAVY SUPPLY CORPS			<b>5. FUNDING NUMBERS</b>
<b>6. AUTHOR(S)</b> Jami Garrett and Madeleine Fuentes			
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> Naval Postgraduate School Monterey, CA 93943-5000			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> N/A			<b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>
<b>11. SUPPLEMENTARY NOTES</b> The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
<b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b> Approved for public release. Distribution is unlimited.			<b>12b. DISTRIBUTION CODE</b> A
<b>13. ABSTRACT (maximum 200 words)</b>  Our research uses a quantitative and survey-based approach to study gender disparities in retention among Navy Supply Corps officers. Our work offers a clear assessment of retention and separation rates over the course of one officer life cycle, from the end of their first term of service to the last promotion milestone (15 years) before retirement eligibility to help provide a focal point for retention efforts. Using individual data from the Defense Manpower Data Center on Navy officers who commissioned from 2006 to 2021, we find that the female Supply Corps officers separate at higher rates than males and are less likely to be married or have children. These gender differences are statistically significant. Supply Corps female retention and separation patterns, across gender and children, align to Medical Corps. Married female Supply Corps officers' retention and separation patterns fall between SW and Medical Corps, but align more closely to SW. Our survey respondents noted family support, work-life balance, and career-enhancing opportunities as retention incentives. In comparison, they noted a lack of family support and work-life balance as primary separation drivers. Bonuses and lack of transparency around detailing were also mentioned as additional separation drivers.			
<b>14. SUBJECT TERMS</b> female retention, Supply Corps, U.S. Navy			<b>15. NUMBER OF PAGES</b> 121
			<b>16. PRICE CODE</b>
<b>17. SECURITY CLASSIFICATION OF REPORT</b> Unclassified	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b> Unclassified	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b> Unclassified	<b>20. LIMITATION OF ABSTRACT</b> UU

THIS PAGE INTENTIONALLY LEFT BLANK

**Approved for public release. Distribution is unlimited.**

**FEMALE RETENTION IN THE U.S. NAVY SUPPLY CORPS**

Jami Garrett, Lieutenant Commander, United States Navy  
Madeleine Fuentes, Lieutenant Commander, United States Navy

Submitted in partial fulfillment of the  
requirements for the degree of

**MASTER OF BUSINESS ADMINISTRATION**

from the

**NAVAL POSTGRADUATE SCHOOL  
June 2022**

Approved by: Latika Hartmann  
Advisor

Erik Helzer  
Co-Advisor

Rene G. Rendon  
Academic Associate, Department of Defense Management

THIS PAGE INTENTIONALLY LEFT BLANK

# **FEMALE RETENTION IN THE U.S. NAVY SUPPLY CORPS**

## **ABSTRACT**

Our research uses a quantitative and survey-based approach to study gender disparities in retention among Navy Supply Corps officers. Our work offers a clear assessment of retention and separation rates over the course of one officer life cycle, from the end of their first term of service to the last promotion milestone (15 years) before retirement eligibility to help provide a focal point for retention efforts. Using individual data from the Defense Manpower Data Center on Navy officers who commissioned from 2006 to 2021, we find that the female Supply Corps officers separate at higher rates than males and are less likely to be married or have children. These gender differences are statistically significant. Supply Corps female retention and separation patterns, across gender and children, align to Medical Corps. Married female Supply Corps officers' retention and separation patterns fall between SW and Medical Corps, but align more closely to SW. Our survey respondents noted family support, work-life balance, and career-enhancing opportunities as retention incentives. In comparison, they noted a lack of family support and work-life balance as primary separation drivers. Bonuses and lack of transparency around detailing were also mentioned as additional separation drivers.

THIS PAGE INTENTIONALLY LEFT BLANK

# TABLE OF CONTENTS

<b>I.</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>A.</b>	<b>BACKGROUND AND MOTIVATION .....</b>	<b>1</b>
<b>B.</b>	<b>RESEARCH QUESTIONS AND APPROACH.....</b>	<b>2</b>
<b>C.</b>	<b>FINDINGS .....</b>	<b>3</b>
<b>D.</b>	<b>ORGANIZATION .....</b>	<b>4</b>
<b>II.</b>	<b>BACKGROUND AND LITERATURE REVIEW .....</b>	<b>5</b>
<b>A.</b>	<b>LITERATURE REVIEW .....</b>	<b>5</b>
<b>1.</b>	<b>Previous Research.....</b>	<b>6</b>
<b>2.</b>	<b>Family Planning .....</b>	<b>8</b>
<b>3.</b>	<b>Family Caregiver Roles and Responsibilities .....</b>	<b>9</b>
<b>4.</b>	<b>Workplace Culture .....</b>	<b>10</b>
<b>B.</b>	<b>SUMMARY .....</b>	<b>11</b>
<b>III.</b>	<b>FEMALE RETENTION IN THE SUPPLY CORPS .....</b>	<b>13</b>
<b>A.</b>	<b>DATA .....</b>	<b>13</b>
<b>1.</b>	<b>Descriptive Statistics.....</b>	<b>14</b>
<b>B.</b>	<b>DISCUSSION .....</b>	<b>49</b>
<b>IV.</b>	<b>SURVEY STUDY OF RETENTION AND SEPARATION DRIVERS IN CURRENT SUPPLY CORPS COMMUNITY.....</b>	<b>51</b>
<b>A.</b>	<b>SURVEY PARTICIPANT PROFILES .....</b>	<b>51</b>
<b>B.</b>	<b>SURVEY FINDINGS.....</b>	<b>54</b>
<b>C.</b>	<b>INTERVIEW PARTICIPANT PROFILES.....</b>	<b>69</b>
<b>D.</b>	<b>ANALYSIS OF INTERVIEW PARTICIPANT RESPONSES.....</b>	<b>69</b>
<b>E.</b>	<b>DISCUSSION .....</b>	<b>70</b>
<b>V.</b>	<b>CONCLUSION AND RECOMMENDATIONS.....</b>	<b>73</b>
	<b>APPENDIX A. SURVEY RECRUITMENT EMAIL TO ELIGIBLE ACTIVE- DUTY SUPPLY CORPS OFFICERS.....</b>	<b>79</b>
	<b>APPENDIX B. RESEARCH AND SURVEY ANNOUNCEMENT IN THE OFFICE OF PERSONNEL’S MONTHLY SUPPLY CORPS NEWSLETTER.....</b>	<b>81</b>
	<b>APPENDIX C. SURVEY AND INTERVIEW QUESTIONS.....</b>	<b>83</b>

<b>LIST OF REFERENCES.....</b>	<b>97</b>
<b>INITIAL DISTRIBUTION LIST .....</b>	<b>103</b>

## LIST OF FIGURES

Figure 1.	Supply Corps officer gender commission percentages .....	28
Figure 2.	Supply Corps gender retained share, of accessions, as of August 2021.....	29
Figure 3.	Supply Corps officer gender at separation percentages .....	30
Figure 4.	Community percentage of females at commission .....	31
Figure 5.	Community percentage of retained female officers as of August 2021.....	32
Figure 6.	Community percentage of female officers at separation .....	33
Figure 7.	Supply Corps gender comparison of percentage of married officers at commission .....	34
Figure 8.	Supply Corps gender comparison of percentage of retained married officers, as of August 2021 .....	35
Figure 9.	Supply Corps gender comparison of married officers at separation.....	36
Figure 10.	Community comparison of female officers married at commission.....	37
Figure 11.	Community comparison of retained married female officers, as of August 2021 .....	38
Figure 12.	Community comparison of female officers married at separation.....	39
Figure 13.	Supply Corps gender comparison of officers with children at commission .....	40
Figure 14.	Supply Corps gender comparison of retained officers with children, as of August 2021 .....	41
Figure 15.	Supply Corps gender comparison of officers with children at separation .....	42
Figure 16.	Community comparison of female officers with children at commission .....	43
Figure 17.	Community comparison of retained female officers with children, as of August 2021 .....	44

Figure 18.	Community comparison of female officers with children at separation .....	45
Figure 19.	Agreement to statement on career being supported by spouse, partner, or significant other.....	59
Figure 20.	Top 10 “other” separation drivers.....	62
Figure 21.	Importance of other retention incentives, by gender .....	64
Figure 22.	Top 10 “other” retention incentives.....	64
Figure 23.	Importance of better work-life balance retention incentives, by gender.....	65
Figure 24.	Importance of job flexibility to support family planning retention incentives, by gender .....	66
Figure 25.	Importance of co-location retention incentives, by gender.....	67
Figure 26.	Top 10 further relevant retention factors .....	68
Figure 27.	Top 10 words from interviewees for retention incentives .....	70

## LIST OF TABLES

Table 1.	Data set progression from initial set to sample ( <i>n</i> ) .....	13
Table 2.	2006–2010 cohort, Supply Corps/Unrestricted Line comparison.....	18
Table 3.	2006–2010 cohort, Supply Corps/Staff and Restricted Line comparison .....	19
Table 4.	2011–2015 cohort, Supply Corps/Unrestricted Line comparison.....	22
Table 5.	2011–2015 cohort, Supply Corps/Staff and Restricted Line comparison .....	23
Table 6.	2016–2021 cohort, Supply Corps/Unrestricted Line comparison.....	25
Table 7.	2016–2021 cohort, Supply Corps/Staff and Restricted Line Comparison .....	27
Table 8.	Supply Corps T-test results for 2006–2014 .....	46
Table 9.	Aviation T-test results for 2006–2014 .....	46
Table 10.	Human Resources T-test results for 2006–2014.....	47
Table 11.	Medical Corps T-test results for 2006–2014 .....	48
Table 12.	Surface Warfare T-test results for 2006–2014.....	48
Table 13.	Share of Survey Respondents compared to DMDC data on retained Supply Corps Officers as of August 2021 .....	52
Table 14.	Survey participants’ years of service and commission source.....	53
Table 15.	Reasons survey participants joined the Navy, by gender .....	54
Table 16.	Survey participants’ lateral transfer representation, by gender .....	55
Table 17.	Survey participants’ intentions, when they joined, to serve beyond first term of obligation, by gender .....	55
Table 18.	Intentions to leave the Supply Corps pre-retirement eligibility, by gender.....	56
Table 19.	Intentions to continue working, if leaving the Supply Corps pre-retirement eligibility, by gender.....	57

Table 20.	Expected family financial role when survey participant joined the service, by gender .....	57
Table 21.	Level of support and work-life balance, by gender .....	58
Table 22.	Current billet location, by gender .....	60
Table 23.	Separation drivers, by gender .....	60
Table 24.	Retention incentives to remain on active-duty in the Supply Corps, by gender and ranked from most important to least important, by female.....	62
Table 25.	Interview participants' demographics.....	69

## LIST OF ACRONYMS AND ABBREVIATIONS

BRS	Blended Retirement System
CDC	Centers for Disease Control and Prevention
CIP	Career Intermission Program
CO	commanding officer
CONUS	continental United States
D&I	diversity and inclusion
DFAS	Defense Finance Accounting Service
DH	department head
DMDC	Defense Manpower Data Center
DOD	Department of Defense
DON	Department of the Navy
EF	egg freezing
FY	fiscal year
GAO	Government Accountability Office
HR	Human Resources
IRB	Institution Review Board
IVF	in vitro fertilization
MCL	maternity convalescent leave
MPLP	Military Parental Leave Program
OCONUS	outside the continental United States
PC	primary caregiver
PCL	primary caregiver leave
POCR	probationary officer continuation and redesignation
SCL	secondary caregiver leave
STEM	science technology engineering and math
SWO	Surface Warfare Officer
TSP	Thrift Savings Plan
USS	United States Ship

THIS PAGE INTENTIONALLY LEFT BLANK

## ACKNOWLEDGMENTS

We would like to thank our thesis advisors, Dr. Latika Hartmann and Dr. Erik Helzer, for their invaluable guidance and wisdom. We would also like to thank Michele D'Ambrosio of the Thesis Processing Office and Ms. Betsy Wallace and Mr. Daniel Lehnherr of the Graduate Writing Center for their review and insight. Many thanks to the Supply Corps community for their outstanding participation and interest in our research.

Finally, we would like to thank our families for their love and support.

To Jim, you are my best friend and soulmate. You have made my life immensely more joyful and interesting—my love for you is as immeasurable as the universe. To Elizabeth, you have given me love and created a love in me I never knew was possible. You truly complete me as a person. My love for you is infinite and always will be. Thank you both for your love and the opportunity to love you. To my amazing thesis partner, Maddy, I am so grateful to collaborate with you on this rewarding research.

—Jami

To Michael, thank you for your unwavering support and belief in me. You are my world and my inspiration. To Dad, thank you for being my motivation. To my late Mami, you will always be in my heart, and I will never forget where I came from. To the best thesis partner Jami, I am thankful for working with you on this challenging but rewarding project.

—Maddy

THIS PAGE INTENTIONALLY LEFT BLANK

## **I. INTRODUCTION**

We believe diversity is the key to innovation, inclusion is imperative for cohesive teamwork, and equality is critical to Total Force readiness.

—DOD Board on Diversity and Inclusion (2021b, p. 6)

The Supply Corps is the U.S. Navy’s community of logistics professionals. Lines of operation in the Supply Corps are Business Financial Management, Contracting, Fuels, Logistics Information Technology, and Supply Chain Management. The Supply Corps community provides the warfighter’s needs when and where they need them. Without Supply, our nation’s military would not perform as well as our enemies. In a fast-paced world where hostilities have extended from great competition powers to include rogue actors, the ability to implement new capabilities quickly are critical to our nation’s security. Retention of talent is critical to ensuring that our nation’s warfighting needs are met, with both immediate response and long-term execution of supplies and services across all weapons systems and platforms. Research states that diversity is critical to innovative solutions. Past studies indicate the challenges of retaining females in the military. Females consistently separate at higher rates than males. How can we retain talent from this important group? Females primarily consider family planning and caregiving as the top drivers for retention, but officers believe they cannot have both career and a family (Farrell, 2020; Charlton & Fortune, 2019; Kocis & Sonntag, 2018). Females are critical to diversity, diversity is critical to innovation, and innovation is critical to the nation’s defense capabilities.

### **A. BACKGROUND AND MOTIVATION**

Studies of gender recruitment and retention have been conducted for decades across the military and civilian sectors. Loss of talent requires money and time to recruit, train, and retain new servicemembers with the required skill sets to achieve the mission. We analyzed previous literature, conducted statistical analysis of data, and conducted a survey of active-duty Supply Corps officers to determine relevant patterns in female recruitment,

retention, and separation. This research benefits the U.S. Navy in understanding the scope of gender disparity across the ranks and how to better retain qualified Navy Supply Corps officers. This research generates recommendations to the DOD, U.S. Navy, and U.S. Navy Supply Corps on alternative options for retaining qualified Navy Supply Corps officers.

## **B. RESEARCH QUESTIONS AND APPROACH**

In this research, we aim to identify gender patterns in commission, retention, and separation. Do professional and personal characteristics such as time in service, demographics, marital status, parental status, education, and commissioning source correlate with retention or separation? How do these patterns compare across the Staff (Supply Corps and Medical Corps), Unrestricted Line (Aviation and Surface Warfare), and Restricted Line (Human Resources) communities? What are current retention and separation drivers in the Supply Corps officer community?

We answered our research questions using a quantitative and qualitative methodology. We summarized data on 33,032 individual naval officers in the Supply Corps, Aviation, Human Resources, Medical Corps, and Surface Warfare communities. We analyzed descriptive statistics patterns across commission, retention, and separation percentages among male and female officers in and across these same communities. To delve into the why of what our data analysis showed, we created a survey. We fielded the survey to active-duty Supply Corps officers (as of November 2021) in the paygrades of O5 and junior to identify drivers for the patterns identified in our data analysis. Our survey yielded a return of 714 responses (37.34%) of 1,912 eligible participants. We used quantitative statistical analysis to identify gender differences across continuous and categorical variables on personal and professional characteristics, as well as retention and separation drivers. We also applied a qualitative methodology in open-ended survey questions to identify current retention and separation drivers in the Supply Corps community. We aimed to provide a clear assessment of retention and separation rates throughout an officer's life cycle, from the end of their first term of service to the last promotion opportunity (Commander at 15 years) pre-retirement eligibility. The intention was to help provide a focal point for retention efforts.

## C. FINDINGS

Using data on Navy officers, our analysis identified that the Supply Corps separates a higher share of female officers than male officers (statistically significant at the 90% confidence level). For the officers commissioned in year groups 2006–2014, 43.47% of males separated, compared to 49.47% of females. Retained male Supply Corps officers are more likely to be married and have children than retained female Supply Corps officers (statistically significant at the 99% confidence level). For the officers commissioned in year groups 2006–2014, 42.23% of retained male Supply Corps officers are married, compared to 35.07% of retained female Supply Corps officers. For the same group, 27.60% of retained male Supply Corps officers have children, compared to 18.41% of retained female Supply Corps officers. Across cohorts, Supply Corps officers' female retention and separation patterns align most closely to the Medical Corps community. This is shown in the 2006–2014 group (Supply Corps female separation percentage is 49.47%, compared to Medical Corps' 47.81%). Once female Supply Corps' officers marry, retention share (35.07%) falls between Surface Warfare (19.49%) and Medical Corps' (45.76%), though Supply Corps still aligns most closely to Medical Corps. However, once the Supply Corps female officers have children, the community female retention patterns (18.41%) clearly align to the Medical Corps community (23.34%). While gender differences are statistically significant, as discussed above, female share of retained officers appears to continually be increasing over time, whether single, married, with children, or without.

Our survey analysis found statistically significant gender differences regarding reasons for joining, career longevity plans, separation drivers, and retention incentives. Males were more likely to join to serve the nation, while females were more likely to join for the benefits. When Supply Corps officers joined, both genders were more likely to consider themselves the primary wage-earner, though females had a much larger share of dual-wage earner/equal with spouse or partner. Males were far more likely to have spouses or partners support their career than females. Males were more likely to intend to remain active-duty beyond 20 YOS. In terms of separation drivers, females were more likely to consider separating due to family considerations, undesirable billet assignments or locations, and lack of job flexibility for family planning and needs (though males

considered family considerations and undesirable billet assignments or locations as “important”; males considered job flexibility for family needs and planning between “neutral” and “important”). Additional separation drivers outlined in the “other” category were detailing, commands, work-life balance (or a lack thereof), education, and support. The following were statistically significant retention incentives, with females placing higher importance on them than males: work-life balance, job flexibility to support family planning, dual-military co-location assignment, needs of the family assignment, and location preference. When asked to identify “other” retention incentives, the top words provided were detailing, bonus, and kids. When asked to provide further relevant retention incentives that we had not explicitly asked about, survey participants provided people, family, and job. Other top 10 words were career, community, female, manning, opportunities, support, and work. While the community overall is focused on family needs and career enhancing opportunities as retention incentives, family needs, family planning, and job flexibility to support those appear to affect females more than males.

#### **D. ORGANIZATION**

This report includes five chapters. Chapter I offers an introduction to the Supply Corps and female officer retention in the Navy. Chapter II presents our review of literature on female retention. Chapter III outlines our data analysis and results. Chapter IV provides our survey analysis and results. Chapter V summarizes our research, offering our conclusion and recommendations.

## **II. BACKGROUND AND LITERATURE REVIEW**

The DOD (2011) has stated that “diversity is a strategic imperative, critical to mission readiness and accomplishment, and a leadership requirement.” This is likely due to the results diverse teams provide. As outlined by the DON (2020),

diverse teams are 58 percent more likely than non-diverse teams to accurately assess a situation. In addition, gender-diverse organizations are 15 percent more likely to outperform other organizations and diverse organizations are 35 percent more likely to outperform their non-diverse counterparts. (DON, 2020, p. 6)

While the DOD recognizes the importance of gender diversity in recruitment and retention, the Department currently faces multiple recruiting and retention threats from market contenders for the pool of available candidates for today’s diverse and talented workforce (DOD, 2011).

The DOD has implemented two recent policy changes aimed at increasing retention. The first is increasing its paid parental leave. Current policy provides 6 weeks of convalescent leave and up to an additional 6 weeks of primary caregiver leave for the mother, with 21 days of secondary caregiver leave. Commencing at the end of FY22, secondary caregiver leave will be increased to as many as 12 weeks, up from 21 days (DON, 2018b; Kime, 2021, par. 2). The other recent policy change aimed at recruiting and retaining talent is the Blended Retirement System (BRS). BRS provides servicemembers Thrift Savings Plan contribution matching (up to 5%), a mid-career continuation bonus (eligible before 12 years of service with an agreement to stay in the service for an additional 3 years), and a pension at 20 years (2% x years of service) (DFAS, 2017). Because both policies are new, however, retention effects are unknown at this time.

### **A. LITERATURE REVIEW**

There have been other recruitment or retention tools that have proven successful for the DOD, and applicable policies from the civilian sector that the Department could integrate into current policies. We analyze several studies of military retention to identify trends and patterns endemic to military service, as well as where the Supply Corps may be

unique in its retention and community traits. We also analyze several studies of the civilian sector to determine what patterns and trends are consistent for female retention across the public and private sectors. Previous research highlights recurring themes for female servicemember retention decisions - support for both family planning and family caregiver roles and responsibilities as well as workplace culture (such as reducing harassment and assault); male servicemembers base recruitment and retention decisions on financial incentives and schedule/work balance (Farrell, 2020; Charlton and Fortune, 2019; Kocis and Sonntag, 2018).

## **1. Previous Research**

Kocis and Sonntag (2018) used descriptive statistics, multivariate analysis, and qualitative analysis through focus groups to analyze retention of Navy and Marine Corps dual-officers (those military officers that are married to another military officer). They confirmed prior research that the military retains females at lower rates than their male counterparts. They also noted new findings – that the military retains dual-military officers at lower rates at the 10-year mark than their counterparts married to a civilian. Kocis and Sonntag (2018) also found that colocation was the key retention driver for dual-military officers.

Wagner (2017) focused his research on retention of dual-military female Navy officers, applying descriptive statistics and regression models to conduct his analysis. Wagner (2017) found that female officers were less likely (by 4.7%) than male officers to retain to the 10-year mark, and that dual-military officers were more likely (by 7.1%) to retain to the 10-year mark than their single counterparts. Both findings were statistically significant at the 99% confidence level. Wagner (2017) identified that gender affected dual-military retention rates; females in a dual-military marriage, as compared to females married to a civilian, were 8.4% less likely to retain to the 10-year mark. Males in a dual-military marriage were 2.5% more likely to retain to the 10-year mark than their married-to-a-civilian counterpart (Wagner, 2017). He also found that officers who received graduate education had higher retention beyond ten years than those without advanced degrees (by 3.5%) (Wagner, 2017).

Charlton and Fortune (2019) applied ethical and financial frameworks to study the use of fertility treatments (namely, egg freezing (EF) and in-vitro fertilization (IVF)) as retention tools for female naval officers. With family planning being an important retention driver for female naval officers, Charlton and Fortune (2019) identified the ethical justification, based on equality, equity, and need, for providing EF/IVF service (though retention impacts of providing these services are unknown).

Taylor (2005) applied descriptive statistics to analyze surface warfare officer retention for both females and males. Taylor (2005) identified the economic impact on military retention (increased retention during downturns, and decreased retention during booms).

Ceralde and Czepiel (2014) conducted a multivariate logit regression analysis to study female officer retention in the Navy, finding that female retention of Surface Warfare, Medical Corps, Engineering Duty, and all officer groups combined was significantly affected by critical mass (the point at which minority groups are represented enough to overcome negative workplace impacts). They identified a critical mass of 30 percent for Surface Warfare, between 45 to 50 percent for Medical Corps, 10 percent for Engineering duty, and, all designators combined, 45 percent (Ceralde & Czepiel, 2014). The Supply Corps did not produce statistically significant results (Ceralde & Czepiel, 2014).

We analyzed Government Accountability Office (GAO) findings as a comparison tool for findings on military officer retention. Farrell (2020) studied Department of Defense efforts and achievements towards female retention. Farrell (2020) used descriptive statistics and duration analysis to identify retention patterns for male and female servicemembers with dependents as well as themes for female servicemember separation. Males with dependents retain at higher rates than their unmarried counterparts; the opposite is true for females (Farrell, 2020). Females separate due to family planning, dependent care, work schedules, deployments, organizational culture, and sexual assault (Farrell, 2020).

Researchers found similarities between civilian female and military female retention drivers—namely, family planning and family caregiving. Career fields that highlighted flexibility in work requirements and hours, such as technology transfer and pharmacology, had high rates of female retention (Etzkowitz & Ranga, 2011; Goldin & Katz, 2016). Researchers found that rigid and demanding career structures coinciding with prime childbearing years while neglecting a work-life balance have been separation drivers across academia and scientific career fields (Etzkowitz & Ranga, 2011; Goldin & Katz, 2016).

## **2. Family Planning**

A review of the literature indicates that family planning is a primary retention influencer, but that military career demands and perceptions of rigidity, limited available windows for pregnancy, fertility issues, and the stigma of pregnancy are barriers to having a family (Charlton & Fortune, 2019; Kocis & Sonntag, 2018; Wagner, 2017). Active-duty females are far less likely than their male counterparts to have children (Kocis & Sonntag, 2018). Active-duty females identified that family planning affects retention, but that a demanding career timeline, the stigma of pregnancy, and fertility issues are barriers to having children (Kocis & Sonntag, 2018; Charlton & Fortune, 2019).

The window for family planning for females is limited, however. Female servicemembers require 22 months of non-operational time from pregnancy through the one-year operational deferment post-birth (Vance, 2017; Wagner, 2017). Wagner (2017) identified a common childbearing window of 3 years for female surface warfare officers (with the maximum available window of 3.5 childbearing years). The childbearing window is the available time that includes 22 months of shore duty for a female officer to get pregnant, bear the child, and care for the child during the first year of life (with the authorized one year operational deferment) (Wagner, 2017). Supply Corps officers' career timeline closely mirrors that of Surface Warfare officers in the first 12 years of service. According to the Department of the Navy (2022b), the FY-23 line community briefs show that Surface Warfare officers serve 3.5 years on shore duty in their first 12 years of service (in between their division officer and department head rides). According to the Department

of the Navy (2022c), the FY-23 staff community briefs show that Supply Corps officers, in the same timeframe, serve 3.5 years on shore duty, broken up into two tours of duty (between division officer and department head rides, and between department head and O4 operational tours). The Supply Corps has recently changed their standard career path, though, reducing the first shore tour from 36 months to 24 months (DON, 2022c). Those who do not attend graduate education may have shore duty orders between 24 to 36 months (DON, 2022c). Following graduate education or shore duty, newly pinned O4s are expected to serve an O4 operational tour (DON, 2022c). Female Supply Corps officers following the standard career path may have only a couple of months in which to get pregnant before the O-4 operational tour.

Waiting until post-O4 operational tour ensures a geriatric pregnancy (age 35 and over), if the woman is even able to get pregnant by that point. There is a noticeable decrease in fertility, and increased medical risks associated with pregnancies, when the woman is 35 years or older (Charlton & Fortune, 2019). According to the CDC, infertility treatments in 2018 increased first births by 11% for females between 35–39 and by 26% for females over 40 (Goldin, 2021). Charlton & Fortune (2019) recommend that the military services follow the civilian sector’s lead and provide EF/IVF treatments for active-duty servicemembers and their families.

### **3. Family Caregiver Roles and Responsibilities**

Family caregiving is a consistent theme no matter the sector – work demands outside of the standard workday are a regular occurrence and impede equity across all sectors (Goldin, 2021; Kocis & Sonntag, 2018). Active-duty focus group feedback indicates that dual-military officers and females believe they need to compromise between career and family (Kocis & Sonntag, 2018). When work calls, childcare typically falls to the females, even in dual-military and dual-career families (Goldin, 2021; Kocis & Sonntag, 2018). As such, feedback indicates a willingness to leave the military due to perception of rigid career paths with inconsistent support and lack of workplace flexibility to take care of family needs (Kocis & Sonntag, 2018). Since females are more likely to intentionally subordinate their careers in support of their spouse or dependent’s needs, this

contributes to a higher separation rate for females due to family reasons (Goldin, 2021; Kocis & Sonntag, 2018). The Department of Defense program to provide time off to take care of family or personal needs, the Career Intermission Program (CIP), has not been found to be a major factor in retention decisions. The flexibility comes with costs—namely “reduced income, extended serving obligations, and delayed promotions” (Charlton & Fortune, 2019, p. 18).

Farrell (2020) found that active-duty male service members who are married with dependents have higher retention rates than their unmarried-without-dependent male counterparts; the opposite is true for females. In the Navy, married-with-dependent females are 1.167 times more likely to separate than their unmarried-without-dependent counterparts, while married-without-dependents females are 2.159 times more likely than their unmarried-without-dependents female counterparts to separate (Farrell, 2020). A career that offers and supports work-life balance in the military has been assessed to be more productive as a retention tool than bonuses (Charlton & Fortune, 2019). While bonuses entice some to stay in the services longer than initially intended, they have not solved the Navy’s retention problems in the arduous communities that provide them (Charlton & Fortune, 2019).

#### **4. Workplace Culture**

Employees leave their organizations for a variety of personal reasons. Active-duty female naval officers consistently attrite at a higher rate than active-duty male naval officers (Farrell, 2020; Hernandez & Serna, 2020; Kocis & Sonntag, 2018; Ceralde & Czepiel, 2014). Females are more likely to join the military for job opportunities and security (and just as likely as males to join to serve the nation, travel, attain job skills, and get free education), yet they are leaving a secure job at higher rates than males (Amara, 2014; Patten & Parker, 2011).

Identified factors include harassment and assault and lack of representation at or above the point of critical mass (the point of representation at which minority groups overcome negative impacts in the workplace) (Amara, 2014; Bissonette, 2012; Ceralde & Czepiel, 2014; and Hernandez & Serna, 2020). Amara (2014) found that female

servicemembers have a higher rate of sexual harassment and assault. Female naval officers experience a higher rate of sexist hostility than other types of harassment, and experience higher rates of gender bias and discrimination than males (Bissonette, 2012; Hernandez & Serna, 2020). Ceralde and Czepiel (2014) found that minority group retention (whether by gender, race, or ethnicity) increases with higher representation in the military services. Past studies highlight 25% as the point of critical mass (Charlton & Fortune, 2019). Ceralde & Czepiel (2014) noted the issue of perception—a lack of senior female leadership leaves junior officers under the impression that they may also experience career plateaus inhibiting their promotion capabilities. Charlton and Fortune (2019) noted that the relatively low number of senior female officers results in less direct mentorship for female junior officers, which in turn affects their intention to remain beyond initial service obligation. This matters because high-quality relationships and support networks enhance well-being and result in happier workplace environments (Charlton & Fortune, 2019).

## **B. SUMMARY**

In sum, a review of the relevant academic literature indicates that officers of both genders believe they must choose between career and family. The scholarship indicates that, while they consider workplace culture, females focus primarily on family factors when making retention decisions. Marriage and dependents are seen as positive retention drivers for males. However, for females, these are negative retention drivers. If one partner in the relationship must subordinate their career to care for the family, this typically falls to the females.

THIS PAGE INTENTIONALLY LEFT BLANK

### III. FEMALE RETENTION IN THE SUPPLY CORPS

This chapter describes the officer data used to establish the basic patterns on retention by gender and community in the U.S. Navy. We begin by explaining the data and then discuss the patterns.

#### A. DATA

We analyzed data provided by the Defense Manpower Data Center (DMDC) on 31,771 individuals across commission years 2006–2021 for the Supply Corps, Aviation, Human Resources, Medical Corps, and Surface Warfare officer communities. We began our analysis with 33,032 individuals across the following designators: 1100, 1110, 1160, 1200, 1300, 1310, 1390, 2100, 3100, 6510, and 7510. We analyzed two observations per unique individual: their information at commissioning and their information at either separation or as of August 2021 (when DMDC created our extract). This allowed us to identify an officer’s retention decisions, as of August 2021. Due to inconsistencies in the data, we dropped prior enlisted records. We then dropped individuals with non-relevant designators (occupation codes). We next dropped individuals that we only observed at commission, and not at separation or as of August 2021, as this incomplete data could not be categorized into our retention or separation outcomes. After dropping these individuals, we were left with 31,771 individuals. Table 1 shows the progression from initial data set to our sample (*n*).

Table 1. Data set progression from initial set to sample (*n*)

Sample Details	Number of Observations
Initial Sample	33,032
Number of individuals dropped	1,261
Number of individuals in working sample	31,771

We studied demographic patterns at commission, separation and for individuals still retained as of August 2021 across the Supply Corps (designator 3100), Aviation

(designators 1300, 1310, 1390), Human Resources (designator 1200), Medical Corps (designator 2100), and Surface Warfare (designators 1100, 1110, 1160).

We constructed basic demographic variables for the officers in our dataset. We created our first indicator variable as gender, in which female was equal to 1, and male was equal to 0. We next created indicator variables for race, looking at White, Black, Asian, American Indian/Native American, and Pacific Islander/Native Hawaiian. We next created an indicator variable for ethnicity, with Hispanic equal to 1, and non-Hispanic equal to 0. We created three indicator variables for education, looking at those with only an associates' degree (AA), where AA is equal to 1, those with only a bachelor's degree (BA), where BA is equal to 1, and finally those with a master's degree or higher (MA+), where MA+ is equal to 1. We next created an indicator variable for marital status, with married equal to 1 and not married equal to 0. The Navy data provided by DMDC did not include data on divorced or dual-military couples. We created a final indicator variable for parental status, looking at those officers with children (any child equal to 1), compared to childless officers (equal to 0). We tracked these demographics for each officer both at commission and then at either separation, or as of August 2021 for retained officers.

A few caveats are in order before we present the descriptive statistics. First, the data sets we analyzed do not capture immediate and long-term retention effects from personnel policy changes in the last year (mainly parental leave policies and the adjustment to timing of the Department Head (DH) and graduate education wickets in the Supply Corps community career timeline). Second, our data sets do not tell us why we observed these patterns. We aimed to mitigate the limitations and identify the reasons why Supply Corps retention and separation patterns exist using a survey of current (as of November 2021) active-duty U.S. Navy Supply Corps officers in the paygrades of O5 and below. We discuss the survey in the next chapter.

## **1. Descriptive Statistics**

We described the patterns by pooling officers across commission years, namely those that commissioned between 2006 and 2010, those that commissioned between 2011 and 2015 and those that commissioned in 2016 and after. We conducted comparative

analyses between Supply Corps and the Unrestricted Line communities of Aviation and Surface Warfare, followed by comparative analyses between Supply Corps and the Staff and Restricted Line communities of Medical Corps and Human Resources, respectively. We conducted these comparative analyses for each cohort and finished with an overall summary of our findings across all cohorts.

Findings show that each of the communities are commissioning a slightly higher share of females across each cohort. Across 2006–2021, Supply Corps has the second lowest share of females at commission. While female share of retained officers is also increasing for each of the communities across the cohorts, Supply Corps has the second highest share for 2006–2010 and 2016–2021, and the third highest share for 2011–2015. However, Supply Corps has the second highest share of females who separate. These findings align to the findings that Supply Corps and HR access females through lateral transfer and/or probationary officer continuation and redesignation (POCR). Aviation, SW, and Medical Corps lose females (and officers in general) through lateral transfer and/or POCR. Supply Corps commissions a relatively low share of females, retains a relatively high share of females, and separates a relatively high share of females; lateral transfer and POCR accessions appear to be giving the Supply Corps a boost to retention. Findings suggest that those who leave the Supply Corps separate from military service, while many who leave Aviation or SW remain in the military service but move to a different community. Gender differences for separation are statistically different for every community except HR. Gender differences for Supply Corps separations is statistically significant at the 90% confidence level.

For married officers, share of retained female officers is increasing across the cohorts. Supply Corps commissioned the second highest share for 2006–2010 and 2016–2021 (after HR), and the third highest share for 2011–2015 (after Medical Corps). Aviation and SW commission a relatively low share of married officers. When assessing retention of married officers, without including the gender variable, Supply Corps has a relatively low share. For the 2006–2010 and 2011–2015 cohorts, Supply Corps aligns to the Unrestricted Line communities, with the second lowest share (81.47%, aligning within 1 percentage point of SW) and then third lowest share (66.15%, aligning within 1.5

percentage points of Aviation), respectively. For 2016–2021, with a share of 41.62%, Supply Corps remains in third, most closely aligning to HR (45.31%). However, when focusing on retained female married officers, the share drops for every community. For 2006–2010, Supply Corps retains the third highest share (19.40%), after SW (26.61%). For 2011–2015, Supply Corps retains the second lowest share (21.34%), after SW (28.90%). For 2016–2021, Supply Corps remains at the second lowest share (27.22%), after SW (31.27%). Gender differences for retention of married officers are statistically significant for every community we analyzed. Gender differences for Supply Corps retention of married officers are statistically significant at the 99% confidence level.

For officers with children, Supply Corps commissions a relatively high share. For 2006–2010, Supply Corps commissioned the second highest share (24.31%) after HR (48.98%) and most aligned to Medical Corps (18.86%). For 2011–2015, Supply Corps maintained the second highest share (19.31%) after HR (41.30%) and most aligning to Medical Corps (17.60%). For 2016–2021, these patterns repeated - Supply Corps had the second highest share (14.53%) after HR (17.39%) and aligned most closely to Medical Corps (13.49%). When looking at retained officers with children, without factoring in the gender variable, all communities have nearly a majority share or higher for 6 YOS and higher. For 2006–2010, Supply Corps retains the second highest share of officers with children (76.14%) after HR (76.61%). For 2011–2015, Supply Corps retains the third highest share of officers with children (47.50%) after Medical Corps (51.56%) and HR (48.65%). For 2016–2021, Supply Corps remains in third for highest share of retained officers with children (22.16%), after Medical Corps (26.80%) and HR (23.44%). This suggests that servicemembers may begin having children after their first term of obligation. When we factored in the gender variable for officers with children, however, retention share dropped for all communities. For 2006–2010, Supply Corps retained the second highest share of female officers with children (53.23%) after HR (64%) and aligned most to Medical Corps (52.72%). For 2011–2015, Supply Corps retained the third highest share of female officers with children (30.10%) after HR (47.22%) and Medical Corps (36.84%). For 2016–2021, Supply Corps remained in third for highest share of female officers with children (14.36%) after HR (25%) and Medical Corps (17.02%). Gender differences for

retained officers with children were statistically significant for all communities we analyzed. Gender differences for retained officers with children in Supply Corps were statistically significant at the 99% confidence level.

With Table 2, we begin our discussion on community comparison across cohorts and all demographic variables we discussed. Table 2 shows the comparison between Supply Corps and the Unrestricted Line communities for the 2006–2010 cohort. Supply Corps' share of females at commission (19.40%) is higher than Aviation (11.73%). This pattern holds true for share of females retained, as of August 2021. Supply Corps' share of retained females is 20.68%, while Aviation's is 13.08%. Supply Corps' share of females at commission (19.40%) is lower than Surface Warfare's (26.61%). This pattern holds true for share of females who separated - Supply Corps' share is 20.68%, while Surface Warfare's (SW) is 30.09%. Of the three communities, Supply Corps has the highest retention rate, as of August 2021 (15.74%). Aviation's share is 7.28%, and SW's share is 14.46%. Supply Corps is also the most racially and ethnically diverse, both at commission and as of August 2021, of the three communities. Supply Corps commissions the highest percentage of married officers (37.03%). Regarding share of married officers at commission, Aviation (14.52%) and SW (14.44%) align. Supply Corps retains, as of August 2021, a higher share of married officers (81.47%) than SW (80.72%), but fewer than Aviation, who has the highest share of the three communities (86.91%). Supply Corps has the most officers with children at commission (24.31%). Aviation (7.35%) and SW (8.42%) once again align. Supply Corps also has the highest share of retained, as of August 2021, officers with children (76.14%). Aviation (68.41%) and SW (65.43%) are more closely aligned here as well. Supply Corps separates more officers with children (37.73%) than SW (19.11%), but fewer than Aviation (39.04%). Supply Corps averages 7.6 years at separation, while Aviation averages 8.71 years at separation, and SW averages 6.45 years at separation. According to the communities' career progress charts, SW separates on the shore tour before their DH tour (which begins at approximately 8.5 years), Aviation separations align to the start of the DH tour (8.5 years), and Supply Corps officers tend to separate from their DH tour (which falls from 5.5 to 8 years of service).

Table 2. 2006–2010 cohort, Supply Corps/Unrestricted Line comparison

2006-2010	SUPPLY			AVIATION			SWO		
	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated
Total Observations	794	394	440	3444	1016	1911	4134	1079	2622
Female	19.40%	15.74%	20.68%	11.73%	7.28%	13.08%	26.61%	14.46%	30.09%
Age	26.70	39.97	33.22	23.56	36.21	30.94	23.71	37.22	29.01
Race:									
White	69.65%	67.77%	71.82%	87.72%	90.06%	87.18%	77.38%	75.72%	78.30%
Black	12.97%	13.20%	12.05%	3.31%	2.17%	3.30%	10.14%	10.84%	8.77%
Asian	11.21%	14.21%	8.86%	3.19%	2.56%	3.14%	5.27%	5.38%	5.49%
American Indian/Native American	1.64%	2.03%	2.05%	1.74%	1.48%	1.57%	3.14%	3.43%	2.90%
Pacific Islander/ Native Hawaiian	0.88%	1.02%	1.14%	0.52%	0.39%	0.68%	0.53%	0.74%	0.61%
Ethnicity:									
Hispanic	8.44%	8.88%	7.73%	5.43%	4.72%	5.55%	7.35%	7.69%	7.40%
Education:									
Associates	0.88%	0.25%	1.36%	0.20%	0.00%	0.10%	0.02%	0.00%	0.11%
Bachelors	6.30%	24.37%	51.14%	35.89%	46.85%	53.17%	31.64%	19.28%	54.20%
Masters +	22.54%	70.56%	16.36%	6.50%	38.68%	14.81%	9.29%	64.78%	9.80%
Married (Yes)	37.03%	81.47%	56.82%	14.52%	86.91%	61.28%	14.44%	80.72%	44.09%
Children									
Yes	24.31%	76.14%	37.73%	7.35%	68.41%	39.04%	8.42%	65.43%	19.11%
No	75.69%	23.86%	62.27%	92.65%	31.59%	60.96%	91.58%	34.57%	80.89%
Time in Service (years)		13.53	7.60		13.38	8.71		13.31	6.45

Table 3 shows the comparison between Supply Corps and the Staff and Restricted Line communities for the 2006–2010 cohort. Supply Corps’ share of females at commission (19.40%) is lower than Medical Corps (33.28%) and higher than HR (14.29%). While Supply Corps’ share of females who separated (20.68%) is lower than Medical Corps (38.40%) and HR (31.75%), it is also lower for share of retained females, as of August 2021. Supply Corps’ share of retained females is 15.74%, compared to Medical Corps (28.53%) and HR (40.32%). Supply Corps is the most racially diverse for both commissioned and for retained as of August 2021, and the most ethnically diverse for commissioned. Regarding the share of Hispanic retained officers, HR (12.10%) overtook Supply Corps (8.88%). Supply Corps has the lowest share of married officers at commission (37.03%). Medical Corps’ share is 39.62%, while HR’s is 46.94%. This pattern holds true for share of retained married officers, as of August 2021. Supply Corps’ share of retained married officers is 81.47%. Medical Corps’ share is 85.27% and HR’s is 83.87%. Supply Corps separates a lower share of married officers (56.82%) than Medical Corps (76%), but a higher share of married officers than HR (53.97%). Supply Corps

commissioned a higher share of officers with children (24.31%) than Medical Corps (18.86%). This pattern holds true for share of retained officers with children. Supply Corps' share of retained officers with children was 76.14%, while Medical Corps' share was 68.99%. Supply Corps commissioned a lower share of officers with children (24.31%) than HR (48.98%). Supply Corps' share of retained officers with children, as of August 2021 (76.14%) was similar to HR (76.61%). Supply Corps separated the lowest share of officers with children (27.73%). Medical Corps' share at separation was 52.40%, and HR's was 42.86%. Supply Corps averaged 7.6 years at separation, Medical Corps averaged 7.8 years at separation, and HR averaged 8.39 years at separation. Medical Corps' average separations occurred during their operational experience tours. HR separations, at 8.39 years, did not align to a specific tour or milestone. There are numerous options for HR until the 10-year mark, and lateral transfers/ POCR are accepted into the community until the 12-year mark.

Table 3. 2006–2010 cohort, Supply Corps/Staff and Restricted Line comparison

2006-2010	SUPPLY			MEDICAL			HR		
	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated
Total Observations	794	394	440	1373	645	750	49	124	63
Female	19.40%	15.74%	20.68%	33.28%	28.53%	38.40%	14.29%	40.32%	31.75%
Age	26.70	39.97	33.22	29.06	39.68	36.06	30.20	37.70	32.48
Race:									
White	69.65%	67.77%	71.82%	74.14%	78.45%	75.47%	81.63%	75.00%	80.95%
Black	12.97%	13.20%	12.05%	7.94%	3.88%	5.73%	6.12%	12.10%	7.94%
Asian	11.21%	14.21%	8.86%	12.31%	10.54%	13.20%	8.16%	3.23%	6.35%
American Indian/Native American	1.64%	2.03%	2.05%	1.09%	0.93%	1.20%	2.04%	5.65%	3.17%
Pacific Islander/ Native Hawaiian	0.88%	1.02%	1.14%	1.02%	1.71%	0.53%	0.00%	0.00%	0.00%
Ethnicity:									
Hispanic	8.44%	8.88%	7.73%	5.39%	7.29%	4.93%	4.08%	12.10%	7.94%
Education:									
Associates	0.88%	0.25%	1.36%	0.07%	0.00%	0.13%	0.00%	0.00%	0.00%
Bachelors	6.30%	24.37%	51.14%	5.97%	7.44%	12.27%	20.41%	3.23%	19.05%
Masters +	22.54%	70.56%	16.36%	2.26%	80.78%	36.80%	26.53%	92.74%	39.68%
Married (Yes)	37.03%	81.47%	56.82%	39.62%	85.27%	76.00%	46.94%	83.87%	53.97%
Children									
Yes	24.31%	76.14%	37.73%	18.86%	68.99%	52.40%	48.98%	76.61%	42.86%
No	75.69%	23.86%	62.27%	81.14%	31.01%	47.60%	51.02%	23.39%	57.14%
Time in Service (years)		13.53	7.60		12.88	7.80		13.39	8.39

Overall, for the 2006–2010 cohort, Supply Corps has the smallest percentage change between percentage of female officers commissioned and retained, as of August 2021 - a drop of 3.66 percentage points. The most comparable are Aviation (a drop of 4.45 percentage points) and Medical Corps (a drop of 4.75 percentage points). Supply Corps and Medical Corps communities had a higher number of officers, both retained and separated, than commissioned. This is likely due to lateral transfers and POOCR candidates. Aviation has the opposite situation—a lower number of officers, both separated and retained, as of August 2021, than commissioned. It appears that officers transferred out of Aviation but stayed in the Navy. These factors may have influenced the percentage difference between commissioned and retained for the three mentioned communities. Of note, HR is the only community that increased its percentage from commissioned to retained officers who are female. This was likely due to lateral transfers into the community to fill the community’s needs.

For the 2006–2010 cohort, Supply Corps was the most racially and ethnically diverse for both commissioned and retained officers, as of August 2021 (aside from HR’s higher share of retained Hispanic officers). Supply Corps did not cleanly perform for retention of married officers or officers with children. While Supply Corps aligned to Medical Corps and HR for percentage of married officers at commission, these differences disappear amongst the communities for retained officers. Supply Corps (81.47%) most aligned to SW (80.72%) for retained married officers, as of August 2021. HR fell in the middle (83.87%), while Aviation (86.91%) and Medical Corps (85.27%) had the highest percentages of retained married officers, as of August 2021. Supply Corps had the second highest share of officers with children at commission (24.31%). HR (48.98%) had the highest share. Aviation (7.35%), SW (8.42%), and Medical Corps (18.86%) rounded out the list for share of officers with children at commission. The same pattern held true for retained officers, as of August 2021. Supply Corps’ share of retained officers with children was 76.14%, second only to HR (76.61%). Medical Corps (68.99%) came in third, followed by Aviation (68.41%), and then SW (65.43%). SW had the lowest share of officers with children at separation (19.11%). Supply Corps had the second lowest share

of officers with children at separation (37.73%), followed by Aviation (39.04%), HR (42.86%), and then Medical Corps (52.40%).

Table 4 shows the comparison between Supply Corps and the Unrestricted Line communities for the 2011–2015 cohort. Supply Corps once again had a higher share of female officers at commission (21.34%) than Aviation (11.89%), and a lower share than SW (28.90%). The retention patterns shifted from 2006–2010, however. For 2011–2015, SW had the highest share of retained female officers, as of August 2021 (23.54%). Supply Corps' share of retained female officers was 19.81%, and Aviation's was 11.24%. Supply Corps maintained its position as the most racially and ethnically diverse at commission and retained, as of August 2021. Supply Corps also commissioned the highest share of married officers (31%). For share of married officers at commission, Aviation (10.12%) and SWO (11.99%) most closely aligned. Supply Corps also had the highest share of retained married officers (66.15%). Aviation (64.69%) most closely aligned to Supply Corps, with SW coming in last at 58.12%. Supply Corps also had the highest share of officers with children at commission (19.31%). Aviation (3.63%) and SW (6.47%) most closely aligned for share of officers with children at commission. Supply Corps also had the highest share of retained officers with children, as of August 2021 (47.50%). Aviation (33.93%) and SW (36.76%) aligned here as well. Supply Corps had the highest share of officers with children at separation (21.24%). Once again, the Restricted Line communities seemed very similar, with Aviation's share at 13.67% and SW's share at 16.64%. Supply Corps averaged 5.9 years at separation, which aligned to the start of the DH ride. Aviation averaged 4.1 years at separation, at the end of the first term of service. SW averaged 5.5 years at separation, during the shore tour post-division officer ride. Time in service at separation may not be an accurate depiction, as the previous 7–8 years average time in service at separation (for the 2006–2010 cohort) had not been yet met, as of August 2021, for year groups 2013–2015.

Table 4. 2011–2015 cohort, Supply Corps/Unrestricted Line comparison

2011-2015	SUPPLY			AVIATION			SWO		
	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated
Total Observations	642	520	226	3853	2838	629	4080	1801	1617
Female	21.34%	19.81%	23.01%	11.89%	11.24%	11.45%	28.90%	23.54%	31.42%
Age	26.49	34.54	29.84	23.25	31.18	26.78	23.35	31.59	28.09
Race:									
White	66.51%	62.88%	76.55%	86.22%	88.16%	85.85%	73.41%	71.52%	76.69%
Black	15.42%	15.38%	9.73%	3.27%	2.54%	4.13%	10.07%	10.55%	7.92%
Asian	13.86%	14.04%	12.39%	5.24%	4.33%	5.56%	9.14%	9.61%	8.23%
American Indian/Native American	0.93%	1.92%	0.44%	2.36%	2.11%	2.38%	3.14%	3.11%	2.66%
Pacific Islander/ Native Hawaiian	0.93%	1.54%	0.00%	0.80%	0.81%	0.48%	1.23%	1.39%	1.18%
Ethnicity:									
Hispanic	11.37%	12.69%	9.29%	7.66%	6.66%	9.06%	9.88%	10.94%	9.21%
Education:									
Associates	0.00%	0.00%	1.33%	0.08%	0.35%	0.48%	0.10%	0.06%	0.56%
Bachelors	7.94%	62.31%	65.93%	3.63%	60.82%	34.82%	3.16%	50.14%	54.92%
Masters +	1.09%	20.19%	7.52%	0.08%	4.97%	1.27%	0.07%	27.37%	3.03%
Married (Yes)	31.00%	66.15%	46.02%	10.12%	64.69%	32.43%	11.99%	58.13%	39.89%
Children									
Yes	19.31%	47.50%	21.24%	3.63%	33.93%	13.67%	6.47%	36.76%	16.64%
No	80.69%	52.50%	78.76%	96.37%	66.07%	86.33%	93.53%	63.24%	83.36%
Time in Service		8.46	5.94		8.38	4.15		8.2	5.53

Table 5 shows the comparison between Supply Corps and the Staff and Restricted Line communities for the 2011–2015 cohort. Supply Corps commissioned the lowest share of female officers (21.34%) compared to Medical Corps (32.63%) and HR (30.43%). Supply Corps also retained, as of August 2021, the lowest share of female officers (19.81%) compared to Medical Corps (34.15%) and HR (48.65%). This pattern held true for separations. Supply Corps separated the lowest share of female officers (23.01%) compared to Medical Corps (30.26%) and HR (42.86%). Supply Corps remained the most racially diverse of the communities at commission, though HR gained the most racially diverse title for this cohort for retained officers, as of August 2021. HR was the most ethnically diverse community at commission (15.22%), followed by Supply Corps (11.37%). Supply Corps had the highest share of retained Hispanic officers (12.69%) compared to Medical Corps (6.15%) and HR (10.14%). Of the three communities, Supply Corps commissioned the lowest share of married officers (31%) compared to Medical Corps (43.55%) and HR (58.70%). Supply Corps also retained, as of August 2021, the lowest share of married officers (66.15%) compared to Medical Corps (74.83%) and HR (70.95%). Supply Corps commissioned a higher share of officers with children (19.31%)

than Medical Corps (17.60%), but a lower share than HR (41.30%). Supply Corps retained, as of August 2021, the lowest share of officers with children (47.50%) compared to Medical Corps (51.56%) and HR (48.65%). This indicates that a lower percentage of Supply Corps officers had children as compared to their Medical Corps and HR counterparts. Supply Corps had the lowest share of officers with children at separation (21.24%) compared to Medical Corps (53.11%) and HR (28.57%). Supply Corps averaged 5.9 years at separation, which aligned to the start of the DH ride. Medical Corps averaged 6 years at separation, which aligned to the start of the operational tour. HR averaged 5.7 years at separation, which did not align to a specific tour or milestone. There were numerous options for HR until the 10-year mark, and lateral transfers/POCR were accepted into the community until the 12-year mark. Time in service at separation may not be an accurate depiction, as the previous 7–8 years average time in service at separation (for the 2006–2010 cohort) had not been yet met, as of August 2021, for year groups 2013–2015.

Table 5. 2011–2015 cohort, Supply Corps/Staff and Restricted Line comparison

2011-2015	SUPPLY			MEDICAL			HR		
	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated
Total Observations	642	520	226	1557	1057	499	46	148	21
Female	21.34%	19.81%	23.01%	32.63%	34.15%	30.26%	30.43%	48.65%	42.86%
Age	26.49	34.54	29.84	29.29	35.11	35.37	29.96	32.52	31.05
Race:									
White	66.51%	62.88%	76.55%	76.81%	77.67%	77.76%	71.74%	54.05%	85.71%
Black	15.42%	15.38%	9.73%	4.69%	2.84%	7.62%	19.57%	28.38%	4.76%
Asian	13.86%	14.04%	12.39%	10.53%	10.79%	9.42%	6.52%	10.81%	4.76%
American Indian/Native American	0.93%	1.92%	0.44%	2.44%	2.27%	1.80%	2.17%	2.03%	4.76%
Pacific Islander/ Native Hawaiian	0.93%	1.54%	0.00%	0.71%	0.66%	0.60%	0.00%	2.03%	0.00%
Ethnicity:									
Hispanic	11.37%	12.69%	9.29%	6.17%	6.15%	6.01%	15.22%	10.14%	9.52%
Education:									
Associates	0.00%	0.00%	1.33%	0.06%	0.00%	0.40%	0.00%	0.00%	0.00%
Bachelors	7.94%	62.31%	65.93%	4.05%	5.58%	3.01%	32.61%	34.46%	28.57%
Masters +	1.09%	20.19%	7.52%	0.90%	62.54%	36.27%	15.22%	54.05%	23.81%
Married				43.55%	74.83%	71.14%	58.70%	70.95%	66.67%
Yes	31.00%	66.15%	46.02%						
Children									
Yes	19.31%	47.50%	21.24%	17.60%	51.56%	53.11%	41.30%	48.65%	28.57%
No	80.69%	52.50%	78.76%	82.40%	48.44%	46.89%	58.70%	51.35%	71.43%
Time in Service		8.46	5.94		7.44	6.02		8.47	5.75

For the 2011–2015 cohort, Supply Corps followed Aviation for smallest percentage change for females between percentage of commissioned and retained officers, as of August 2021 (a change of 1.53%, compared to Aviation’s 0.65%). Both Medical Corps and HR increased their share of female officers from commissioned to retained officers (as of August 2021). Both Supply Corps and HR accepted lateral transfers or POCR (the number retained plus the number separated is greater than the number commissioned). Aviation, SW, and Medical had officers lateral transfer or POCR out of the communities (though Medical appeared to lose only one officer to this process). These shifts affected the percentage differential between commissioned and retained, as of August 2021. Supply Corps was the most racially diverse of the communities at commission and HR was the most ethnically diverse at commission. The communities swapped places for retained, as of August 2021—Supply Corps was the most ethnically diverse and HR was the most racially diverse. Supply Corps remained third for share of married officers (at commission, retained, and separated). Supply Corps most aligned to Medical Corps and HR for share of officers married at commission but aligned most closely to Aviation and SW for share of retained married officers, as of August 2021. Supply Corps started in second position for highest share of officers with children at commission (after HR) but dropped into third position for retained officers with children (after Medical and HR). Supply Corps remained in third position for lowest share of officers with children at separation (after Aviation and HR).

Table 6 shows the comparison between Supply Corps and the Unrestricted Line communities for the 2016–2021 cohort. Supply Corps commissioned a higher share of females (27.22%) than Aviation (14%), but lower than SW (31.27%). Supply Corps also retained, as of August 2021, a higher share of female officers (25.41%) compared to Aviation (13.82%), but a lower share than SW (29.77%). This pattern held true for share of female officers at separation. Supply Corps separated a higher share (24%) than Aviation (9.82%), but a lower share than SW (43.60%). Supply Corps remained the most racially and ethnically diverse community at commission and retained, as of August 2021. Supply Corps commissioned the highest share of married officers (25.69%) compared to Aviation (6.69%) and SW (10.66%). Supply Corps also retained, as of August 2021, the highest

share of married officers (41.62%) compared to Aviation (27.79%) and SW (26.86%). This pattern held true for separations. Supply Corps separated the highest share of married officers (44%) compared to Aviation (21.43%) and SW (26.80%). The same patterns held true for share of officers with children. Supply Corps had the highest share of officers with children at commission (14.53%) compared to Aviation (2.37%) and SW (5.09%). Supply Corps retained, as of August 2021, the highest share of officers with children (22.16%) compared to Aviation (7.23%) and SW (9.52%). Supply Corps also separated the highest share of officers with children (24%) compared to Aviation (6.25%) and SW (10.80%). Supply Corps averaged 3.9 years at separation (during the first shore tour). Aviation averaged 2.4 years at separation (at the end of fleet training and the start of the first operational tour. SW averaged 3.4 years at separation (the end of the second division officer tour). These averages are not indicative of what the cohort’s average will be across time. The previous time in service averages at separation of 7–8 years (for the 2006–2010 cohort) and 4–6 years (for the 2011–2015 cohort) had not been met, as of August 2021, for any of the year groups.

Table 6. 2016–2021 cohort, Supply Corps/Unrestricted Line comparison

2016-2021	SUPPLY			AVIATION			SWO		
	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated
Total Observations	654	740	25	4678	4095	112	5308	4833	250
Female	27.22%	25.41%	24.00%	14.00%	13.82%	9.82%	31.27%	29.77%	43.60%
Age	26.06	28.8	28.28	23.15	25.99	25.77	23.55	26.23	26.49
Race:									
White	59.94%	60.95%	52.00%	84.33%	85.52%	71.43%	69.03%	69.73%	68.00%
Black	16.82%	15.41%	24.00%	3.10%	2.86%	8.04%	12.00%	11.55%	12.80%
Asian	17.74%	17.97%	16.00%	7.52%	6.79%	12.50%	11.87%	11.71%	12.00%
American Indian/Native American	3.36%	3.24%	8.00%	2.48%	2.34%	3.57%	3.17%	3.02%	4.00%
Pacific Islander/ Native Hawaiian	0.92%	0.81%	0.00%	0.86%	0.81%	0.89%	1.17%	1.22%	1.20%
Ethnicity:									
Hispanic	13.30%	13.78%	4.00%	8.96%	8.62%	8.93%	11.93%	12.08%	14.80%
Education:									
Associates	0.15%	0.14%	0.00%	0.02%	0.00%	0.00%	0.00%	0.02%	0.40%
Bachelors	8.87%	30.68%	36.00%	28.26%	60.68%	35.71%	29.26%	62.42%	61.20%
Masters +	0.31%	4.05%	16.00%	0.02%	1.93%	0.00%	0.02%	1.22%	1.20%
Married									
Yes	25.69%	41.62%	44.00%	6.69%	27.79%	21.43%	10.66%	26.86%	26.80%
Children									
Yes	14.53%	22.16%	24.00%	2.37%	7.23%	6.25%	5.09%	9.52%	10.80%
No	85.47%	77.84%	76.00%	97.63%	92.77%	93.75%	94.91%	90.48%	89.20%
Time in Service		3.44	3.86		3.08	2.38		2.85	3.39

Table 7 shows the comparison between Supply Corps and the Staff Corps and Restricted Line communities for the 2016–2021 cohort. Patterns remained for share of female officers at commission, retained, as of August 2021, and separated. Supply Corps had the lowest share for all three. Supply Corps' share of female officers at commission was 27.22%, compared to Medical Corps (35.01%) and HR (43.48%). Supply Corps' share of retained female officers, as of August 2021, was 25.41%, compared to Medical Corps (35.24%) and HR (50%). Supply Corps' share of female officers at separation was 24%, compared to Medical Corps (34.62%) and HR (50%). Supply Corps regained the title of most racially and most ethnically diverse community at commission. Supply Corps maintained most ethnically diverse for retained officers, as of August 2021. HR advanced to be the most racially diverse for retained officers, as of August 2021. Supply Corps had a higher share of married officers at commission (25.69%) than Medical Corps (22.22%), but a lower share than HR (26.09%). Supply Corps had the lowest share of retained married officers, as of August 2021. Supply Corps' share was 41.62%, compared to Medical Corps (49.95%) and HR (45.31%). Supply Corps also had the lowest share of married officers at separation (44%) compared to Medical Corps (67.31%) and HR (50%). The patterns for married officers across the three communities held true for officers with children. Supply Corps commissioned a lower share of officers with children (14.53%) than HR (17.39%), but a higher share than Medical Corps (13.49%). Supply Corps retained, as of August 2021, the lowest share of officers with children (22.16%) compared to Medical Corps (26.80%) and HR (23.44%). Supply Corps also separated the lowest share of officers with children (24%) compared to Medical Corps (48.08%) and HR (50%). Supply Corps averaged 3.9 years at separation (during the first shore tour). Medical Corps averaged 4.3 years at separation (during residency or fleet experience). HR averaged 3.8 years at separation (not aligned to any specific tour or milestone). These averages are not indicative of what the cohort's average will be across time. The previous time in service averages at separation of 7.5–8.4 years (for the 2006–2010 cohort) and 5.5–6 years (for the 2011–2015 cohort) have not been met, as of August 2021, for any of the year groups.

Table 7. 2016–2021 cohort, Supply Corps/Staff and Restricted Line Comparison

2016-2021	SUPPLY			MEDICAL			HR		
	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated	Commission	Retained as of Aug 2021	Separated
Total Observations	654	740	25	1134	1067	52	23	64	2
Female	27.22%	25.41%	24.00%	35.01%	35.24%	34.62%	43.48%	50.00%	50.00%
Age	26.06	28.8	28.28	28.9	31.1	34.38	26.91	27.72	29.5
Race:									
White	59.94%	60.95%	52.00%	77.78%	77.51%	78.85%	69.57%	53.13%	100.00%
Black	16.82%	15.41%	24.00%	5.73%	5.53%	11.54%	8.70%	17.19%	0.00%
Asian	17.74%	17.97%	16.00%	12.70%	12.93%	7.69%	21.74%	26.56%	0.00%
American Indian/Native American	3.36%	3.24%	8.00%	2.20%	2.34%	0.00%	0.00%	1.56%	0.00%
Pacific Islander/ Native Hawaiian	0.92%	0.81%	0.00%	0.53%	0.47%	0.00%	0.00%	0.00%	0.00%
Ethnicity:									
Hispanic	13.30%	13.78%	4.00%	8.20%	8.53%	3.85%	13.04%	10.94%	0.00%
Education:									
Associates	0.15%	0.14%	0.00%	0.00%	0.00%	1.92%	0.00%	0.00%	0.00%
Bachelors	8.87%	30.68%	36.00%	2.47%	3.94%	3.85%	47.83%	62.50%	50.00%
Masters +	0.31%	4.05%	16.00%	0.97%	27.18%	40.38%	4.35%	14.06%	0.00%
Married									
Yes	25.69%	41.62%	44.00%	22.22%	49.95%	67.31%	26.09%	45.31%	50.00%
Children									
Yes	14.53%	22.16%	24.00%	13.49%	26.80%	48.08%	17.39%	23.44%	50.00%
No	85.47%	77.84%	76.00%	86.51%	73.20%	51.92%	82.61%	76.56%	50.00%
Time in Service		3.44	3.86		3.43	4.3		4.42	3.79

Overall, for the 2016–2021 cohort, Supply Corps commissioned and retained, as of August 2021, the second lowest share of female officers (second to Aviation). Medical Corps and HR both gained shares of female officers from commissioned to retained. Supply Corps had the biggest drop from commissioned to retained (1.81 percentage points) compared to Aviation’s (0.18 percentage points) and SW’s (1.5 percentage points). As with all previous cohorts, Aviation and SW lost officers to lateral transfer or POCR, while Supply Corps and HR gained officers from lateral transfer or POCR. Similar to the 2011–2015 cohort, Medical Corps also lost officers to lateral transfer or POCR. Supply Corps was the most racially and ethnically diverse community at commission, but HR took top spot for most racially diverse for retained officers, as of August 2021. Supply Corps remained most ethnically diverse for retained officers, as of August 2021. Supply Corps aligned to the Staff Corps and Restricted Line communities for share of officers married at commission (HR had the highest, with Supply Corps coming in second). Supply Corps also aligned to the Staff Corps and Restricted Line communities for share of married officers retained, as of August 2021. Medical Corps advanced to top spot for highest percentage of retained married officers, with HR second, and Supply Corps third. Supply Corps held this

alignment for share of separated married officers (Medical Corps had the highest share, followed by HR and then Supply Corps). The same patterns from married officers held true for officers with children. Supply Corps had the second highest share at commission (following HR). Supply Corps had the third highest percentage for retained officers, as of August 2021, and separated officers (Medical had the highest percentage for both, followed by HR and then Supply Corps).

To dig deeper into these patterns, we looked specifically at differences by gender across a variety of dimensions. Figures 1 through 3 focus on strictly the gender variable in the Supply Corps officer community. We aim to identify Supply Corps’ progress on gender diversity across cohorts. Figures 4 through 6 focus on strictly the gender variable across the five communities. We aim to identify Supply Corps’ comparative performance on female representation.

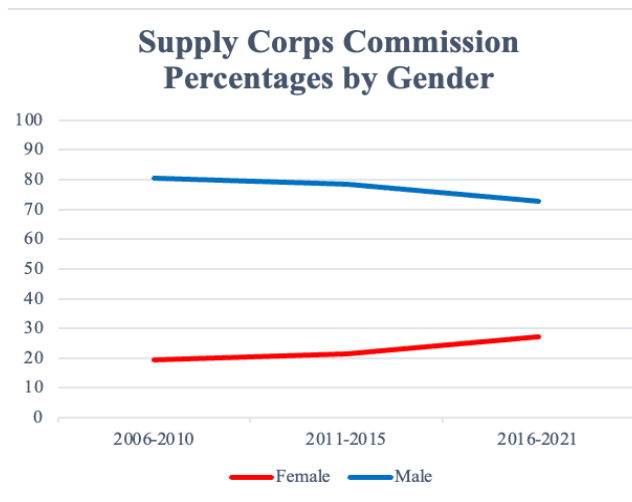


Figure 1. Supply Corps officer gender commission percentages

Figure 1 shows the share of females at commission by cohort commission years. Female representation at commission is continually increasing. For the 2006–2010 cohort, females accounted for 19.4% of officer commissions in the Supply Corps. The representation percentage increased for the 2011–2015 cohort, with females accounting for

21.3% of officer commissions in the Supply Corps. Females accounted for 27.2% of 2016–2021 officer commissions in the Supply Corps.

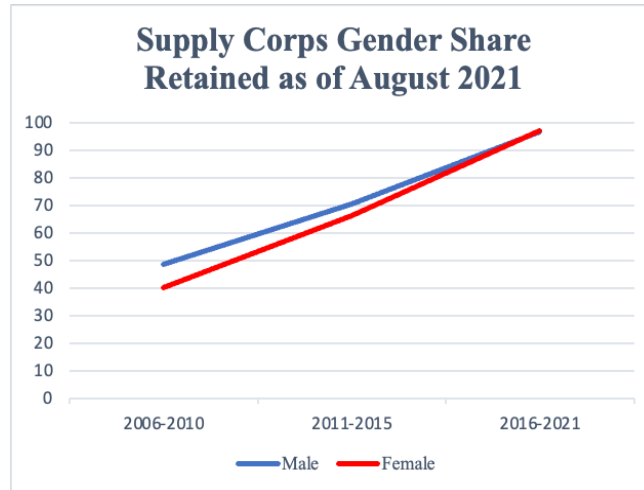


Figure 2. Supply Corps gender retained share, of accessions, as of August 2021

Figure 2 highlights the gender difference in share of retained officers, as of August 2021, of all those officers accessed into the community. For the 2006–2010 cohort, 40.26% of all females accessed into the Supply Corps were retained, as of August 2021. The Supply Corps retained 48.75% of all males accessed into the officer community for this cohort. For the 2011–2015 cohort, the Supply Corps retained, as of August 2021, 66.45% of all females accessed into the community. The Supply Corps retained, as of August 2021, 70.56% of all males accessed into the community for this cohort. For the 2016–2021 cohort, the Supply Corps retained 96.91% of all females accessed, compared to 96.67% of all males accessed into the community for this cohort.

A caveat is important here—the Supply Corps’ average time in service at separation ranges from 5.9–7.6 years from 2006–2015. The 2016–2021 cohort has not yet met these timeframes. Retention and separation percentages for the 2016–2021 cohort may be misleading and not indicative of where the cohort will settle for female representation among retained officers or at separation.

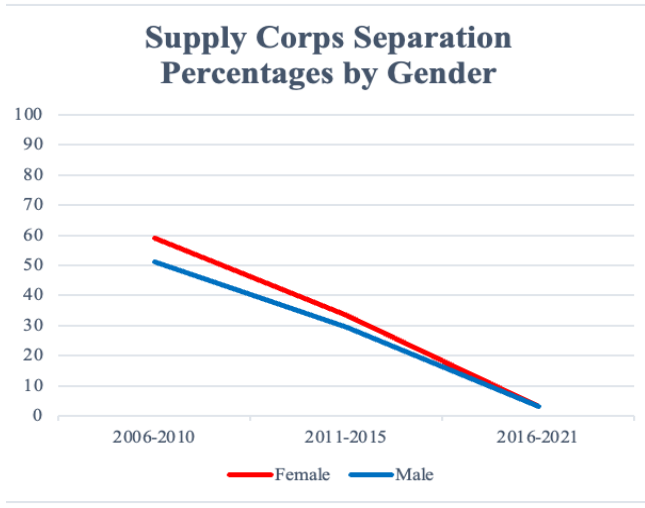


Figure 3. Supply Corps officer gender at separation percentages

Figure 3 shows the share of females, of all the female officers accessed into the Supply Corps by commission cohort, that separated. Accessions include commission, lateral transfer, and POCR. Figure 3 compares this separation percentage to the same statistic for male officers. Of all the females accessed into the Supply Corps for 2006–2010, 59.1% separated. This is 8 percentage points higher than males, who separated at 51.2%. The gap decreases for the 2011–2015 cohort, with 33.5% of females separated and 29.4% of males separated. Females and males nearly align for the 2016–2021 cohort, with 3.1% of females separated, and 3.3% of males separated. Again, the 2016–2021 cohort may be misleading, as the cohort has not reached the Supply Corps’ range of average time in service at separation. Further separations may adjust the gender difference.

Separation percentage gaps appear to be less than the gaps at commission and decreasing. However, the combination of a wide gap in commissioning percentages and slightly higher female separation percentages is widening the gap between male and female Supply Corps officer retention percentages.

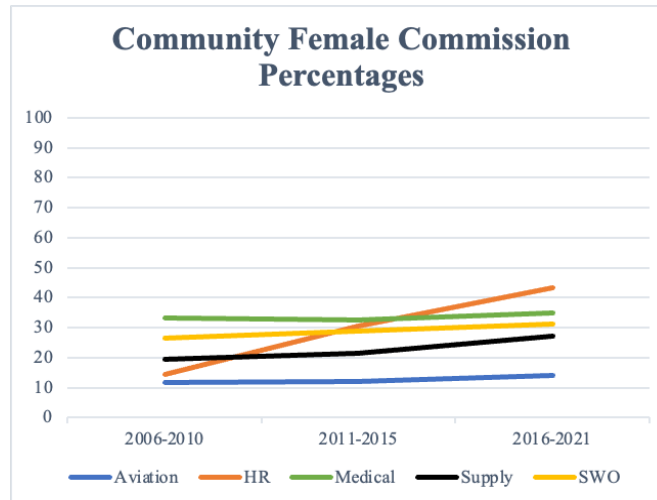


Figure 4. Community percentage of females at commission

Figure 4 shows the share of females at commission by cohort commission years. For the 2006–2010 cohort, Supply Corps’ 19.4% female representation is in between the five communities; higher than Aviation (11.73%) and HR (14.29%), and lower than SW (26.6%) and Medical Corps (33.3%). HR relied primarily on non-commission accessions for the 2006–2010 cohort, so this comparison may be misleading. Supply Corps dropped to second lowest share of females at commission for the 2011–2015 cohort. Supply Corps’ share (21.3%) was higher than Aviation’s (11.89%), but lower than SW’s (28.9%), HR’s (30.4%), and Medical Corps’ (32.6%). Supply Corps maintained this relative position for the 2016–2021 cohort. Females accounted for 27.2% in the Supply Corps; higher than Aviation’s 14%, but lower than SW’s 31.3%, Medical Corps’ 35%, and HR’s 43.5%. The pattern we see across all three cohorts, accounting for HR’s non-commission accessions, is that Supply Corps consistently has the second lowest share of females at commission. Supply Corps appears to be rapidly narrowing the gap for its relative position for the 2016–2021 cohort.

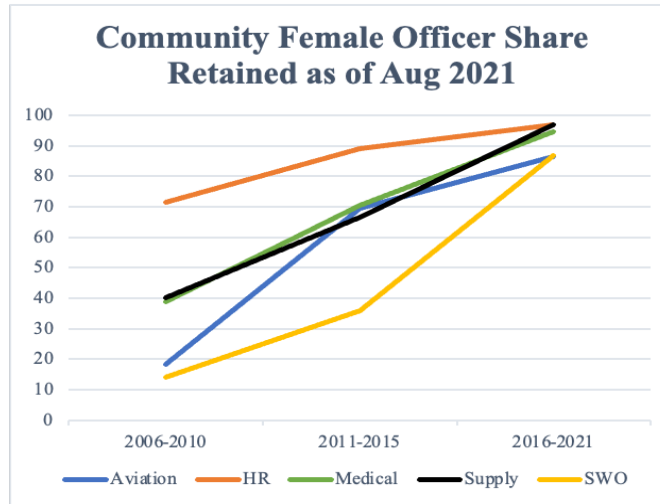


Figure 5. Community percentage of retained female officers as of August 2021

Figure 5 shows the share of females (of those who accessed into the community) who were retained as of August 2021 across the three cohorts and across all five communities. Supply Corps aligned to the other staff community, Medical Corps, across all three cohorts. HR’s numbers may be affected by the fact that they primarily access through lateral transfers, meaning retained officers in HR sought out the community. For the 2006–2010 cohort, Supply Corps retained a higher share of females (40.26%) than any other community except HR (71.43%). Medical Corps had the third-highest share (38.98%), with Aviation (18.32%) aligning to SW (14.18%). Supply Corps shifted its relative position for the 2011–2015 cohort. Supply Corps’ share of females for 2011–2015 (66.45%) was higher than SW (35.96%), but lower than HR (88.89%), Medical Corps (70.51%), and Aviation (69.65%). For the 2016–2021 cohort, patterns reverted to mirror the 2006–2010 cohort. Supply Corps retained the second highest share of females (96.91%) after HR (96.97%), and Medical Corps (94.71%), Aviation (86.41%), and SW (86.69%) retained a lower share of females. The aforementioned caveat about average time in service at separation holds true for all communities here. The average time in service at separation ranges for the 2006–2015 cohorts (Supply – 5.9–7.6, Aviation – 6–7.8, SWO – 5.5–6.5, Medical Corps – 6–7.8, and HR – 5.8–8.4) have not been met for any community’s 2016–

2021 cohort. Therefore, we assume that patterns for the 2016–2021 cohort over time will remain as depicted here.

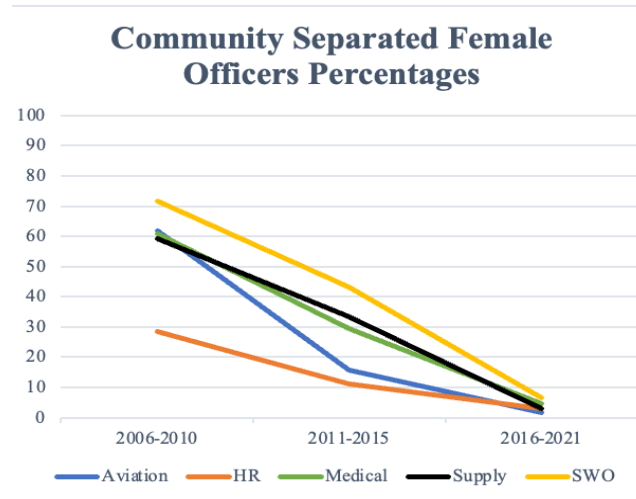


Figure 6. Community percentage of female officers at separation

Figure 6 shows the share of females, of all the female officers accessed into the various communities by commission cohort, that separated. For the 2006–2010 cohort, Supply Corps separated 59.1% of all females it accessed for those years. This was higher than HR’s 28.6%, and was lower than Medical Corps’ 61%, Aviation’s 61.9%, and SW’s 71.7%. For 2011–2015, Supply Corps shifted its relative position, separating 33.5% of all female officers it accessed. This was higher than HR (11.1%), Aviation (15.7%), and Medical Corps (29.5%), and lower than SW (43.1%). For 2016–2021, Supply Corps separated 3.1% of all female officers accessed. This is higher than Aviation’s 1.7% and HR’s 3%, and lower than Medical Corps’ 4.5% and SW’s 6.6%. The caveat about average time in service at separation not yet being met holds true here. Therefore, we assume that patterns for the 2016–2021 cohort over time will remain as depicted here.

Figures 4 through 6 highlight the Supply Corps female percentages compared to the communities of Aviation, HR, Medical Corps, and SW. Supply Corps appears to align most closely to the Surface Warfare community for commission patterns. Supply Corps

most aligns to Medical Corps for retention patterns. Patterns indicate that the Supply Corps commissions the second lowest share of females (after Aviation). Retention and separation patterns are not as clear, as Supply Corps shifted its relative position, but both patterns appear to most closely align to Medical Corps.

Figures 7 through 9 focus on the gender differences in the marital status (married) variable in the Supply Corps officer community. We aim to identify Supply Corps' progress on gender diversity for married officers across cohorts. Figures 10 through 12 focus on the gender differences in the marital status (married) variable across the five communities. We aim to identify Supply Corps' comparative performance on married female representation.

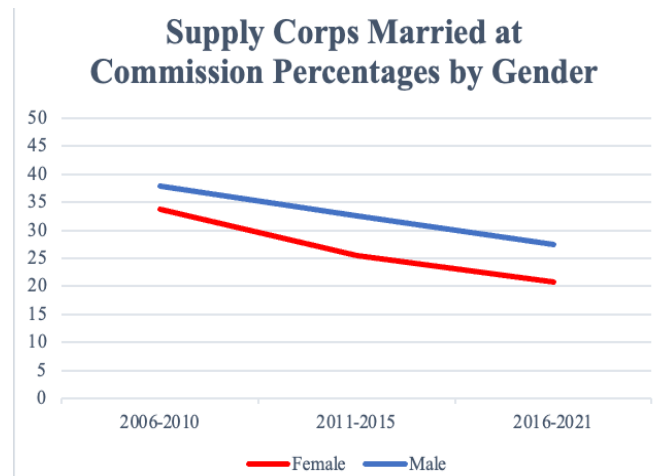


Figure 7. Supply Corps gender comparison of percentage of married officers at commission

Figure 7 shows the share of married female officers at commission as compared to married male officers. Patterns indicate that the Supply Corps is commissioning a smaller percentage of married officers, across both genders, for each new year. For the 2006–2010 cohort, female married officers accounted for 33.8% of Supply Corps female commissions. This compares to male married officers, who accounted for 37.8% of Supply Corps male commissions. These percentages dropped for the 2011–2015 cohort. Female married officers accounted for 25.5% of Supply Corps female commissions. This is a drop of 8.3

percentage points from the previous cohort. Male married officers accounted for 32.5% of Supply Corps male commissions. This is a drop of 5.3 percentage points from the previous cohort. These percentages dropped further for the 2016–2021 cohort. Female married officers accounted for 20.8% of Supply Corps female commissions. This is a drop of 4.7 percentage points from the previous cohort. Male married officers accounted for 27.5% of Supply Corps male commissions. This is a drop of 5 percentage points from the previous cohort.

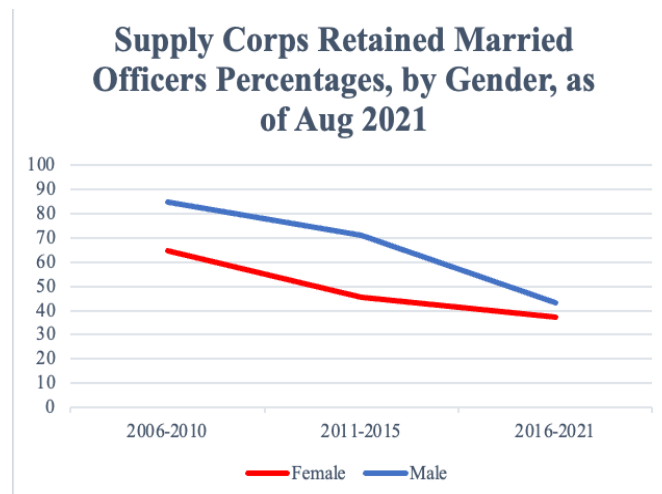


Figure 8. Supply Corps gender comparison of percentage of retained married officers, as of August 2021

Figure 8 shows the share of retained female officers who are married, as of August 2021, as compared to retained male officers who are married. Patterns indicate that, across time and cohorts, the retained officers in the Supply Corps are less likely to be married. For the 2006–2010 cohort, married female officers account for 64.5% of retained Supply Corps female officers. Married male officers account for 84.6% of retained Supply Corps male officers. These percentages drop for the 2011–2015 cohort. Married female officers account for 45.6% of retained Supply Corps female officers. This is a drop of 18.9 percentage points from the previous cohort. Married male officers account for 71.2% of retained Supply Corps male officers. This is a drop of 13.4 percentage points from the previous cohort. Percentages for the 2016–2021 cohort dropped further. Married female

officers account for 37.2% of retained Supply Corps female officers. This is a drop of 8.4 percentage points from the previous cohort. Married male officers account for 43.1% of retained Supply Corps male officers. This is a drop of 28.1 percentage points from the previous cohort. As average age at marriage was not a variable we assessed, it is unknown if these percentages will shift for any of the three cohorts.

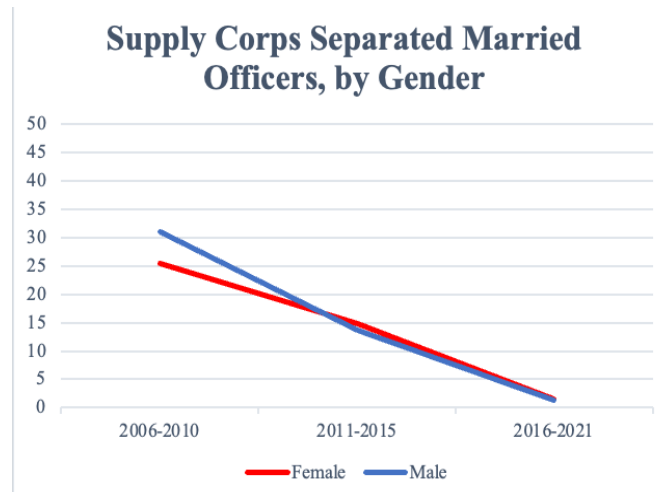


Figure 9. Supply Corps gender comparison of married officers at separation

Figure 9 shows the share of female officers who are married at separation, as compared to the share of male officers who are married at separation. Patterns indicate that, across time and cohort, fewer Supply Corps officers are married at separation. For the 2006–2010 cohort, married female officers account for 25.3% of separated Supply Corps female officers. Married male officers account for 31% of separated Supply Corps male officers. For the 2011–2015 cohort, married female officers account for 14.8% of separated Supply Corps female officers. This is a drop of 10.5 percentage points from the previous cohort. Married male officers account for 13.7% of separated Supply Corps male officers. This is a drop of 17.3 percentage points from the previous cohort. Percentages drop further for the 2016–2021 cohort. Married female officers account for 1.5% of separated Supply Corps female officers. This is a drop of 13.3 percentage points from the previous cohort. Married male officers account for 1.4% of separated Supply Corps male officers. This is a

drop of 12.3 percentage points from the previous cohort. The previous caveat about average age at marriage (it was not a variable we assessed) holds true; it is unknown if these percentages will shift for any of the three cohorts.

Figures 7 through 9 show differences, internal to the Supply Corps, between male and female married officers. Fewer females are married at commission when compared to males. There are small gaps for separation percentages of married females and males. However, the larger gap between retained married females and retained married males indicates that male officers in the Supply Corps may marry during their service at higher percentages than their female counterparts.

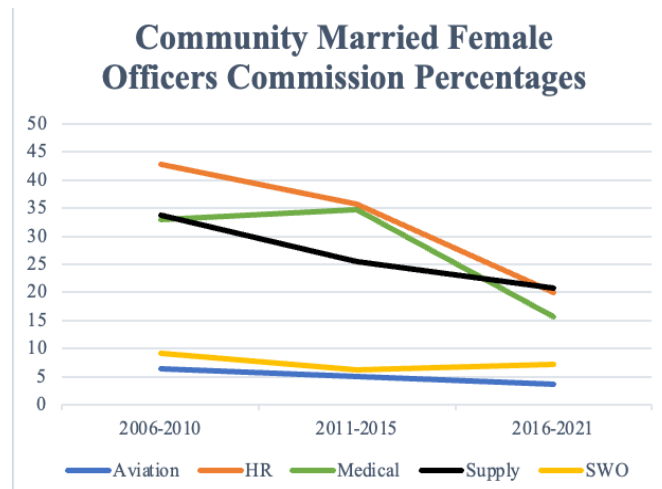


Figure 10. Community comparison of female officers married at commission

Figure 10 shows the share of female officers who were married at commission, across cohorts and communities. For the 2006–2010 cohort, Supply Corps had the second highest share of married females at commission (33.8%), after HR (42.9%), but aligned most closely to Medical Corps (33%). Aviation had the lowest share (6.4%), with SW coming in at second lowest (9.2%). For the 2011–2015 cohort, Supply Corps dropped to the third highest share, but still aligned most closely to Medical Corps (though there was a bigger gap). HR had the highest share (35.7%), with Medical Corps next (34.6%), followed by Supply Corps (25.5%), SW (6.2%), and Aviation (5%). For the 2016–2021 cohort,

Supply Corps had the highest share (20.8%), compared to HR (20%), Medical (15.6%), SW (7.2%), and Aviation (3.7%).

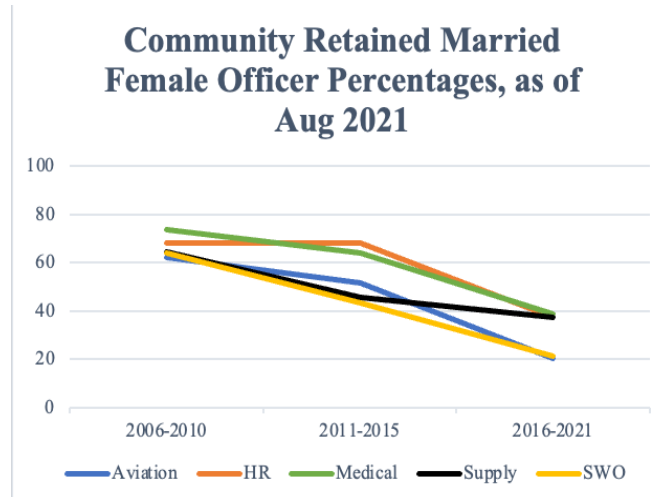


Figure 11. Community comparison of retained married female officers, as of August 2021

Figure 11 shows the share of retained female officers, as of August 2021, who are married, across communities and cohorts. For the 2006–2010 cohort, Supply Corps (64.5%) most aligns to SW (64.1%) and Aviation (62.2%). Medical Corps has the highest share (73.9%), with HR second (68%). For the 2011–2015 cohort, Supply Corps (45.6%) retains its relative position and alignment to SW (43.4%). HR comes in top (68.1%), with Medical Corps next (64.3%), and Aviation third (51.7%). For the 2016–2021 cohort, Supply Corps (37.2%), most aligns to HR (37.5%) and Medical (38.6%). SW comes in fourth (21.5%), followed by Aviation (20.1%). The drastic shift in percentage representation indicates that the Unrestricted Line communities may marry later in their career. The caveat about average age at marriage holds true.

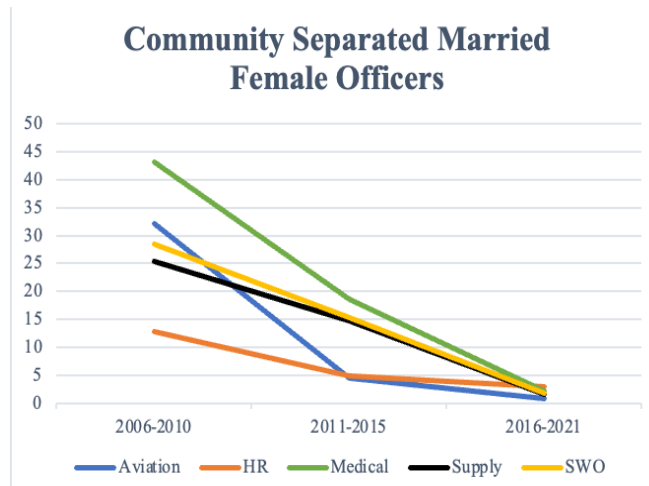


Figure 12. Community comparison of female officers married at separation

Figure 12 shows the share of separated female officers who were married at separation. For the 2006–2010 cohort, Supply Corps (25.3%) most aligned to SW (28.5%). Medical Corps had the highest share (43.2%), followed by Aviation (32.2%). HR had the lowest share (12.9%). For the 2011–2015 cohort, Supply Corps (14.8%) maintained its alignment to SW (15.4%). Medical Corps once again had the highest share (18.6%), followed by SW and then Supply. HR came in fourth (4.9%), with Aviation at the lowest share (4.6%). For the 2016–2021 cohort, Supply Corps (1.5%) once again maintained its alignment to SW (1.8%). HR had the highest share (3%), followed by Medical Corps (2.3%). Aviation once again had the lowest share (0.9%).

Figures 10 through 12 compare the Supply Corps married female officers to that of the other communities we analyzed. While the Supply Corps aligns to the Staff and Restricted Line communities for married females at commission, the community more closely reflects the Surface Warfare community for retained and separated married females.

Figures 13 through 15 focus on the gender differences in the children (yes) variable in the Supply Corps officer community. We aim to identify Supply Corps’ patterns for male and female parents in the community. Figures 16 through 18 focus on the gender differences in the children (yes) variable across the five communities. We aim to identify

Supply Corps’ comparative performance on representation of female officers with children.

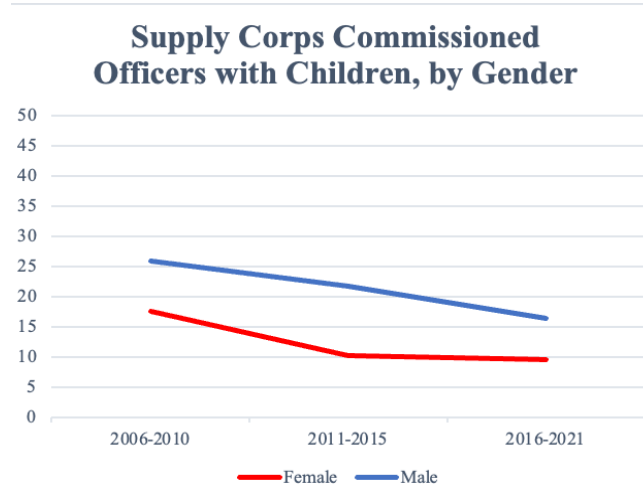


Figure 13. Supply Corps gender comparison of officers with children at commission

Figure 13 shows the share of female Supply Corps officers who are parents at commission, compared to the share of male Supply Corps officers who are parents at commission. Patterns indicate that, across time and cohorts, the Supply Corps is commissioning fewer parents for both genders. For the 2006–2010 cohort, females with children accounted for 17.5% of Supply Corps female commissions. Males with children accounted for 25.9% of Supply Corps male commissions. For the 2011–2015 cohort, these percentages dropped. Females with children accounted for 10.2% of Supply Corps female commissions. This is a drop of 7.3 percentage points from the previous cohort. Males with children accounted for 21.8% of Supply Corps male commissions. This is a drop of 4.1 percentage points from the previous cohort. These percentages continued to drop for the 2016–2021 cohort. Females with children accounted for 9.6% of Supply Corps female commissions. Males with children accounted for 16.4% of Supply Corps male commissions.

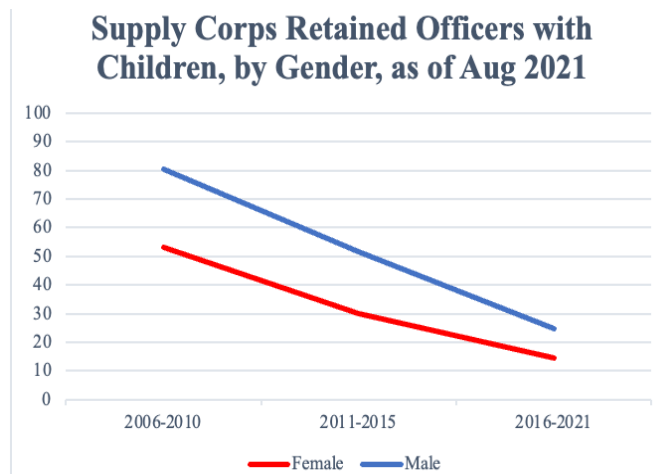


Figure 14. Supply Corps gender comparison of retained officers with children, as of August 2021

Figure 14 shows the share of retained female Supply Corps officers, as of August 2021, who are parents, compared to the share of retained male Supply Corps officers, as of August 2021, who are parents. Patterns indicate that, across time and cohort, fewer retained Supply Corps officers are having children. For the 2006–2010 cohort, females with children account for 53.2% of retained female Supply Corps officers. Males with children account for 80.4% of retained male Supply Corps officers. These percentages drop for the 2011–2015 cohort. Females with children account for 30.1% of retained female Supply Corps officers. This is a drop of 23.1 percentage points from the previous cohort. Males with children account for 51.8% of retained male Supply Corps officers. This is a drop of 28.6 percentage points from the previous cohort. These percentages drop further for the 2016–2021 cohort. Females with children account for 14.4% of retained female Supply Corps officers. This is a drop of 15.7 percentage points from the previous cohort. Males with children account for 24.8% of retained male Supply Corps officers. This is a drop of 27 percentage points from the previous cohort. As with marital status, we did not calculate average age that servicemembers had their first child. These percentages may continue to adjust for the cohorts.

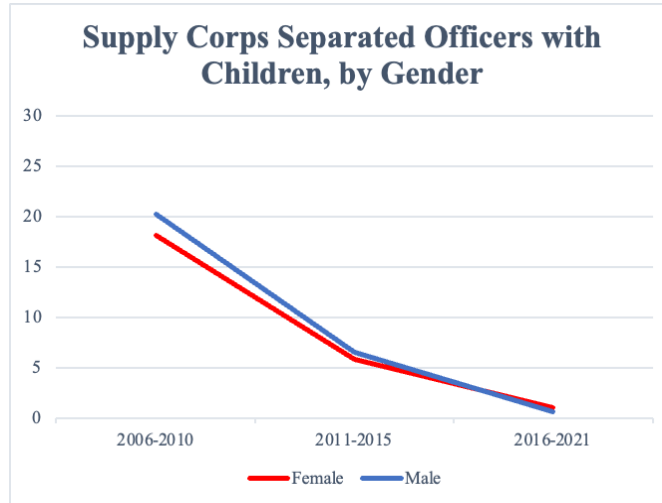


Figure 15. Supply Corps gender comparison of officers with children at separation

Figure 15 shows the share of separated female Supply Corps officers who had children when they separated, compared to the share of separated male Supply Corps officers who had children when they separated. Patterns indicate that, across time and cohorts, fewer Supply Corps officers have children when they separate. For the 2006–2010 cohort, females with children accounted for 18.2% of separated female Supply Corps officers. Males with children accounted for 20.3% of separated male Supply Corps officers. These percentages drop for the 2011–2015 cohort. Females with children account for 5.8% of separated female Supply Corps officers. This is a drop of 12.4 percentage points from the previous cohort. Males with children account for 6.6% of separated male Supply Corps officers. This is a drop of 13.7 percentage points from the previous cohort. Percentages continued to drop for the 2016–2021 cohort. Females with children account for 1% of separated female Supply Corps officers. This is a drop of 4.8 percentage points from the previous cohort. Males with children account for 0.7% of separated male Supply Corps officers. This is a drop of 5.9 percentage points from the previous cohort.

The wide gaps between retained male and female officers with children, coupled with the marginal differences in separation percentages, highlight the higher likelihood that active-duty male officers will have children while in the service when compared to their female counterparts. Overall, trends indicate that fewer Supply Corps officers are having

children while in service, though it is possible that Supply Corps officers tend to have their children after the 10-year mark. As we did not account for average age when having the first child, these patterns may continue to adjust for these cohorts.

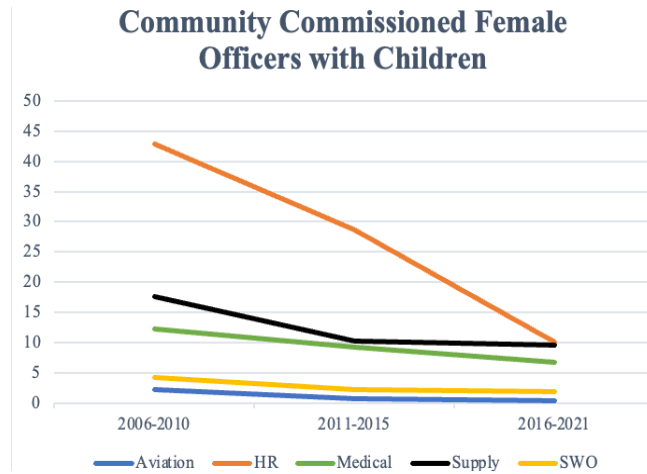


Figure 16. Community comparison of female officers with children at commission

Figure 16 shows the share of female officers, across communities and cohorts, who have children when they commission. Patterns indicate that, across time and cohorts, all communities are commissioning fewer female parents. For the 2006–2010 cohort, Supply Corps (17.5%) had the second highest share, after HR (42.9%), and most aligned to Medical Corps (17.5%). Aviation had the lowest share (2.2%), followed by SW (4.2%). These patterns remained for the 2011–2015 cohort. Supply Corps (10.2%) had the second highest share, after HR (28.6%), and most aligned to Medical Corps (9.3%). Aviation had the lowest share (0.7%), followed by SW (2.3%). These patterns remained for the 2016–2021 cohort. Supply Corps (9.6%) had the second highest share, and most aligned to HR (10%). Medical Corps had the third highest share (6.8%), followed by SW (1.9%), and Aviation (0.3%).

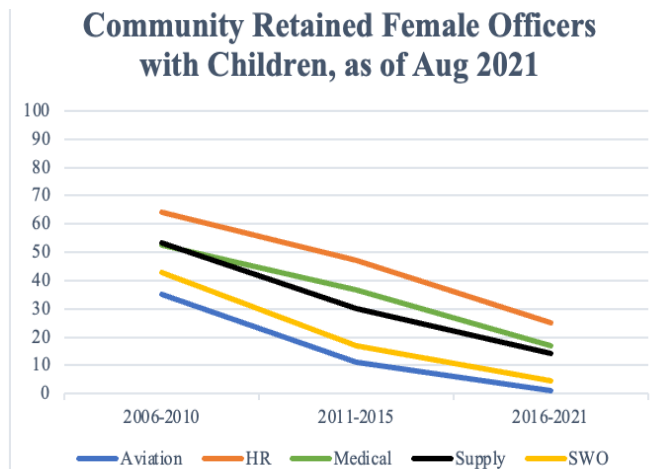


Figure 17. Community comparison of retained female officers with children, as of August 2021

Figure 17 shows the share of retained female officers, as of August 2021, who have children. Patterns indicate that, for all communities, either fewer retained officers are having children, or officers are having children after the 10-year mark. For the 2006–2010 cohort, Supply Corps (53.2%) had the second highest share, after HR (64%), and most aligned to Medical Corps (52.7%). Aviation had the lowest share (35.1%), followed by SW (42.9%). For the 2011–2015 cohort, Supply Corps (30.1%) dropped to third, but maintained its alignment to Medical Corps (36.8%). HR had the highest share (47.2%). Aviation had the lowest share (11.3%), followed by SW (17%). For the 2016–2021 cohort, patterns followed the 2011–2015 cohort. HR had the highest share (25%), followed by Medical Corps (17%), Supply Corps (14.4%), SW (4.6%), and Aviation (0.9%).

### Community Separated Female Officers with Children

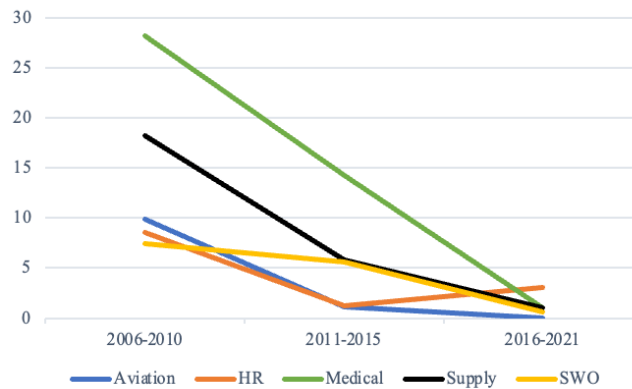


Figure 18. Community comparison of female officers with children at separation

Figure 18 shows the share of separated female officers who had children when they separated. Patterns indicate that either fewer female officers have children when they separate, or female officers are separating prior to having children. For the 2006–2010 cohort, Supply Corps (18.2%) had the second highest share, after Medical Corps (28.2%). Aviation had the third highest (9.9%), followed by HR (8.6%), and then SW (7.5%). For the 2011–2015 cohort, Supply Corps (5.8%) had the second highest share, after Medical Corps (14.3%), but most aligned to SW (5.6%). Aviation had the lowest share (1.1%), followed by HR (1.2%). For the 2016–2021 cohort, Supply Corps (1%) was tied with Medical Corps (1%) for the second highest share, after HR (3%). Aviation (0%) had the lowest share, followed by SW (0.6%).

Figures 16 through 18 compare Supply Corps’ representation of female parents, at commission, retained as of August 2021, and at separation, across our selected communities. The Supply Corps’ higher percentage of females with children at commission appears to offset the community’s higher percentage of females with children at separation. The Supply Corps’ percentage of retained females with children appears to most closely reflect the other Staff community represented, the Medical Corps.

Finally, to assess if these patterns by gender are statistically significant, we conducted formal tests of significance. As the survey identifies officer retention and separation (as of

August 2021), we looked at whether separation rates differ by gender, and at whether marital status and having children differs by gender in the population of officers that are retained as of August 2021. We conducted this analysis only for individuals that commissioned between 2006 and 2014 because our average time in service is 6.9 years. We dropped those who commissioned between 2015 and 2021 as these results, current through August 2021, do not incorporate those who would separate in the average time in service frame.

Table 8. Supply Corps T-test results for 2006–2014

2006–2014	Male	Total observations	Female	Total observations	P-value
Separation	0.4347	1,157	0.4947	281	0.0722*
Married, retained	0.4223	1,558	0.3507	402	0.0080***
Children, retained	0.2760	1,558	0.1841	402	0.0000***

Table 8 finds significant differences by gender for Supply Corps officers who commissioned from 2006–2014. While 43.47% of males separated, 49.5% of females separated. This difference is statistically significant at the 90% confidence level. Among those retained, 42.23% of males are married compared to 35.07% of females. This difference is statistically significant at the 99% confidence level. Among those retained, 27.6% of males have children, while 18.41% of females have children. This difference is statistically significant at the 99% confidence level.

Table 9. Aviation T-test results for 2006–2014

2006–2014	Male	Total observations	Female	Total observations	P-value
Separation	0.4256	5,047	0.5040	623	0.0002***
Married, retained	0.2522	7,872	0.1808	1,073	0.0000***
Children, retained	0.1455	7,872	0.0531	1,073	0.0000***

Table 9 identifies significance for gender differences for Aviation officers who commissioned from 2006–2014. While 42.56% of male officers separated, 50.4% of female officers separated. This difference is statistically significant at the 99% confidence level. Among those retained, 25.22% of males are married, compared to 18.08% of females. This difference is statistically significant at the 99% confidence level. Among those retained, 14.55% of males have children, compared to 5.31% of females. This finding is statistically significant at the 99% confidence level. We expected to find low retention percentages for female officers who are married or have children. We were surprised by the low male percentages for the same categories.

Table 10. Human Resources T-test results for 2006–2014

2006–2014	Male	Total observations	Female	Total observations	P-value
Separation	0.2834	187	0.2015	134	0.0887
Married, retained	0.6083	120	0.4348	46	0.0479**
Children, retained	0.5	120	0.2826	46	0.0089***

Table 10 identifies significance for gender differences for Human Resources officers who commissioned from 2006–2014. While 28.34% of male officers separated, 20.15% of female officers separated. This difference was not statistically significant. Among those retained, 60.83% of males were married, compared to 43.48% of females. This difference is statistically significant at the 95% confidence level. Among those retained, 50% of males have children, compared to 28.26% of females. This difference is statistically significant at the 99% confidence level. Human Resources had the highest rates of retention across the analyzed communities. Separation results were unexpected – HR is the only community where male officers separate at higher percentages than female officers.

Table 11. Medical Corps T-test results for 2006–2014

2006–2014	Male	Total observations	Female	Total observations	P-value
Separation	0.4297	1,799	0.4781	891	0.0178**
Married, retained	0.5490	2,570	0.4576	1,298	0.0000****
Children, retained	0.3195	2,570	0.2334	1,298	0.0000****

Table 11 identifies significance for gender differences for Medical Corps officers who commissioned from 2006–2014. While 42.97% of male officers separated, 47.81% of female officers separated. This difference is statistically significant at the 95% confidence level. Among those retained, 54.9% of males are married, compared to 45.76% of females. This difference is statistically significant at the 99% confidence level. Among those retained, 31.95% of males have children, compared to 23.34% of females. This difference is statistically significant at the 99% confidence level.

Table 12. Surface Warfare T-test results for 2006–2014

2006–2014	Male	Total observations	Female	Total observations	P-value
Separation	0.5876	4,711	0.7305	1,692	0.0000***
Married, retained	0.2582	8,099	0.1949	3,283	0.0000***
Children, retained	0.1353	8,099	0.0643	3,283	0.0000***

Table 12 identifies significance for gender differences for Surface Warfare officers who commissioned from 2006–2014. While 58.76% of males separated, 73.05% of females separated. This difference is statistically significant at the 99% confidence level. Among those retained, 25.82% of males are married, compared to 19.49% of females. This finding is statistically significant at the 99% confidence level. Among those retained, 13.53% of males have children, compared to 6.43% of females. This finding is statistically significant at the 99% confidence level. Surface Warfare aligned most to Aviation, with surprisingly low retention rates for both male and female officers who are married or have children.

## **B. DISCUSSION**

The Supply Corps is the most racially and ethnically diverse of the five communities. Education was as expected, with officers accessing with primarily bachelor's degrees, and attaining master's degrees by the O4 and O5 paygrades (year groups 2006–2011). The share of females at separation is higher than at commission, reducing the retained share of female officers. Gender comparisons identified statistically significant gaps for separations (90% confidence level), retained married officers, and retained officers with children (the latter two both at 99% confidence level). A higher share of females separates than males (statistically significant at the 90% confidence level), a higher share of retained males are married as compared to retained females (statistically significant at the 99% confidence level), and a higher share of retained males have children as compared to retained females (statistically significant at the 99% confidence level).

The Restricted Line communities most aligned to each other. Across Aviation and Surface Warfare, more females separated than males (statistically significant for both communities at the 99% confidence level). For both communities, fewer married females and fewer females with children are retained than married males or males with children. Findings for both communities are statistically significant at the 99% confidence level. Both communities had relatively lower retention (when compared across the five communities), for married females and females with children. Due to career differences in deployable billets and operational requirements within Staff Corps, Restricted Line, and Unrestricted Line communities, this suggests that community culture and support for personal family goals may play a part in family-based retention decisions (DON, 2022b; DON, 2022c).

Supply Corps officers' retention patterns for females align most to the Medical Corps community. Supply Corps officers' retention patterns for married females fall between Surface Warfare's and Medical Corps' patterns. Supply Corps officers' retention patterns for females with children align most to the Medical Corps, the other Staff Corps community. Supply Corps officers' separation percentages most align to Aviation. Female Supply Corps officer retention share, across gender, married, and children variables, has increased for each successive cohort. The data is current through August 2021, which

reflects promotion status to O4 for 33% of the 2011 cohort. We used this to provide a focal lens for our quantitative and qualitative analysis of our survey of active-duty Navy Supply Corps officers in the paygrades of O5 and junior.

## **IV. SURVEY STUDY OF RETENTION AND SEPARATION DRIVERS IN CURRENT SUPPLY CORPS COMMUNITY**

To identify why we were seeing the retention patterns outlined in Chapter III, we went directly to the community. We asked current (as of November 2021) active-duty Supply Corps officers in the paygrades of O5 and junior to provide us insight into retention and separation drivers. We used an online survey and phone interviews to capture these insights and responses.

### **A. SURVEY PARTICIPANT PROFILES**

The survey was distributed to Supply Corps officers in paygrades O1–O5, with the rank of Ensign (ENS), Lieutenant Junior Grade (LTJG), Lieutenant (LT), Lieutenant Commander (LCDR), and Commander (CDR). The survey and interview consisted of twenty-six questions divided into 2 parts, demographics and career questions. The career questions delved further into the categories of personal and professional obligations and expectations, motivations for joining, retention incentives, and separation drivers.

We solicited participation primarily via an email to all eligible active-duty Supply Corps officers (see Appendix A). We also provided an announcement in the Office of Personnel’s monthly Supply Corps newsletter (see Appendix B). Survey and interview questions are listed in Appendix C. The survey was sent to 1,912 email addresses for active-duty Navy Supply Corps officers in the paygrades of O5 and junior. Due to the widespread geographic locations of our eligible population, we made the survey an online format. This allowed participants to participate when and where they were available. Of the 1,912 eligible candidates, 714 participated, for a 37.34% participation rate.

The survey was distributed via email using NPS Qualtrics software. Email addresses were provided by the Bureau of Naval Personnel (BUPERS) Supply Corps Officer Community Manager (SC-OCM). We released the survey in October 2021 and closed it in November 2021.

Table 13 compares the demographics of the survey respondents to DMDC’s data for retained Supply Corps officers, as of August 2021. Our aim was to gather responses

from a representative sampling of the current (as of November 2021) active-duty Supply Corps officer community.

Table 13. Share of Survey Respondents compared to DMDC data on retained Supply Corps Officers as of August 2021

2006–2014	Total observations and percentage share for survey participants	Total observations and percentage share of DMDC retained, as of August 2021
Total observations	714	1,654
Female	18.62%	21.34%
Race:		
White	63.17%	63.18%
Black	9.24%	14.87%
Asian	10.92%	15.84%
AINA	0%	2.54%
PINH	0%	1.09%
Ethnicity:		
Hispanic	9.10%	12.27%
Married (yes)	69.61%	58.83%
Children (yes)	94.96%	42.99%

As of August 2021, females accounted for 21.34% of retained Supply Corps officers. Females made up 18.62% of survey participants. The dataset showed 63.18% of retained (as of August 2021) active-duty Supply Corps officers were white, and 63.17% of survey participants were white. While Supply Corps’ share of black officers (as of August 2021) was 14.87%, only 9.24% of survey participants were black. As of August 2021, Asians accounted for 15.84% of retained Supply Corps officers. However, only 10.92% of survey participants were Asian. While AINA accounted for 2.54%, and PINH accounted for 1.09% of retained Supply Corps officers (as of August 2021), neither group were represented in the survey. As of August 2021, Hispanics accounted for 12.27% of retained Supply Corps officers. Only 9.10% of survey participants were Hispanic. Married officers accounted for 69.61% of survey participants, though their share of retained Supply Corps

officers (as of August 2021) was 58.83%. While retained Supply Corps officers with children, as of August 2021, accounted for 42.99% of the community, 94.96% of survey participants had children.

AINA and PINH were not represented on the survey. Married officers and officers with children had a higher share of survey representation than their retained share, as of August 2021. This indicates that dependent status may have strongly factored into who participated in the survey.

Table 14 highlights survey participants’ YOS as well as commission source. It highlights the professional backgrounds of the survey participants.

Table 14. Survey participants’ years of service and commission source

Variable	Number of observations	Percentage represented
Total observations	714	
Years of service (YOS):		
1–5	81	11.34%
6–10	149	20.87%
11–15	144	20.17%
16–20	179	25.07%
21–25	95	13.31%
Over 26	25	3.50%
Prefer not to answer	6	0.84%
Commission source:		
OCS	493	69.05%
Naval Academy	67	9.38%
ROTC	40	5.60%
STA-21	11	1.54%
LDO	44	6.16%
Prefer not to answer	22	3.08%

The highest share of survey participants had 16–20 years of service (25.07%). Those with 6–10 years of service (20.87%) aligned with those with 11–15 years of service (20.17%) for next highest share of survey respondents. The majority of survey respondents

commissioned through OCS (69.05%), with Naval Academy commissions falling in second (9.38% of survey respondents).

**B. SURVEY FINDINGS**

We analyzed gender differences for responses to each question by conducting formal tests of significance on differences between male and female respondents. As questions 1–12 were demographic in nature, we began our gender analysis and formal tests of significance with question 13, which began the survey’s career section. Table 15 highlights the gender differences in reasons for joining the Navy. Answers were categorized as follows: not at all important (1), not very important (2), neutral (3), important (4), and very important (5).

Table 15. Reasons survey participants joined the Navy, by gender

Reasons SM joined	Male mean answer	Female mean answer	P-value
Serve country	4.28	4.06	0.0254**
Benefits	4.21	4.39	0.0160**
Travel the world	3.83	3.87	0.7186
Financial considerations	4.15	4.20	0.6110
Employment stability	4.11	4.21	0.2343

There were two gender differences that were statistically significant. Males were more likely to join to serve the nation (with a mean answer of 4.28, compared to females’ mean of 4.06). This was found to be statistically significant at the 95% confidence level. Females were more likely to join for the benefits, specified as educational and medical (with a mean answer of 4.39, compared to males’ mean answer of 4.21). This was found to be statistically significant at the 95% confidence level.

Table 16 highlights the gender differences in response to whether or not the survey participant was a lateral transfer into the Supply Corps community. Answers were categorized as yes (lateral transfer into the community) or no (commissioned into the Supply Corps).

Table 16. Survey participants' lateral transfer representation, by gender

Lateral transfer	Male ( <i>n</i> =581)	Female ( <i>n</i> =133)
Yes	14.80%	12.78%
No	77.80%	86.47%

The majority of survey participants were not lateral transfers into the community. This indicates that most participants intended to serve only in the Supply Corps community and commissioned into the community.

Table 17 highlights the gender differences regarding initial intentions to serve beyond the servicemember's first term of obligation. Answers were categorized as yes (1), no (2), undecided (3), and prefer not to answer (4).

Table 17. Survey participants' intentions, when they joined, to serve beyond first term of obligation, by gender

Serve beyond first term of obligation	Male ( <i>n</i> =581) share	Female ( <i>n</i> =133) share
Yes (1)	53.18%	57.89%
No (2)	16.18%	18.8%
Undecided (3)	24.27%	23.31%
Prefer not to answer (4)	0.17%	0%
No answer	6.20%	0%

The majority of survey participants, both males and females, intended to serve beyond the first term of obligation. Nearly half of participants, 40.45% of males and 42.11% of females, were not committed to serving beyond the first term of obligation when they joined. As 87.82% of survey participants served 6 or more years at the time of the survey, this indicates that factors in the first term of obligated service may have changed the minds of a large share of survey participants.

Table 18 highlights the gender differences in intentions to leave the Supply Corps community pre-retirement eligibility. Answers were as follows: I do not intend to leave the Supply Corps before retirement, lateral transfer (remain on active-duty but move into a community other than Supply Corps), separate from military service, and prefer not to answer. Share of missing responses, based on total participants, by gender, is noted.

Table 18. Intentions to leave the Supply Corps pre-retirement eligibility, by gender

Intentions	Male ( <i>n</i> =581)	Female ( <i>n</i> =133)
N/A (I do not intend to leave the Supply Corps before retirement)	66.61%	66.92%
Lateral Transfer	2.24%	3.01%
Separate	17.90%	24.06%
Prefer not to answer	2.58%	1.50%
No response	10.67%	4.51%

The majority of participants, both male and female, and at nearly identical percentages, intend to remain on active-duty in the Supply Corps until retirement. However, a sizeable share (24.06% of females and 17.90% of males) intend to separate from military service. Prefer not to answer and no response accounted for 13.25% of males and 6.01% of females, indicating that, of the survey participants, there are 77 males and 8 females who are either undecided or did not feel comfortable responding to this question.

Table 19 highlights the gender differences regarding intentions to continue working (if leaving the Supply Corps community pre-retirement). Answers were categorized by the following responses: I am not separating from the Supply Corps, yes (I intend to continue working), no (I do not intend to continue working), unsure, and prefer not to answer. Share of missing responses, by gender, is noted.

Table 19. Intentions to continue working, if leaving the Supply Corps pre-retirement eligibility, by gender

Intentions	Male (n=581)	Female (n=133)
N/A (I am not leaving the Supply Corps)	55.25%	61.65%
Yes	29.78%	29.32%
No	0.52%	1.50%
Unsure	2.24%	2.26%
Prefer not to answer	1.20%	0.75%
No answer	11.02%	4.51%

A majority of males (55.25%) and females (61.65%) intend to remain in the Supply Corps, though this was a drop of 11.36 percentage points for males and a drop of 5.27 percentage points for females from the previous question about leaving the community pre-retirement eligibility. An increased share of males (29.78%, an increase of 9.64 percentage points) and females (29.32%, an increase of 2.25 percentage points) indicated that they intended to leave the Supply Corps pre-retirement eligibility but intended to keep working. Only 3.44% of males and 3.01% of females intended to leave the Supply Corps pre-retirement eligibility without intending to continue working. The much higher share of officers intending to leave the community but keep working indicates that there are factors the Supply Corps or Navy could influence to retain most officers who leave.

Table 20 highlights the gender differences on expected family financial role when the survey participant joined active-duty service. Answers were categorized as follows: primary wage earner, dual-wage earner/equal with partner or spouse, secondary wage earner, non-contributing, and prefer not to answer. Share of missing responses, by gender, are noted.

Table 20. Expected family financial role when survey participant joined the service, by gender

Expected financial role	Male (n=581)	Female (n=133)
Primary wage-earner	70.05%	58.65%
Dual-wage earner/equal with partner or spouse	18.93%	37.59%
Secondary wage earner	1.38%	1.50%
Non-contributing	1.20%	1.50%
Prefer not to answer	2.07%	0.75%
No response	6.37%	0.01%

While the majority of males (70.05%) and females (58.65%) intended to be the primary wage-earner, this may pertain to either societal gender norms or the low share of married officers and officers with children at commissioning. A much higher share of females (37.59%) than males (18.93%) intended to be equal wage-earners with their partner or spouse.

Table 21 highlights the gender differences regarding support and work-life balance. Answers were categorized as follows: strongly disagree (1), somewhat disagree (2), neither agree nor disagree (3), somewhat agree (4), and strongly agree (5).

Table 21. Level of support and work-life balance, by gender

	Male mean answer	Female mean answer	P-value
Career supported by spouse, partner, or significant other	4.31	3.98	0.0059***
Strong mentor network & support	3.68	3.83	0.1955
Strong peer network & support	3.85	3.74	0.3197
Less work-life balance than peers	3.28	3.39	0.3193
More collaterals than peers	3.21	3.08	0.2435

Figure 19 highlights the breakdown of responses to career support by the survey participant's significant other. It categorizes responses as strongly disagree (1), somewhat disagree (2), neither (3), somewhat agree (4), and strongly agree (5).

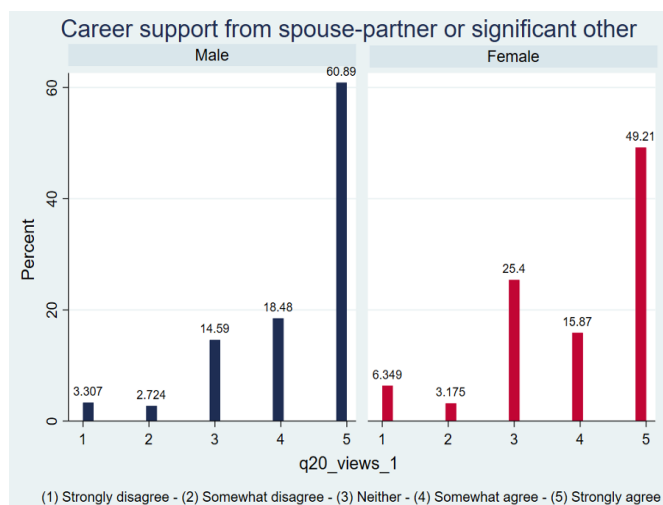


Figure 19. Agreement to statement on career being supported by spouse, partner, or significant other

Males were far more likely to have their career supported by their spouse, partner, or significant other. Males had a mean answer of 4.31 (between “somewhat agree” and “strongly agree”), and females had a mean answer of 3.98 (between “neither agree nor disagree” and “somewhat agree”). This finding was statistically significant at the 99% confidence level. The remainder of findings for career support and work-life balance were not statistically significant. Females reported a stronger mentor network and support (mean answer of 3.83, between “neither agree nor disagree” and “somewhat agree”), compared to males’ mean answer of 3.68 (also between “neither agree nor disagree” and “somewhat agree”). Males reported a stronger peer network (mean answer of 3.85) compared to females (mean answer of 3.74). Females reported less work-life balance (mean answer of 3.39) than males (mean answer of 3.28), though males reported more collateral requirements (mean answer of 3.21) compared to females (mean answer of 3.08).

Table 22 highlights the gender differences in regard to current billet. Options were operational or shore duty, either in the continental United States (CONUS) or outside of the continental United States (OCONUS). Answers were categorized as follows operational - CONUS, shore - CONUS, operational - OCONUS, shore - OCONUS, and prefer not to answer.

Table 22. Current billet location, by gender

Duty location	Male (n=581)	Female (n=133)
Operational - CONUS	15.66%	24.06%
Shore - CONUS	55.42%	60.15%
Operational - OCONUS	5.16%	5.26%
Shore - OCONUS	12.39%	6.02%
Prefer not to answer	0.86%	0.75%
No answer	10.50%	3.76%

The majority of survey participants, both males and females, are on shore duty CONUS. This may be due to either the percentage of Supply Corps officers on shore duty with location share of duty stations, or it could be that a smaller share of operational Supply Corps officers took the survey (as compared to shore-based Supply Corps officers). The results above are largely a factor of career timing and detailing.

Table 23 highlights the gender differences on transfer or separation drivers - why active-duty Supply Corps officers would consider leaving the community before they were eligible for retirement. Answers were categorized as follows: not at all important (1), not very important (2), neutral (3), important (4), and very important (5).

Table 23. Separation drivers, by gender

Reasons officer would consider leaving	Male mean answer	Female mean answer	P-value
Family (childcare or significant other job/career)	4.13	4.51	0.0119**
Undesirable billet assignment/location	4.00	4.23	0.0876*
Lack of job flexibility	3.88	4.18	0.0211**
Lack of support, professionally, for career	3.53	3.58	0.7823
Uncomfortable work climate	3.51	3.73	0.1913

Reasons officer would consider leaving	Male mean answer	Female mean answer	P-value
Higher pay outside Navy	3.96	3.68	0.1383
Other (specify)	4.08	4.29	0.5935

Gender differences were statistically significant for family considerations, undesirable billet assignment or location, and lack of job flexibility. These three categories had the highest importance in females' separation decisions. Regarding family reasons (child or spouse needs), females had a mean answer of 4.51 (halfway between "important" and "very important"), whereas males had a mean answer of 4.13 (closer to "important"). This finding was statistically significant at the 95% confidence level. Regarding undesirable job assignments or location, females had a mean answer of 4.23 (between "important" and "very important") compared to males' mean answer of 4.00 ("important"). This finding was statistically significant at the 90% confidence level. Regarding lack of job flexibility, females had a mean answer of 4.18 (between "important" and "very important"), compared to males' mean answer of 3.88 (between "neutral" and "important"). This finding was statistically significant at the 95% confidence level.

The findings on the remaining categories showed gender differences, though none were statistically significant. Females, with a mean answer of 3.58, and males, with a mean answer of 3.51, were aligned on considering a lack of professional career support in their separation decisions. With a mean answer of 3.73, females were more likely to factor uncomfortable work climates into their separation decisions (males had a mean answer of 3.51). Males were more likely to factor pay into their separation decisions (males had a mean answer of 3.96, and females had a mean answer of 3.68). Females and males both focused on the "other" category. Females had a mean score of 4.29 (between "important" and "very important") and males had a mean score of 4.08 (closer to "important"). To analyze these responses, we used Microsoft Word's word cloud function to find the top 10 most-used words. Figure 20 shows the top 10 words used to identify "important" separation drivers.



Figure 20. Top 10 “other” separation drivers

The most-used word survey participants wrote-in was detailing. The next most-used word was command, with work coming in third. Other words in the top 10 most-used words for “other” separation drivers are balance, education, job, reason, requirements, support, and toxic. With both males and females ranking “other” as “important,” this indicates that males and females factor detailing, as well as the commands they are either at or have been to, into their separation considerations. This could be related to level of support they felt in detailing and by their leadership at current and previous commands or related to career-enhancing billets detailing has sent them to or career-enhancing opportunities at those commands. Either way, both genders have indicated that detailing and their professional experiences to date influence their separation decisions.

Table 24 highlights the gender differences regarding retention incentives to remain in the Supply Corps community on active-duty. Answers were categorized as follows: not at all important (1), not very important (2), neutral (3), important (4), and very important (5).

Table 24. Retention incentives to remain on active-duty in the Supply Corps, by gender and ranked from most important to least important, by female

Incentives to remain in Supply Corps	Male mean answer	Female mean answer	P-value
Other (please specify)	4.26	4.80	0.0000***
Location preference	4.29	4.43	0.0651*

Incentives to remain in Supply Corps	Male mean answer	Female mean answer	P-value
Better work-life balance	4.13	4.41	0.0008***
More flexibility to support family planning (job assignments or hours)	3.91	4.39	0.0000***
Needs of family assignment	4.00	4.23	0.0495**
DH bonus	3.79	3.91	0.3895
High-3 retirement	3.79	3.88	0.4794
Coded billets	3.83	3.83	0.9887
Less collaterals	3.33	3.34	0.9290
Co-location (MIL-MIL)	2.41	3.34	0.0000***
Prefer not to answer	2.48	3.00	0.0504*
Assigned mentors	2.67	2.70	0.8237

As we have focused our research on female retention, we listed Table 24 in descending order of importance, as ranked by female Supply Corps officers. This closely aligns to male rankings. Aside from the “other” category, males and females had the same top two retention incentives: location preference and better work-life balance. Females’ third most important retention incentive was flexibility for family planning, while males’ third most important retention incentive was needs of the family assignment.

Females had a mean answer of 4.80 (nearing “very important”) for “other,” while males had a mean answer of 4.26 (closer to “important”). This indicates that the literature we based our categories on did not include some key retention incentives females and males consider in the Supply Corps community. This difference was statistically significant at the 99% confidence level. Figure 21 shows the response breakdown for importance of “other” retention incentives.

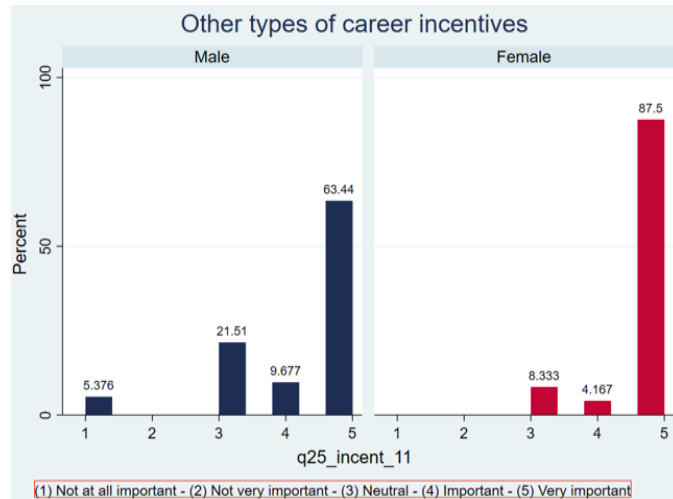


Figure 21. Importance of other retention incentives, by gender

The majority of both males and females listed “other” as 5 (very important). Females were far more likely to do so. To better analyze the “other” category for retention incentives, we captured the 10 most-used words, using Microsoft Word’s word cloud function. Figure 22 highlights the top 10 most-used words for retention incentives.

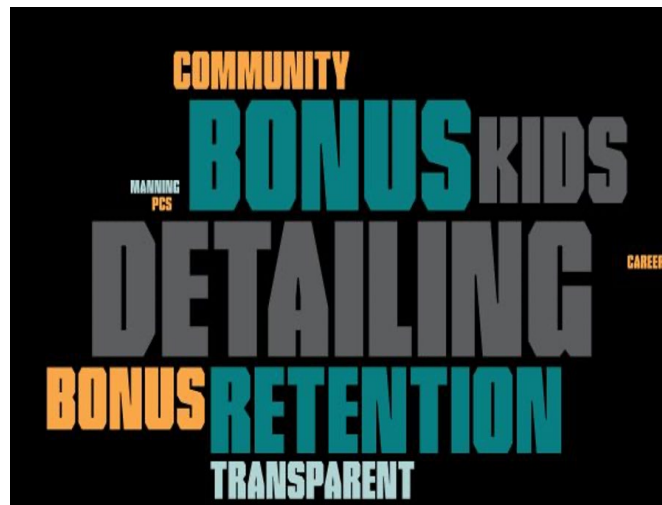


Figure 22. Top 10 “other” retention incentives

The most-used word for retention incentives was detailing, followed closely by bonus and kids. The list was rounded out with retention, transparent, community, manning, pcs, and career. This indicates that survey participants most strongly consider their kids’ needs, the detailing process or results, and financial incentives in their retention decisions. Transparency and a sense of community in the career, as well as manning and the PCS process, also influence retention decisions. This aligns with the rest of the survey, where participants highlighted a focus on family, financial incentives, and career-enhancing jobs in their retention decisions.

Regarding better work-life balance, females had a mean answer of 4.41 (almost halfway between “important” and “very important”), compared to males’ mean answer of 4.13 (closer to “important”). This difference was statistically significant at the 99% confidence level. Figure 23 shows the responses to the importance of improved work-life balance as a retention incentive.

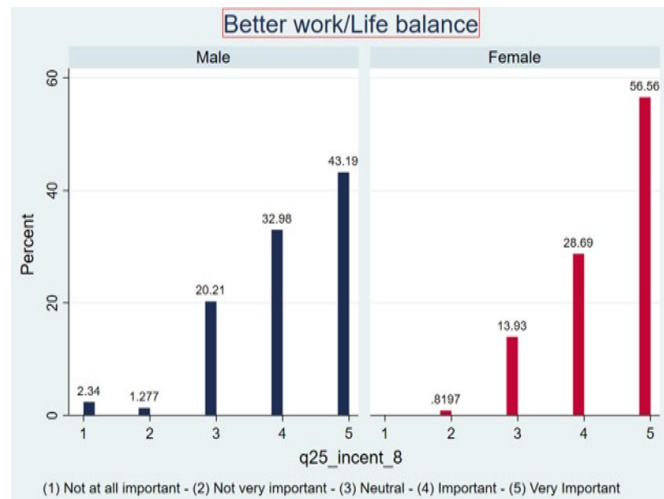


Figure 23. Importance of better work-life balance retention incentives, by gender

While the majority of both males and females reported most often that this retention incentive was very important (5), a higher share of females was more likely to do so. This indicates that either females hold more responsibility at work, feel more pressure at work, or experience more work intrusion into their personal lives.

Job flexibility (whether through assignment or hours) to support family planning was more important to females, with a mean answer of 4.39 (almost halfway between “important” and “very important”), compared to males’ mean answer of 3.91 (nearing “important”). This difference was statistically significant at the 99% confidence level. Figure 24 shows the responses to the importance of job flexibility as a retention incentive.

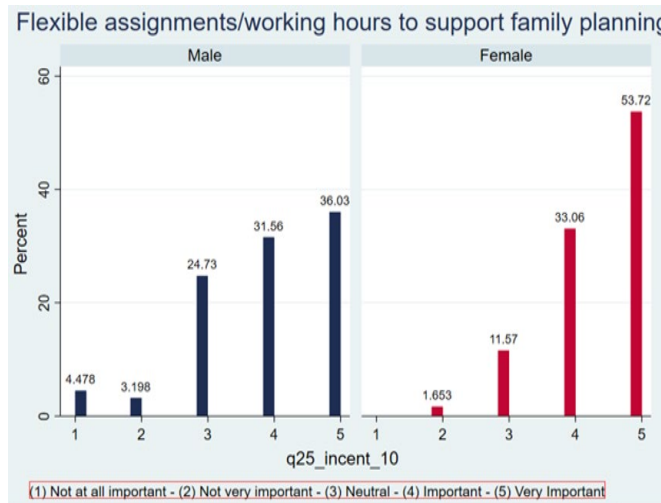


Figure 24. Importance of job flexibility to support family planning retention incentives, by gender

As with previously mentioned retention incentives, a higher share of both males and females listed job flexibility in support of family planning as very important (5). However, a much higher share of females did so. This indicates that females are much more aware of and reliant upon support to have a family during military service in the Supply Corps.

Dual-military co-location assignment was more important to females, with a mean answer of 3.34 (between “neutral” and “important”), compared to males’ mean answer of 2.41 (between “not very important” and “neutral”). This difference was statistically significant at the 99% confidence level. Figure 25 shows the responses to the importance of co-location as a retention incentive.

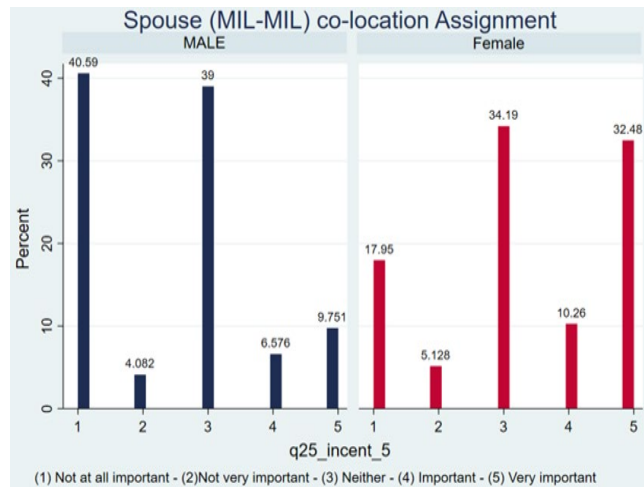


Figure 25. Importance of co-location retention incentives, by gender

The highest share of males listed co-location importance as not at all important (1), with a close second of neither (3). Females listed co-location importance as neither (3), with a close second of very important (5). The findings above indicate that, while female Supply Corps officers are less likely to be married than their male counterparts, those that are married are more likely to be in a dual-military marriage. Dual-military officers have to balance family planning, family needs, and location more carefully due to competing military careers.

Gender differences were statistically significant at the 95% confidence level for needs of the family assignment, and statistically significant at the 90% confidence level for location preference and prefer not to answer. Females’ mean answer for needs of the family assignment was 4.23 (between “important” and “very important”), compared to males’ mean answer of 4.00 (“important”). Females’ mean answer for location preference was 4.43 (nearly halfway between “important” and “very important”), with males’ mean answer at 4.29 (nearly a third between “important” and “very important”). This indicates that, as discussed above, females are more likely to be in a dual-military marriage or dual-career marriage and have to balance competing careers in order to have and support family needs.

All other gender differences on retention incentives were not statistically significant. Females and males were both between “neutral” and “important,” but closer to

“important,” regarding DH bonus, High-3 retirement, and coded billets. Females were between “neutral” and important,” leaning towards “neutral” on less collaterals and co-location, with males in the same position regarding less collaterals. Females were “neutral” regarding prefer not to answer (males regarded this category closer to “not very important”). Females and males were between “not very important” and “neutral” (closer to “neutral”) regarding assigned mentors. Males were between “not very important” and neutral,” (leaning towards “not very important”) on co-location. This indicates that a DH bonus, High-3 retirement, and coded billets could influence retention decisions for some Supply Corps officers (though it is unknown if this would be for the short- or long-term).

The survey had one open-ended question. We asked the community to provide us insight into relevant factors we had not asked about. In order to analyze responses, we used Microsoft Word’s word cloud function to identify the 10 most-used words. Figure 26 highlights the top 10 most-used words when answering what further relevant retention factors exist that the research should track.



Figure 26. Top 10 further relevant retention factors

The three most-used words, which appear to be ranked equally are people, family, and job. These are followed next by community, opportunities, work, and manning. The list was rounded out with career, support, and female. The words provided indicate that

support for family and career-enhancing opportunities, as well as the people participants worked with, are strongly influencing survey participants’ retention decisions.

**C. INTERVIEW PARTICIPANT PROFILES**

With a large share of “other” responses selected as important, we wanted to ensure we had captured incentives and drivers we had not listed in the survey. As such, we wanted to speak directly to the community. We did so through interviews of active-duty Supply Corps officers in the paygrades of O5 and junior. We broke down participant share by demographic variables, as well as by years of service (YOS) and commission source. Table 25 breaks down the total observations and share of survey participants by demographic variables.

Table 25. Interview participants’ demographics

Variable	Number of observations	Percentage represented
Total observations	6	
Female	3	50%
Race:		
White	4	66.67%
Black	0	0%
Asian	1	16.67%
AINA	0	0%
PINH	0	0%
Other	1	16.67%
Ethnicity:		
Hispanic	1	16.67%
Married (yes)	3	50%
Children (yes)	2	33.33%

**D. ANALYSIS OF INTERVIEW PARTICIPANT RESPONSES**

We analyzed interview responses to see if they provided any further insight into the open-ended questions (other retention incentives and further factors we had not asked about). Responses aligned to survey responses, focusing on the role of family and career

progression and viability as the most important factors of retention. Figure 27 shows the top 10 words provided by interviewees.

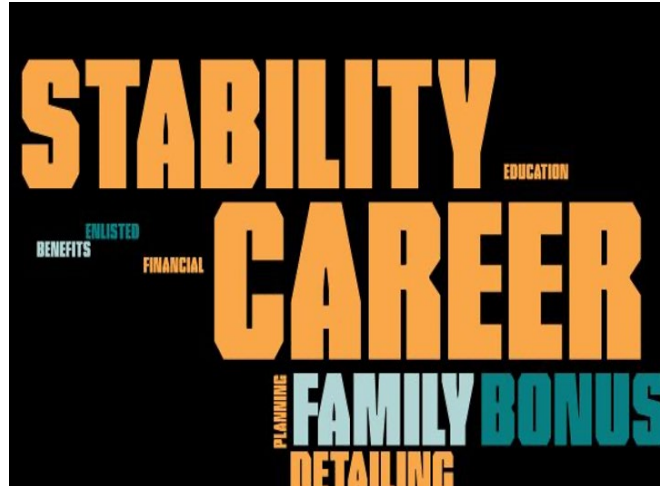


Figure 27. Top 10 words from interviewees for retention incentives

The interviewees aligned to survey participants in discussing family, detailing, bonus, and education. While financial and benefits were not previously listed, these both are related to bonus. Other words mentioned here that were not previously mentioned are enlisted (relating to the people you work with and manning, both mentioned previously) and planning (which relates to pcs and support).

## E. DISCUSSION

The survey was representative of the Supply Corps' population for gender, race (white, black), and ethnicity (Hispanic). Single and childless Supply Corps officers were underrepresented. Overwhelmingly, survey participants were in the paygrades of O3–O5, were married, and had children. This indicates that people with dependents felt strongly about providing feedback to the community on needed support and flexibility for family. Results were consistent with the survey sample representation of primarily married officers with children. Both males and females are focused on family support retention incentives, whether through support for kids' needs, better work-life balance, or job flexibility to

support the family. Nearly half of males (40.45%) and females (42.11%) were not committed to staying beyond their first term of obligated service, and they are not sold on staying in the community until retirement (answers across two questions provided a range of 22.72%-33.73% of males and 28.57%-33.84% of females). A focus on support for the family may increase community retention for junior and mid-grade officers, particularly among females in the Supply Corps. Female survey participants ranked family support through other retention incentives highest (mean of 4.80, nearing “very important,” compared to males’ mean of 4.26, “important”). Gender differences in the other category was statistically significant at the 99% confidence level. Participants outlined additional retention incentives, through the other category, and focused primarily on kids, detailing, and bonuses. Gender differences were also statistically significant for participants’ priorities of family support through location preference (90% confidence level), improved work-life balance (99% confidence level), job flexibility (99% confidence level), needs of the family assignment (95% confidence level), and co-location (99% confidence level). For location preference, females had a mean of 4.43 (nearly halfway between “important” and “very important”) compared to males’ mean of 4.29 (closer to “important”). For improved work-life balance, females had a mean of 4.41 (nearly halfway between “important” and “very important”) compared to males’ mean of 4.13 (closer to “important”). For job flexibility, females had a mean of 4.39 (more than a third between “important” and “very important”) compared to males’ mean of 3.91 (nearing “important”). For needs of the family assignment, females had a mean of 4.23 (nearly a quarter past “important”) compared to males’ mean of 4.00 (“important”). Finally, for co-location, females had a mean answer of 3.34 (a third between “neutral” and “important”) compared to males 2.41 (nearing halfway between “not very important” and “neutral”).

Results show that a lack of family support is the top separation driver, for both women (mean answer of 4.51, halfway between “important” and “very important”) and men (mean answer of 4.13, closer to “important”). Gendered differences for family support were statistically significant at the 95% confidence level. The “other” category was the second highest separation driver, though gendered differences were not statistically significant (females’ mean answer was 4.29, nearing a third between “important” and “very

important,” compared to males’ mean answer of 4.08, “important”). The most-used word in the other category was detailing, followed by command and work. This indicated a distrust with detailing policies or processes, and a dissatisfaction with the commands and work participants’ have engaged with and in during their career to date. Providing the community with detailing rules of engagement and policies that detailers must abide by may help increase transparency and trust in the processes in place. Other separation drivers ranked as important for women were undesirable billet assignment/location and lack of job flexibility. Females ranked undesirable billet assignment/location as 4.23 (nearly a quarter between “important” and “very important”), compared to males’ mean answer of 4.00 (“important”). Undesirable billet assignment/location gender differences were statistically significant at the 90% confidence level. Females answered job flexibility with a mean of 4.18 (“important”) compared to males’ mean of 3.88 (nearing “important”). Gender differences for job flexibility was statistically significant at the 95% confidence level.

Overall, nearly a quarter to a third of survey participants are not committed to remaining in the Supply Corps until retirement eligibility. The top reasons, for both retention and separation, centered on support for the family and work-life balance. For those intending to leave the Supply Corps before retirement eligibility (either through lateral transfer or separation), only 3.96% of males and 4.51% of females either intend to not work or are undecided on working after separating. These results indicate that the Navy and Supply Corps are likely to influence a large share of those intent on leaving the Supply Corps pre-retirement eligibility.

## V. CONCLUSION AND RECOMMENDATIONS

Diversity is key to innovation; in a fast-changing world where technology has shifted the source of threats down to individual actors, innovation is key to maintaining our competitive advantage as a military and as a nation (DOD, 2021b). In this report, we sought to answer the following research questions.

1. How do professional and personal characteristics such as time in service, demographics, marital status, parental status, education, and commissioning source relate to retention and separation among Navy Officers?
2. How do these patterns compare or contrast across the Staff (Supply Corps and Medical Corps), Unrestricted Line (Aviation and Surface Warfare), and Restricted Line (Human Resources) communities?
3. What are current retention and separation drivers in the Supply Corps officer community?

The key findings show that Supply Corps commissions the lowest share of female officers next to Aviation and separates a statistically significant higher share of female officers compared to male officers. This aligns to previous research findings that active-duty female officers separate at higher rates than their male counterparts (Farrell, 2020; Hernandez & Serna, 2020; Kocis & Sonntag, 2018; Ceralde & Czepiel, 2014). Our analysis of average time in service at separation shows that Supply Corps officers leave before or during their second operational tour. Retained females in the Supply Corps, as of August 2021, have statistically significant lower rates of marriage and children than retained males. The survey participants were primarily married officers and/or officers with children. While both male and female survey participants highlighted family support as top retention incentives, these factors were statistically significantly more likely to impact females. These findings suggest that females have difficulty having and caring for a family while in the military service and may be leaving the Supply Corps in order to pursue having a family. This pertains to the literature finding that dual-military and female officers believe

that they have to choose between a military career and a family, and that females focus primarily on family factors when making retention decisions (Farrell, 2020; Charlton & Fortune, 2019; Kocis & Sonntag, 2018). Females, across gender, married, and children variables, are retaining at higher percentages than their predecessors. These results suggest that a focus on providing support and flexibility to pursue family planning and caring for the family may continue to increase female retention percentages. The share of retained Supply Corps officers for the female variable aligns most to the Medical Corps community. The share of retained Supply Corps officers for the married female variable falls between Surface Warfare's and Medical Corps' share. However, when we factored in children, retention increases, and most aligns to the other Staff Corps community, Medical Corps.

Notable findings from the survey highlight that a range of 20.14%–29.78% of males and 27.07%–29.32% of females intend to leave the Supply Corps community, but that they are committed to continuing to work. An additional 13.25% of males and 6.01% of females did not clearly answer if they intended to retain in the Supply Corps to retirement eligibility. Of all survey participants, only 0.52% of males and 1.50% of females intended to leave the Supply Corps and not continue working. The Navy and the Supply Corps have an opportunity to retain nearly all individuals who intend to leave the community. Survey participants (both males and females) are continuing to make retention decisions based on family factors (work-life balance, job flexibility to support family planning and family needs, and location preference). The other key retention influencers are opportunities for career enhancement, a sense of community, and financial incentives. Separation drivers were detailing, issues with commands (previous or current), a lack of educational benefits, a lack of support, and issues with achieving balance. This suggests that Supply Corps officers who are married or have children are looking for family-friendly working environments that still provide them opportunities for personal and professional growth.

The following limitations should be considered when interpreting the results and findings of this research. First, in the data analysis, due to data inconsistencies, we had to remove prior enlisted records. The records may comprise a key segment of the Supply Corps officer community and should be included in future research efforts. Second, in the data, we were missing information on age at marriage and age when servicemembers had

their first child. Adding the age variable to marriage and children variables would inform predictive patterns for later cohorts to determine if the Supply Corps (or other communities) could expect identified patterns to shift. Also missing were identified dual-military and divorce rates. These rates would inform if the Supply Corps patterns aligned to previous research on gender dual-military and divorce patterns. Finally, with the recent shifts in transgender support policies, data was not captured on current transgender service members. In regard to the survey, single officers, officers without children, and AINA and PINH officers were underrepresented. As the majority of retained female officers, as of August 2021, are single, the high representation of married officers on the survey may have skewed the gender findings.

We make the following recommendations based on the research presented herein:

1. Continue this research, both data analysis and surveys, across future cohorts to identify shifts in patterns and trends and potentially needed focus areas for retention efforts.
2. Remedy the above limitations in future research by including and accounting for prior enlisted officers, dual-military officers, divorced officers, age at marriage, age at having first child, and transgender officers.
3. Focus on increasing share of females at commission. This will help increase the overall share of retained female officers.
4. Focus on increasing support for family planning through increasing flexibility in career timeline, milestones, and job requirements/location/hours up to and including the O4 operational tour. Ending the perception that Supply Officers must do a shore tour before they begin their second operational tour, and publicizing timeline flexibilities, may increase retention due to understanding of career timing flexibility. Pooling officers into fewer locations will increase homesteading and location preference options. This will allow for officers to establish relationships at duty stations that may lead to marriage (and

then children), as well as allowing an increased timeframe for females to have children. Increasing options for telework and/or shifts in timeframe of working hours will also allow for flexibility to care for family members as needed.

5. Focus on increasing transparency in the detailing process and reducing the perception of inconsistencies in detailing individuals. This will increase trust in the community, in the detailers, and in the process. Providing the community with detailing rules of engagement and policies that detailers must abide by may help increase transparency and trust in the processes in place.
6. Focus on providing benefits (financial, educational, medical) and career-enhancing opportunities. These are key incentives for Supply Corps officers when joining the Navy and community and have been shown to be key retention influencers for the current junior and mid-grade Supply Corps officers. Previous literature has shown that providing graduate education increases retention beyond 10 years by 3.5% (Wagner, 2017). Graduate education does not have to be in-person; the increase of distance learning options provides the servicemember, and the community, flexibility in beginning and completing graduate education. Increasing the number of coded billets, whether through billet assignment or internships, and aligning education to those coded billets would increase eligibility for Acquisition Professional Membership (APM). This would help meet the Supply Corps community's requirements for APM qualified control-grade officers. This could be coupled with a required followed-on operational tour, to help meet the servicemember's subspecialty development and Acquisition Workforce requirements, while supporting the community's operational requirements. Additionally, while the literature has shown that bonuses are not an effective long-term retention driver, they were a focus for survey participants and may boost short-term retention at key milestones.

The aim of the research is to offer insight into gender diversity patterns and highlight areas for focused retention efforts. We recognize there may be implications to the above recommendations; hence the recommendation to conduct cost benefit and risk analyses. If the Supply Corps community, both leadership and survey participants who cared to share their time and insight for the betterment of the community, find this research valuable, insightful, or helpful, then we feel successful. The Navy should consider conducting a cost benefit analysis of family planning and caregiving initiatives, such as providing fertility treatments and increasing flexibility in job requirements, locations, and hours. The Supply Corps should consider conducting cost benefit and risk analyses of increasing homesteading options (such as re-balancing billet locations), implementing methods to improve work-life balance (such as increasing flexibility in job requirements and hours as well as community milestones and timelines), and increasing coded billets or internships, to support both family needs and career enhancing opportunities.

THIS PAGE INTENTIONALLY LEFT BLANK

## **APPENDIX A. SURVEY RECRUITMENT EMAIL TO ELIGIBLE ACTIVE-DUTY SUPPLY CORPS OFFICERS**

Good morning/afternoon/evening (name of the individual receiving the survey)

We are graduate student researchers from the Naval Postgraduate School. We are looking to identify causal factors and potential mitigations to people leaving the Supply Corps community prior to statutory retirement. We are reaching out to request your participation with a short questionnaire about your personal experience and career progression in the Supply Corps.

The survey/interview takes 10–20 minutes. Your participation is entirely voluntary. The information provided in this survey/interview will be statistically summarized with the responses of others and will not be attributed to any single individual. Your participation will provide valuable data about our community and potentially promote further studies.

The survey link is below this message and will remain active until MM/DD/YYYY.

If you have any questions about the survey or MBA project, you can contact us directly as follows:

Madeleine Fuentes (survey): via phone at XXX-XXX-XXXX or via email at madeleine.fuentes@nps.edu.

Jami Garrett (data analysis): via phone at XXX-XXX-XXXX or via email at jami.garrett@nps.edu.

You can also reach out to our thesis advisor, Dr. Latika Hartmann, via phone at XXX-XXX-XXXX or via email at lhartman@nps.edu.

If you would be interested in participating in a confidential interview, please reach out to us at our contact information above.

Thank you for your participation.

Very respectfully,

LCDR Madeleine Fuentes, SC, USN

THIS PAGE INTENTIONALLY LEFT BLANK

## **APPENDIX B. RESEARCH AND SURVEY ANNOUNCEMENT IN THE OFFICE OF PERSONNEL'S MONTHLY SUPPLY CORPS NEWSLETTER**

**Retention research opportunity:** Two graduate students (LCDRs Maddy Fuentes and Jami Garrett) at NPS are researching potential disparities in Supply Corps retention and what factors will improve retention. They need your help!

The NPS survey will be emailed to all Supply Corps officers O5 and junior to your current email address on file. The survey is anticipated to take 10–15 minutes and is completely confidential and anonymous. Researchers will share overarching patterns, trends, and ideas with the Officer Community Manager (OCM) for possible community implementation. The survey will be open for 4 weeks. Timeline and details are included in the email. If you are interested in the research and discussing further, reach out to the team for more information:

Thesis advisor: Dr. Latika Hartmann; [lhartman@nps.edu](mailto:lhartman@nps.edu); XXX-XXX-XXXX

Graduate student researchers:

LCDR Maddy Fuentes; [madeleine.fuentes@nps.edu](mailto:madeleine.fuentes@nps.edu); XXX-XXX-XXXX

LCDR Jami Garrett; [jami.garrett@nps.edu](mailto:jami.garrett@nps.edu); XXX-XXX-XXXX

For questions or concerns, please contact the OCM at [SC\\_OCM.fct@navy.mil](mailto:SC_OCM.fct@navy.mil).

THIS PAGE INTENTIONALLY LEFT BLANK

## APPENDIX C. SURVEY AND INTERVIEW QUESTIONS

Q1 Thank you for agreeing to complete our survey. We estimate your participation will last 10–20 minutes.

PRIVACY ACT STATEMENT Authority to request this information is granted under 5 U.S.C. 301, Departmental Regulations; 10 U.S.C. 5031 and 5032. License to administer this survey is granted per OPNAVINST 5300.8C under RCS#1400.3, expiration 8–17-22. All race & ethnicity questions are based on the U.S. Census standards. PURPOSE: The purpose of this survey is to understand the factors that affect career progression among Navy Supply officers. ROUTINE USES: All responses will be anonymous. The information provided in this survey will be statistically summarized with the responses of others and will not be attributed to any single individual. The repository location for the data analysis will be at NPS. CONFIDENTIALITY: All responses will be kept confidential. Personal identifiers such as grade and occupation will be used to evaluate trends and differences in subgroups. All data collected will be statistically summarized with the responses of others and will not be attributable to any single individual. PARTICIPATION: Completion of this survey is entirely voluntary. Failure to respond to any of the questions will NOT result in any penalties except possible lack of representation of your views in the final results and outcomes. If you agree to participate, you may withdraw your participation in the survey at any time by simply exiting the survey. If you are not comfortable answering one of the survey questions, you are free to leave it blank.

End of block: instructions and consent

Start of block: demographics

Q2 What is your rank?

- O1–O2 (1)
- O3–O4 (2)
- O5–O6 (3)
- O7 and senior (4)

- Prefer not to answer (5)

Q3 How many years have you been on active duty?

- 1–5 (1)
- 6–10 (2)
- 11–15 (3)
- 16–20 (4)
- 21–25 (5)
- Over 26 (6)
- Prefer not to answer (7)

Q4 What is your source of commissioning?

- OCS (1)
- STA21 (2)
- ROTC (3)
- Naval Academy (4)
- LDO (5)
- Prefer not to answer (6)

Q5 What is your gender?

- Female (1)
- Male (2)
- Other (3) \_\_\_\_\_
- Prefer not to answer (4)

Q6 Are you Spanish/Hispanic/Latino?

- No, not Spanish/Hispanic/Latino (1)

- Yes, Mexican, Mexican-American, Chicano, Puerto Rican, Cuban, or other Spanish/Hispanic/Latino (2)
- Prefer to self-identify (3)
- Prefer not to answer (4)

Q7 What is your race?

- Asian (for example, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese) (1)
- American Indian or Alaska Native (2)
- Black or African American (3)
- Native Hawaiian or Pacific Islander (for example, Samoan, Guamanian, or Chamorro) (4)
- White or Caucasian (5)
- Prefer to self-identify (6)
- Prefer not to answer (7)

Q8 What is your age?

- 20–24 (1)
- 25–29 (2)
- 30–34 (3)
- 35–39 (4)
- 40–44 (5)
- 45–49 (6)
- 50–54 (7)
- 55–59 (8)
- Prefer not to answer (9)

Q9 What is your marital status?

- Never married, not currently in a relationship (1)
- Never married, currently in a relationship (2)
- Married (3)
- Divorced, not currently in a relationship (4)
- Divorced, currently in a relationship (5)
- Prefer not to answer (6)

Q10 If married, please select as many as apply

- Married with children (1)
- Married to a military member (2)
- Married to a DOD employee (3)
- Married to a civilian no military affiliation (4)
- Other (please specify) (5) \_\_\_\_\_
- Prefer not to answer (6)

Q11 How many children do you have?

- 0 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- More than 4 (6)
- Prefer not to answer (7)

Q12 What are your children's ages? Select as many as apply

- I do not have children (1)

- 0–2 (2)
- 3–5 (3)
- 6–12 (4)
- 13–18 (5)
- Older than 19 (6)
- Prefer not to answer (7)

Q13 What is/are the reason(s) you joined the Navy? Select as many as apply

- Serve my country (1)
- Benefits (educational and medical) (2)
- To travel the world (3)
- Financial consideration (stable salary, bonus, annual salary increased, housing allowance, special pay, other allowance) (4)
- Employment stability (5)
- Other (please specify) (6) \_\_\_\_\_
- Prefer not to answer (7)

Q14 Considering your responses to the previous question, on a scale of 1 to 5, please rate how important each of the following considerations was to you when you decided to join the Navy.

	Not at all important (1)	Not very important (2)	Neutral (3)	Important (4)	Very important (5)
Serve my country (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Benefits (educational and medical) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Travel the world (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial consideration (stable salary, bonus, annual salary increased, housing allowance, special pay, other allowance) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employment stability (steady paycheck) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15 Are you a lateral transfer

- Yes (1)
- No (2)
- Prefer not to answer (3)

Q16 When you entered the Supply Corps, did you intend to serve beyond your first term of obligation?

- Yes (1)
- No (2)
- Undecided (3)
- Prefer not to answer (4)

Q17 Below are a number of different career paths for an active duty Naval officer.

Please indicate how likely you are to take each of these paths in your own career.

	Extremely unlikely (1)	Somewhat unlikely (2)	Neither likely nor unlikely (3)	Somewhat likely (4)	Extremely likely (5)
Stay in active duty to meet ONLY the obligated term of service (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remain in active duty beyond your current term of service (but less than 20 years) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Retire at 20-years (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remain on active duty beyond 20-years (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 What role do you *currently provide* in regards to your family's finances?

- Primary wage earner (1)
- Dual-wage earner/equal with partner/spouse (2)
- Secondary wage earner (3)

- Non-contributing (4)
- Prefer not to answer (5)

Q19 When joining the Supply Corps, what role *did you want to have* in regards to your family finances?

- Primary wage earner (1)
- Dual-wage earner/equal with partner/spouse (2)
- Secondary wage earner (3)
- Non-contributing (4)
- Prefer not to answer (5)

Q20 Please indicate how much you agree or disagree with each statement below.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I am supported in my career by my spouse, partner, or significant other. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a strong mentor network that supports my career (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a strong peer network that supports my career (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have less balance between my work and my personal life than my peers in similar positions do (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I currently hold more collaterals (work/duty) than my peers in similar positions (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q21 What type of billet do you currently hold?

- Operational - CONUS (1)

- Shore - CONUS (2)
- Operational - OCONUS (3)
- Shore - OCONUS (4)
- Prefer not to answer (5)

Q22 If you intend to leave the Supply Corps before retirement, are you transferring to another community or separating?

- N/A (I do not intend to leave the Supply Corps before retirement) (1)
- Lateral transfer (2)
- Separate (3)
- Prefer not to answer (4)

Q23 If you are separating, do you intend to continue working?

- N/A/ (I am not separating) (1)
- Yes (2)
- No (3)
- Unsure (4)
- Prefer not to answer (5)

Q24 If you are considering leaving the Supply Corps before retirement, please indicate how important each of the following considerations is to your decision to leave. If this does not apply to you, please skip this question and continue with the survey.

	Not at all important (1)	Not very important (2)	Neutral (3)	Important (4)	Very important (5)
Family considerations (childcare, spouse/partner/significant other job/career opportunity), (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Undesirable billet assignment/location (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of job flexibility (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of professional support for career (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uncomfortable work climate (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher pay outside the Navy (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify) (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q25 What could the Supply Corps offer you as an incentive to remain on active-duty in the Supply Corps? Please rate their importance to you.

	Not at all important (1)	Not very important (2)	Neutral (3)	Important (4)	Very important (5)
DH bonus program (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher-3 retirement program (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Needs of the family assignment (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Location preference (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spouse (MIL-MIL) co-location assignment (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Career enhancing/coded billets (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assigned mentors (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better work/life balance (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Less collaterals (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More flexibility in job assignments or working hours to support family planning (including any corresponding medical procedures) (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify) (11)

Prefer not to answer (12)

Q26 We are interested in why officers would choose to remain in or leave the Supply Corps. Is there anything we have not asked you about that you feel is relevant to understanding this issue?

---

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF REFERENCES

- Amara, J. (2014). *Roles and challenges of women in the military*. Oxford University Press. <http://hdl.handle.net/10945/42153>
- Amara, J. (2019). Military women and the force of the future. *Defense and Peace Economics*, 31(1), 1–3. <https://doi.org/10.1080/10242694.2019.1697599>
- Barr, D. A., Gonzalez, M. E., & Wanat, S. F. (2008). The leaky pipeline: Factors associated with early decline in interest in premedical studies among underrepresented minority undergraduate students. *Academic Medicine*, 83(5), 503–511. <https://pubmed.ncbi.nlm.nih.gov/18448909>
- Bissonnette, P. (2012). *A quantitative analysis of factors affecting retention of female aviators in U.S. Naval Aviation* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/17324>
- Buckles, K. (2019). Fixing the leaky pipeline: Strategies for making economics work for women at every stage. *Journal of Economic Perspective*, 33(1), 43–60. <https://www.aeaweb.org/articles?id=10.1257/jep.33.1.43>
- Carter, A. (2016). *Department of Defense press briefing by Secretary Carter on Force of the Future reforms in the Pentagon Press Briefing Room*. Washington, DC: Department of Defense. <https://dod.defense.gov/News/Transcripts/Transcript-View/Article/645952/department-of-defense-press-briefing-by-secretary-carter-on-force-of-the-future/>
- Ceralde, C., & Czepiel, C. (2014). *Maximizing female retention in the Navy* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/41356>
- Charlton, J., & Fortune, S. (2019). Women retention: The use of egg freezing and in vitro fertilization (EF/IVF) as a retention tool for competitive female Naval Officers [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/62237>
- Department of Defense. (2011). *Diversity and inclusion strategic plan 2012–2017*. [https://diversity.defense.gov/Portals/51/Documents/DOD\\_Diversity\\_Strategic\\_Plan\\_%20final\\_as%20of%2019%20Apr%2012%5B1%5D.pdf](https://diversity.defense.gov/Portals/51/Documents/DOD_Diversity_Strategic_Plan_%20final_as%20of%2019%20Apr%2012%5B1%5D.pdf)
- Department of Defense. (2021a). *2020 demographics: Profile of the military community*. <https://www.militaryonesource.mil/data-research-and-statistics/military-community-demographics/2020-demographics-profile/>

- Department of Defense. (2021b). Board on diversity and inclusion report: Recommendations to improve racial and ethnic diversity and inclusion in the U.S. Military. <https://media.defense.gov/2020/Dec/18/2002554852/-1/-1/0/DOD-DIVERSITY-AND-INCLUSION-FINAL-BOARD-REPORT.PDF>
- Department of the Navy. (2018a). *Acquisition workforce FY 19–24 strategic plan: Building the workforce to compete and win*. [https://www.secnav.navy.mil/rda/workforce/Documents/StrategyPolicy/AWF\\_Strategic\\_Plan\\_-24\\_April\\_2019.pdf](https://www.secnav.navy.mil/rda/workforce/Documents/StrategyPolicy/AWF_Strategic_Plan_-24_April_2019.pdf)
- Department of the Navy. (2018b). NAVADMIN 151/18: Military Parental Leave Program. <https://www.mynavyhr.navy.mil/Portals/55/Messages/NAVADMIN/NAV2018/NAV18151.txt?ver=pW1KjpfhClysQoqHXOR3Gw%3D%3D>
- Department of the Navy. (2020). *Task Force One Navy: Our Navy team—Navigating a course to true north*. <https://media.defense.gov/2021/Jan/26/2002570959/-1/1/1/TASK%20FORCE%20ONE%20NAVY%20FINAL%20REPORT.PDF>
- Department of the Navy. (2021). *Women in naval history timeline*. <https://www.history.navy.mil/news-and-events/multimedia-gallery/infographics/history/women-in-naval-history-timeline.html>
- Department of the Navy. (2022a). *The Secretary of the Navy increases secondary caregiver leave to 21 days*. <https://www.navy.mil/Press-Office/News-Stories/Article/2934657/the-secretary-of-the-navy-increases-secondary-caregiver-leave-to-21-days/>
- Department of the Navy (2022b). *FY-23 active-duty line community briefs*. [https://www.mynavyhr.navy.mil/Portals/55/Boards/Active%20Duty%20Officer/documents/FY23\\_Promotion\\_Board\\_Materials/FY-23\\_Active\\_Line\\_Community\\_Briefs.pdf?ver=Zq8qjo1nzW32KdyT7YLVdg%3d%3d](https://www.mynavyhr.navy.mil/Portals/55/Boards/Active%20Duty%20Officer/documents/FY23_Promotion_Board_Materials/FY-23_Active_Line_Community_Briefs.pdf?ver=Zq8qjo1nzW32KdyT7YLVdg%3d%3d)
- Department of the Navy (2022c). *FY-23 active-duty staff community briefs*. [https://www.mynavyhr.navy.mil/Portals/55/Boards/Active%20Duty%20Officer/documents/FY23\\_Promotion\\_Board\\_Materials/FY-23\\_Active\\_Staff\\_Community\\_Briefs.pdf?ver=A0lF1Au5EwPOzEy2lFZx7g%3d%3d](https://www.mynavyhr.navy.mil/Portals/55/Boards/Active%20Duty%20Officer/documents/FY23_Promotion_Board_Materials/FY-23_Active_Staff_Community_Briefs.pdf?ver=A0lF1Au5EwPOzEy2lFZx7g%3d%3d)
- Ely, R., & Padavic, I. (2020). What’s really holding women back? *Harvard Business Review*, 98(2), 58–68. <https://hbr.org/2020/03/whats-really-holding-women-back>

- Etzkowitz, H., & Ranga, M. (2011). Gender dynamics in science and technology: From the “leaky pipeline” to the “vanish box.” *Brussels Economic Review*, 54(2/3), 131–147.  
[https://www.researchgate.net/publication/227379745\\_Gender\\_Dynamics\\_in\\_Science\\_and\\_Technology\\_From\\_the\\_Leaky\\_Pipeline\\_to\\_the\\_Vanish\\_Box](https://www.researchgate.net/publication/227379745_Gender_Dynamics_in_Science_and_Technology_From_the_Leaky_Pipeline_to_the_Vanish_Box)
- Farrell, B. S. (2020). Department of Defense: Female active-duty personnel guidance and plans needed for recruitment and retention efforts (GAO-20-61). Government Accountability Office.
- Goldin, C. (2021). *Career and family*. Princeton University Press.
- Goldin, C., & Katz, L. F. (2016). A most egalitarian profession: Pharmacy and the evolution of a family-friendly occupation. *Journal of Labor Economics*, 34(3), 705–746.  
[https://scholar.harvard.edu/files/lkatz/files/jole\\_gk\\_pharm\\_published.pdf](https://scholar.harvard.edu/files/lkatz/files/jole_gk_pharm_published.pdf)
- Hernandez Rodriguez, J., & Serna, C. (2020). *The effects of diversity among peers and role models on U.S. Navy retention* [Master’s thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/64941>
- Huang, J., Krivkovich, A., Starikova, I., Yee, L., & Zanoschi, D. (2019). Women in the workplace, 2019.  
<https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/Gender%20Equality/Women%20in%20the%20Workplace%202019/Women-in-the-workplace-2019.ashx>
- Joint Base San Antonio (2022, February 15). Secretary of the Navy increases secondary caregiver leave to 21 days. Retrieved March 25, 2022, from  
<https://www.jbsa.mil/News/News/Article/2935061/secretary-of-the-navy-increases-secondary-caregiver-leave-to-21-days/>
- Kime, P. (2021). *Troops would get 12 weeks of paid parental leave as part of defense bill deal*. <https://www.military.com/daily-news/2021/12/07/troops-would-get-12-weeks-of-paid-parental-leave-part-of-defense-bill-deal.html>
- Kocis, N. C., & Sonntag, K. J. (2018). *Study of dual-service officer retention in the U.S. Navy and U.S. Marine Corps* [Master’s thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/61206>
- Krivkovich, A., Robinson, K., Starikova, I., Valentino, R., & Yee, L. (2017). Women in the workplace, 2017.  
<https://www.mckinsey.com/~media/McKinsey/Industries/Technology%20Media%20and%20Telecommunications/High%20Tech/Our%20Insights/Women%20in%20the%20Workplace%202017/Women-in-the-Workplace-2017-v2.ashx>

- Mayo Clinic. (2020). Pregnancy after 35: Healthy moms, healthy babies. Mayo Clinic. <https://www.mayoclinic.org/healthy-lifestyle/getting-pregnant/in-depth/pregnancy/art-20045756>
- McKinsey & Co. (2015). Women in the workplace, 2015. [https://wiw-report.s3.amazonaws.com/Women\\_in\\_the\\_Workplace\\_2015.pdf](https://wiw-report.s3.amazonaws.com/Women_in_the_Workplace_2015.pdf)
- Menichini, A., Cunha, J., & Moynihan, G. (2017). The retention impacts of the forthcoming USA military retirement reform. *Journal of Defense Management*, 7(1), 1–4. <http://dx.doi.org/10.4172/2167-0374.1000161>
- Mundell, D. (2016). *Study of female junior officer retention and promotion in the U.S. Navy* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/48572>
- MyNavy HR. (2022, February 14). NAVADMIN 037/22. <https://www.mynavyhr.navy.mil/References/Messages/NAVADMIN-2022/>
- Office of the Under Secretary of Defense for Personnel and Readiness. (2020). *DOD diversity and inclusion Management program* (DODI 1020.05). Department of Defense. <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/102005p.pdf?ver=2020-09-09-112958-573>
- Patten, E., & Parker, K. (2011). *Women in the U.S. Military: Growing share, distinctive profile*. Pew Research Center. <https://www.pewresearch.org/social-trends/2011/12/22/women-in-the-u-s-military-growing-share-distinctive-profile/>
- Sherman, T. W. (2021). Military service uniforms: DOD could better identify and address out-of-pocket cost inequities (GAO-21-120). Government Accountability Office.
- Taylor, C. (2005). The impact of demographics and military factors affecting retention rates affecting female and male officers in the surface warfare and restricted line communities [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/1903>
- Thomas, R., Cooper, M., Konar, E., Rooney, M., Noble-Tolla, M., Bohrer, A., Yee, L., Krivkovich, A., Starikova, I., Robinson, K., Nadeau, M. C., & Robinson, N. (2018). *Women in the workplace, 2018*. <https://womenintheworkplace.com/2018#!>
- Thomas, R., Cooper, M., Urban, K., Cardazone, G., Bohrer, A., Long, M., Yee, L., Krivkovich, A., Huang, J., Prince, S., Kumar, A., & Coury, S. (2020). *Women in the workplace, 2020*. <https://leanin.org/women-in-the-workplace-report-2020>

- Thomas, R., Cooper, M., Cardazone, G., Urban, K., Bohrer, A., Mahajan, S., Yee, L., Krivkovich, A., Huang, J., Rambachan, I., Burns, T., & Trkulja, T. (2021). *Women in the workplace, 2021*. [https://wiw-report.s3.amazonaws.com/Women\\_in\\_the\\_Workplace\\_2021.pdf](https://wiw-report.s3.amazonaws.com/Women_in_the_Workplace_2021.pdf)
- U.S. Census Bureau (2020). *Quick facts*. <https://www.census.gov/quickfacts/fact/Table/US#>
- Vance, A. (2017). *Exploring how age, accession source, childbearing and the SWO career path influence female SWO retention* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/52946>
- Wagner, S. (2017). *The performance and retention of female Navy officers with a military spouse* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/52950>
- Yee, L., Krivkovich, A., Kutcher, E., Epstein, B., Thomas, R., Finch, A., Cooper, M., & Konar, E. (2016). *Women in the workplace, 2016*. [https://wiw-report.s3.amazonaws.com/Women\\_in\\_the\\_Workplace\\_2016.pdf](https://wiw-report.s3.amazonaws.com/Women_in_the_Workplace_2016.pdf)

THIS PAGE INTENTIONALLY LEFT BLANK

## INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center  
Ft. Belvoir, Virginia
2. Dudley Knox Library  
Naval Postgraduate School  
Monterey, California