Report of

The Fourteenth Quadrennial Review of Military Compensation

Volume I. Main Report • January 2025

Preparation of this report and its underlying studies cost the Department of Defense a total of approximately $5,070,000 in Fiscal Years 2022—2024.

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January 2025

THE WHITE HOUSE

WASHINGTON

January 31, 2023

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: Fourteenth Quadrennial Review of Military Compensation

Pursuant to the requirements of section 1008(b) of title 37, United States Code, I direct a complete review of the principles and concepts of the compensation system for members of the uniformed services. This review should commence in January 2023 and be completed within 2 years. You will be my Executive Agent for this review.

Our great Nation has the finest fighting force in the world and it remains our sacred obligation to take care of our men and women in uniform. We owe our service members our support and gratitude, and we recognize the sacrifices they make every day in support of our Nation. Further, our service members deserve a 21st century military compensation system that recognizes and rewards their contributions, reflects the values of our Nation, and incentivizes the next generation of men and women to serve.

Accordingly, I direct the 14th Quadrennial Review of Military Compensation to focus on the following:

(1) Review military compensation and benefits, including special pay, to ensure the Department of Defense is appropriately compensating service members while remaining responsible stewards of the funds provided by American taxpayers;

(2) Review the military basic pay table to ensure it is structured to further strengthen service members' economic security and enhance the Department of Defense's ability to recruit and retain the Nation's finest;

(3) Evaluate military compensation and its current benchmark to determine how a shift toward dual-income households and the unique factors affecting military household incomes might require structural changes, to include the development of a

new benchmark for military compensation. This evaluation should include, but is not limited to, consideration of factors such as the challenge of military spouse unemployment, frequent military moves, periods of geographic separation between service members and their spouses (including dual military couples), and childcare access and cost;

(4) Review the statutory requirements and current methodologies used to calculate housing, subsistence, and cost-of-living allowances, including the Basic Needs Allowance, to ensure service members are food secure and able to procure suitable housing; and

(5) Review military compensation relative to anticipated future requirements in technology and other fields that are critical to the Department of Defense.

As the Executive Agent, you will ensure representatives of other executive departments and agencies participate in this review, as appropriate. I look forward to receiving the results of your review.

Preface

Every four years, the President directs "a complete review of the principles and concepts of the compensation system for members of the uniformed services."[1] When this review is completed, the President must submit a detailed report to Congress summarizing the results of the review along with any recommendations the President may have for changes in the statutory salary system and other elements of the compensation structure for members of the uniformed services.[2]

Such a review is essential because military compensation accounts for more than one-quarter of the U.S. Department of Defense's (DoD's) $842 billion annual budget (fiscal year 2024 Base Enacted). This investment is substantial, and the Department must ensure that these resources are efficiently and effectively spent in order to enable DoD to recruit and retain a quality force of the nation's finest in light of changing economic and security environments.

In January 2023, President Joseph R. Biden instructed the Secretary of Defense to serve as his Executive Agent in conducting the Fourteenth Quadrennial Review of Military Compensation (14th QRMC). In his charge to the Secretary, the President stated:

> Our great Nation has the finest fighting force in the world and it remains our sacred obligation to take care of our men and women in uniform. We owe our service members our support and gratitude, and we recognize the sacrifices they make every day in support of our Nation. Further, our service members deserve a 21st century military compensation system that recognizes and rewards their contributions, reflects the values of our Nation, and incentivizes the next generation of men and women to serve.

In furtherance of this objective, the President directed the 14th QRMC to review and assess five topics: the current military compensation benchmark; the structure of the basic pay table; the

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1 U.S. Code, Title 37, Section 1008(b), Presidential Recommendations Concerning Adjustments and Changes in Pay and Allowances.

2 U.S. Code, Title 37, Section 1008(b). President George H. W. Bush authorized the Secretary of Defense to submit this report to Congress. See George H. W. Bush, "Delegation of Reporting Function," memorandum for the Secretary of Defense, July 9, 1989, Federal Register, Vol. 54, No 115, June 15, 1989, p. 25561.

requirements and methodologies used to calculate the housing, subsistence, and cost-of-living allowances, including the Basic Needs Allowance; compensation for critical skills; and the implications for compensation of the growing number of dual-income military households.

At the request of the Commander, United States Special Operations Command, and the Chairman, Joint Chiefs of Staff, the Secretary of Defense added a sixth study—a review of entitlements for deployed members.

As the QRMC conducted its review, transparency emerged as a significant theme. Typically, the QRMC's work is discussed with and reviewed by a Senior Advisory Group consisting of senior civilians and military members from the personnel community. The Senior Enlisted Advisor to the Chairman is also a member of this group. However, because of widespread interest in the topics included in its review, the progress of the QRMC's work was broadly shared over the two-year period both within and outside DoD.

The QRMC also provided regular updates to the Deputy's Workforce Council (DWC), cochaired by the Honorable Kathleen H. Hicks, Deputy Secretary of Defense and Admiral Christoper W. Grady, Vice Chairman of the Joint Chiefs of Staff. The Secretaries of the Military Departments, Military Service Chiefs, and the Office of the Secretary of Defense (OSD) Principal Staff Assistants held standing invitations to the DWC and were authorized to delegate invitations to their deputies when appropriate. The DWC was supported by a Workforce Management Group, chaired by the Honorable Ashish S. Vazirani, performing the duties of the Under Secretary of Defense for Personnel and Readiness, with appropriate Senior Executive Service and military three-star representation from other Components. Additionally, the Senior Enlisted Advisors both participated in these higher-level groups and were briefed on the QRMC's progress in one-on-one meetings.

Transparency also emerged as a theme in the QRMC's findings and recommendations. The three core findings were drawn from multiple QRMC studies rather than individual studies. Studies of the military compensation benchmark, the basic pay table, the calculations used in select allowances, and compensation for critical specialties led to the first finding that DoD's core compensation package is strong, and the recommendations from this finding—adjusting the benchmark and improved communications with members—largely dealt with transparency.

The second core finding, that reducing pay volatility and variability and improving data quality will benefit Service members and the Department, was drawn from studies of the allowances, entitlements for deployed members, and compensation for critical specialties. Recommendations based on this finding also dealt with improving transparency in the way allowances are calculated and communicated to Service members.

The third core finding, that targeted noncash compensation may offer better returns on investment for Service members and military families, was drawn from studies of allowances and dual-income households, with recommendations encouraging the Department to further explore support for military spouses and institute a quality-of-life review.

In addition to these transparency-themed findings and recommendations, this QRMC was the first to examine the impact of military service on dual-income households. It found that retention decisions are joint decisions and that the unique factors of military service affect both military household incomes and retention decisions, and its recommendations demonstrate a commitment to military spouses, including providing them with greater opportunities to build wealth.

The rigorous analysis of complex compensation issues conducted by the 14th QRMC should be of lasting value in helping our members and their families understand that the Department recognizes their contributions and sacrifices.

Acknowledgments

I extend my thanks to all those who contributed their time and talents to the Fourteenth Quadrennial Review of Military Compensation (14th QRMC).

I am honored to have been asked to serve as the director of a second QRMC. That I was around to accept this honor is largely due to the kindness of Mr. Lernes J. ("Bear") Hebert, Deputy Assistant Secretary of Defense for Military Personnel Policy, and Ms. Patricia Mulcahy, Deputy Chief of Space Operations for Human Capital, U.S. Space Force. After I completed the 13th QRMC, Space Force needed the assistance of a senior executive from the Office of the Secretary of Defense (Personnel and Readiness). Mr. Hebert offered me for the position. Ms. Mulcahy, with whom I had worked on the Blended Retirement project while I was employed at the Federal Retirement Thrift Investment Board, accepted his offer and made me the senior member of the team tasked with designing a new personnel system for the Space Force.

After several years of hard work, what emerged was the Space Force Personnel Management Act (SFPMA), a legislative proposal to combine the space professionals from the Regular and Reserve Components into a single force that offered opportunities to serve in full- and part-time positions, which Congress enacted into law in the National Defense Authorization Act for Fiscal Year 2024. In addition to Mr. Hebert and Ms. Mulcahy, I'd like to thank the following officers with whom I worked most closely on this project: Maj Gen Anne Gunter (who had developed the concept of SFPMA long before I came to Space Force), Col Diane Burch, Col Kandi Steinbrink, Lt Col Lisa Breal, Lt Col Nicole David, and Maj Maddie Pedretti. I also thank Ms. Christy Nolta, the Deputy Assistant Secretary of the Air Force for Reserve Affairs and Airman Readiness for her guidance and encouragement. All are extremely dedicated, smart, and professional. I can't thank them enough. In addition, I'd like to thank Ms. Kate Kelley (who replaced Ms. Mulcahy after her retirement) for letting me continue as a member of the S-1 team after I returned to OSD as she led the efforts to implement SFPMA.

Turning to the 14th QRMC, I'd like to thank Ms. Stephanie Miller for offering me the director position and Ms. Jeri Busch and Mr. Don Svendsen for recommending me for it. I also thank three members of Ms. Miller's staff for their support and significant contributions to the QRMC: CDR Andrew Lawrence, CDR Hank Donaghy, and Lt Col Kim Lichte.

This QRMC was under a deadline. In its charter, the President stated that it should be completed in about two years. QRMC's usually take between three and three and one-half years to complete, and there is no certainty when, in a fiscal year, the charter would be signed. Consequently, the QRMC's budget was not programmed to award all the contracts for its studies in year one. Here, Mr. Thomas Hessel, Director, Resource & Program Integration, and his team did a truly outstanding job. They not only found the additional funding I needed, but also awarded all the study contracts in year one. Without their efforts this QRMC could not have been completed under the tight schedule directed by the President.

Mr. Tony Licari, though serving in a full-time position, volunteered to also support the QRMC as its deputy director. He led the working group, provided great insight during the interim progress reviews, and wrote the report to Congress on the Basic Allowance for Housing study that had been tasked to the QRMC. Thank you, Mr. Licari, for your invaluable assistance.

With the guidance and leadership of Ms. Miller, the QRMC built a Senior Advisory Group, which she cochaired with Mr. James Fasano (later with Mr. Dan Lee) and which consisted of senior members from the Service personnel communities and representatives from the Office of the General Counsel and Office of Cost Assessment and Program Evaluation in OSD, who, in turn, appointed members to a broader working group. We relied on working group members to assist in developing the requirements for our research efforts, to review the studies, to formulate tentative recommendations, and to keep the Senior Advisory Group informed. They were the backbone of the QRMC. Senior Advisory Group members showed real interest in our work and graciously took time from their hectic schedules to meet with us to discuss our work. Their insight and experience allowed us to develop recommendations with which all Senior Advisory Group members concurred.

The Senior Enlisted Advisor to the Chairman (SEAC), Sgt. Maj. Troy E. Black, was an active participant in the Senior Advisory Group and several other groups that the QRMC met with to provide progress reviews. His unique perspective ensured that the QRMC's findings and recommendations reflected the needs of the total force, and his advocacy led to the QRMC's recommendation to initiate a quality-of-life review. To SEAC Black and the other Senior Enlisted Advisors, I thank you for your support of the QRMC and for making yourselves available to discuss the QRMC in one-on-one meetings. Your contributions made this QRMC better.

In addition to her leadership in setting up the structure of the QRMC, Ms. Miller formed a team consisting of herself, Ms. Jeri Busch, OSD Director of Compensation, and Mr. Don Svendsen, OSD Deputy Director of Compensation, with whom my deputy and I regularly met for status meetings and guidance. I am grateful to them for their ongoing support.

Since we lacked research staff, we relied on federally funded research and development centers (FFRDCs)—RAND, CNA, and the Institute for Defense Analysis (IDA)—to conduct our research. I thank all who did so. Although too numerous to mention here, their names can be found in the list of Participants toward the end of this report. Each QRMC study had elements that affected

the others, and all had deliverable schedules that were faster than usual. They met these tight schedules and worked collaboratively, not only with the QRMC, but also with other FFRDCs. It was a true team effort.

Ms. Barbara Bicksler was the author of Volume I of the QRMC report, which consolidates six studies totaling nearly a thousand pages. She has worked with previous QRMCs, the Defense Science Board, and the Defense Advisory Committee on Military Compensation and is one of the few people capable of expertly completing such a daunting task in a short time frame. Thank you for your truly outstanding work!

Thank you all. It was my honor and pleasure to serve with you.

Thomas K. Emswiler
Director, 14th QRMC

Executive Summary

Whether members of the uniformed services are receiving adequate compensation is the central issue for each Quadrennial Review of Military Compensation (QRMC). For the 14th QRMC, ongoing challenges facing the U.S. Department of Defense (DoD) that drew the attention of senior leaders and Congress lent a sense of urgency to its deliberations—primarily because military pay was perceived as a potential solution. The 14th QRMC began its work during a period of intense recruiting challenges as multiple Services missed recruiting goals. Concerns in DoD and Congress about the levels of reported food insecurity among military personnel, especially in the junior ranks, raised questions about the adequacy of pay, despite the establishment of the Basic Needs Allowance (BNA), which aimed to improve economic security for lower paid personnel. Consequently, for more than a year, Congress has been working toward a substantial pay raise for junior enlisted troops—which culminated in a 14.5 percent increase in basic pay for grades E-1 to E-4 and a 4.5 percent across-the-board annual pay increase for the rest of the military in the National Defense Authorization Act for Fiscal Year 2025 that was passed by the Congress and signed by the President as the last pages of this report were being written.

The charter provided to the 14th QRMC reflected these concerns in many ways, concentrating on fundamentals of the military compensation system. In its charter, the President directed the 14th QRMC to do the following:

- Evaluate the Regular Military Compensation (RMC) 70th-percentile benchmark and make recommendations on whether to keep the benchmark or change it.
- Review the basic pay table to ensure it allows the Department to recruit and retain the nation's finest.
- Examine how a shift toward dual-income households and unique factors of military life such as frequent moves, separation, and childcare access might require structural changes for military compensation.

- Review the current methods of calculating the Basic Allowance for Housing (BAH), the Basic Allowance for Subsistence (BAS), the Cost-of-Living Allowance (COLA), and BNA to ensure members are food secure and can obtain suitable housing.
- Review compensation as it pertains to members in critical specialties to ensure it is adequate to meet future requirements.

A sixth topic was added by the Secretary of Defense, at the request of the Commander, U.S. Special Operations Command, and the Chairman, Joint Chiefs of Staff, to

- determine whether entitlements for deployed members be risk based or aligned with deployment in support of national defense strategy.

Requests by Congress in the National Defense Authorization Act for Fiscal Year 2023 directed the Department to conduct studies on the value of basic pay for members of the Armed Forces and the accuracy of BAH. Research in support of these requests was folded into the work of the 14th QRMC.

The 14th QRMC based its recommendations on the body of research conducted for the Department as a whole because of the interconnected nature of the various topics related to pay and allowances. Many of these topics focus on structural aspects of the military pay system—the 70th percentile benchmark, the structure of the basic pay table, and the methodologies used in calculating key allowances. Even the examination of compensation for critical specialties considered adding a wage differential to the basic pay table. This holistic approach made possible findings aimed at improving and updating the way the Department and its members think about compensation.

Core Finding: Our military compensation package is strongly competitive with the civilian labor market, but the QRMC identified small improvements that could be made.

Compensation benchmark. Pay must be set high enough to attract quality recruits away from jobs they may be qualified for—given their education, skills, and ability—and similarly retain the quality and quantity of personnel that DoD needs to achieve its military goals. The adequacy of miliary pay is measured by RMC, which was found to be strong.[1] In comparing RMC with civilian pay overall, the QRMC found that RMC is well above the 70th percentile for both enlisted members and officers. For enlisted personnel, RMC is at the 83rd percentile for those with up to 20 years of service and the 82nd percentile for those with up to 30 years of service. RMC for officers is at the 76th percentile. These findings are consistent with those of the Thirteenth Quadrennial Review of Military Compensation.

Basic pay. The QRMC evaluated numerous proposals to increase basic pay for junior enlisted personnel, midcareer and senior enlisted, and officers. In general, these analyses concluded that the costs of pay raises outweighed the potential benefits, particularly considering the inefficiency of a junior enlisted pay raise relative to other policies that can achieve those potential benefits.

1 RMC consists of basic pay, BAH, BAS, and the tax advantage associated with receiving these allowances tax-free.

In most cases, for each group of proposals, there was no "best" proposal because best would depend on the problem that DoD is trying to solve. Although many proposals increased retention and the overall performance of the force, given historically strong retention, it was unclear that there is an urgent problem that needed to be solved by increasing basic pay. However, the QRMC did find that increasing the basic pay of lateral entrants, by expanding the definition of constructive credit to include years of service in addition to grade, would better facilitate lateral entry under the current time-in-service pay table. Basic pay is a blunt and costly instrument and should be used only when there are system-wide problems, such as widespread retention and recruiting shortfalls, which cannot be solved more efficiently with other policy instruments.

Allowances. Other components of RMC also compare favorably to civilian metrics. For most Service members with dependents, BAH is higher than median spending on rent and utilities by comparable civilians—ranging between 17 percent to 60 percent higher than average civilian housing expenditures. And, over time, BAS has risen above the cost of the U.S. Department of Agriculture's liberal food plan (a healthy diet for the highest income quartile) for males 19–50 years old.

Pay for critical specialties. The QRMC's examination of pay for members in critical specialties considered whether the pay table should be modified to provide differentials in military pay for critical specialties. Special and incentive pays are highly targeted in a small share of occupations. Compensation is uniformly higher in critical skills and research shows that special and incentive pays are effective as accession and retention incentives and that they are cost-effective. Subject-matter experts generally favor the current special and incentive pay approach for setting wage differentials. While some special and incentive pays might be consolidated into a wage differential, pays that depend on a service obligation should not be consolidated into a wage differential.

Dual-income military households. Research into dual-income military households showed that although challenges associated with military life, such as deployments and permanent change of station moves, reduce the ability of military spouses to contribute to household income, military compensation and benefits are high enough that most military households are financially better off staying in the military.

Considering these collective findings, the QRMC found some adjustments that would be appropriate to maintain responsiveness to recruiting and retention dynamics.

- **Recommendation #1. Update the RMC benchmark to the 75th percentile** to maintain competitiveness against future labor market challenges.
- **Recommendation #2. Improve communication with Service members** through a campaign to inform Service members about the key components of total compensation and how it compares with civilian options.
- **Recommendation #3. Expand constructive credit for lateral entrants** to allow entry at both higher grade and higher years of service, which, in turn, could make lateral entry more attractive.

Core Finding: Reducing pay volatility and variability and improving data quality will benefit Service members and the Department.

Generally, the QRMC found entitlements for deployed members and those in critical subspecialties were robust and allow the Department and Military Services to appropriately respond to operational realities and civilian market dynamics. Where challenges exist, they appear to be largely a consequence of pay volatility and variability in allowances intended to respond to geographic conditions both in the continental United States (CONUS) and overseas.

BAH. Although BAH is high relative to civilian housing expenditures, it may be lower than Service members' expectations. This issue is related to the statistical problem of accurately setting the rate for each military housing area (MHA), which can lead to BAH being far more generous for some MHAs than others and to significant differences in BAH changes across pay grades. Recipients may find that BAH relative to local civilian spending is lower in their current MHA than in their previous one, or they may learn that it is lower than the MHA and pay grade combination of someone else they know. As a result of such perceived inequities, Service members may conclude that their BAH is insufficient.

In addition, the current six housing profiles lead to frequent "inversions" that must be corrected so that higher pay grades do not receive less BAH than lower pay grades in the same MHA. These inversions occur when housing options in a local market do not align with Service member preferences and also because of nationwide housing trends such that three-bedroom townhouses are more expensive on average than three-bedroom single-family dwellings. Consolidating the housing profiles would align with how the Department of Housing and Urban Development reports median rents and with the housing types provided in the market—thereby alleviating the mismatch between BAH profiles and what is available in the housing market.

COLAs. Because members have access to savings on base that help offset differences in the local cost of living, both the CONUS COLA and overseas COLA attempt to account for how much members use these savings through a Living Pattern Survey. This survey, which is conducted every three years, measures where Service members shop and the proportion of shopping that occurs on military installations, at local community outlets, and online. Thus, two areas in close geographic proximity can have very different COLAs because of differences in shopping patterns, which raises questions about the accuracy of the Living Pattern Survey in representing Service member purchasing patterns.

There also appears to be discrepancy in some areas between commissary use as reported in the Living Pattern Survey and actual commissary and exchange sales data. Data from the Defense Commissary Agency could offer more frequent and directly verifiable information about how much shopping members do on base. Furthermore, the overseas COLA fluctuates more frequently and in some cases by a considerable amount, for which Service members should account in household budgeting. But the process is not well understood by local commands or Service members.

Deployed entitlements. Historically, Service members receive Combat Zone Tax Exclusion (CZTE) and Imminent Danger Pay (IDP) benefits relatively quickly after a region becomes dangerous because of combat or other hostile activities that threaten physical harm. However, once designated, benefits persist in countries or regions for a very long time—sometimes decades—with little appetite to remove them. The long persistence of the CZTE and IDP has created inconsistency in the levels of risk faced by Service members currently serving in CZTE- and IDP-eligible regions. Service members in some regions with lower levels of risk remain eligible for these combat entitlements; Service members in other, riskier locations outside of designated CZTE or IDP regions are not eligible for the same benefits. If the purpose of deployment entitlements is to compensate for risk, the current combat entitlements need to be realigned with risk and that relationship needs to be maintained into the future.

To reduce volatility and improve data, the QRMC recommends process improvements in three areas—BAH, the CONUS COLA and overseas COLA, and deployed entitlements.

- **Recommendation #4. Update BAH methodology to reduce volatility and improve accuracy** by (a) expanded application of the existing BAH regression smoothing model, (b) using available census data for MHAs where there may be data anomalies, and (c) switch the housing profile method to a more flexible "number of bedrooms" approach.
- **Recommendation #5**. **Improve CONUS COLA and overseas COLA methodology** by conducting the Living Panel Survey annually and by incorporating additional data to enhance the accuracy of COLA calculations.
- **Recommendation #6. Establish a regular review of deployed entitlements** every five years to ensure that members who are facing similar risk levels receive similar benefits. Use quantitative and qualitative measures outlined in DoD Instruction 1340.09 in designating eligible areas.[2]

Core Finding: Targeted noncash compensation may offer better returns on investment.

For at least two decades, the majority of U.S. households have had two income earners, and there are many characteristics that distinguish them from single-income households. For the first time, a QRMC has evaluated the RMC benchmark against the realities of dual-income military households. In general, the QRMC found that military-unique challenges reduce spouses' current and future earnings potential, but that RMC is set high enough to offset the loss.

In dual-income military households, retention decisions are made jointly. While the pay and benefits that the military provides are a key factor in these decisions, military retention decisions depend on household finances, which for dual-income families also include spouses' careers and earnings potential. A majority of military spouses are in the labor market, but challenges

[2] Department of Defense Instruction (DoDI) 1340.09, *Hazardous Pay Program*, Office of the Under Secretary of Defense for Personnel and Readiness, January 26, 2018, Change 1 effective February 2, 2024.

associated with military life reduce their ability to contribute to household income. The two primary challenges affecting the careers of military spouses are permanent change of station moves and the affordability and availability of childcare.

Nonmonetary policies that support military spouses' careers, if effective, could increase spouses' earning potential, leading to higher household discretionary incomes for Service members' families while in service, as well as higher retention. The QRMC found that a policy that ensured all military families have free access to childcare would increase retention by 5 percent to 14 percent for enlisted Service members in the group of occupational communities studied. Similarly, decreasing the frequency of permanent change of station moves would increase retention by 4 percent to 8 percent through the increase in spouse income alone. This suggests that policies that help support spouses' careers have potential to improve military retention and quality of life without the need for broad increases in military compensation.

- **Recommendation #7. Expand targeted noncash compensation for military spouses** to include pursuing legislation for immediate vesting of retirement benefits for military spouses and continued support for childcare and employment initiatives.
- **Recommendation #8. Conduct a periodic quality-of-life review** to inform the Department of trends in the quality of noncash compensation and benefits to assist in targeting investments effectively. This review would need to be scoped appropriately but could include housing, dining and other installation facilities, health care access, morale, welfare and recreation facilities and programs, childcare, and spouse employment.

Taken as a whole, the findings and recommendations of the 14th QRMC should help Service members and their families understand that the Department recognizes their contributions and sacrifices and is making pay policy decisions to compensate them appropriately.

Contents

Figures and Tables

FIGURES

TABLES

PART

Introduction

CHAPTER 1

Overview

Long-standing research demonstrates that when the U.S. Department of Defense (DoD) takes care of the basic needs of its Service members and families and ensures fundamental quality-of-life factors, its members can bring greater focus to their mission to defend the nation. These basic needs include competitive compensation to incentivize the next generation to serve and to recognize and retain military skills.

The Quadrennial Review of Military Compensation (QRMC) complements the Department's routine review of pay and compensation programs with a focus on more comprehensive issues that can change military compensation principles or methodologies. On January 31, 2023, the President established the Fourteenth Quadrennial Review of Military Compensation (14th QMRC) to review military compensation and ensure appropriate compensation of those who serve. In its charter, the President directed the 14th QRMC to examine five lines of effort; an additional topic was added by the Secretary of Defense at the request of the Commander, U.S. Special Operations Command and the Chairman, Joint Chiefs of Staff. These six topics are as follows:

1. Evaluate the Regular Military Compensation (RMC) 70th percentile benchmark and make recommendations on whether to keep the benchmark or change it.
2. Review the basic pay table to ensure it allows the Department to recruit and retain the nation's finest.
3. Examine how a shift toward dual-income households and unique factors of military life such as frequent moves, separation, and childcare access might require structural changes for military compensation.
4. Review the current methods of calculating the Basic Allowance for Housing (BAH), the Basic Allowance for Subsistence (BAS), the Cost-of-Living Allowance (COLA), and the Basic Needs Allowance (BNA) to ensure members are food secure and can obtain suitable housing.

5. Review compensation as it pertains to members in critical specialties to ensure it is adequate to meet future requirements.
6. Determine whether entitlements for deployed members should be risk based or aligned with deployment in support of national defense strategy.

Approximately six months after the President signed the charter establishing the 14th QRMC, House Armed Services Committee Chairman Mike Rogers and Ranking Member Adam Smith announced the creation of the Quality of Life Panel.[1] The panel focused on ensuring appropriate pay and compensation; access to affordable childcare; adequate and safe housing; access to quality medical care; and support programs for military spouses.[2] In part, these topics were chosen because of recruiting challenges the Department has faced in recent years and reports of food insecurity among Service members and their families. These topics, in many ways, parallel those studied by the 14th QRMC.

In addition, in section 643 of H.R. 7900 of the National Defense Authorization Act (NDAA) for Fiscal Year 2023, Congress directed the Secretary of Defense to "conduct research and analysis on the value of basic pay for members of the Armed Forces." Section 644 of the same bill directed the Secretary of Defense to prepare a report on the accuracy of BAH and specified aspects of how BAH is calculated that should be included in the evaluation. Research in support of these Congressional requests was folded into the work of the 14th QRMC.[3]

Given this significant level of Congressional interest, Ms. Stephanie Miller, Deputy Assistant Secretary of Defense for Military Personnel Policy, Mr. Thomas Emswiler, Director, 14th QRMC, and Ms. Jerilyn Busch, Director, Compensation Policy, DoD, were invited to brief the members of the Quality of Life Panel and did so on October 18, 2023; they also briefed professional staff members of both the House Armed Services Committee and Senate Armed Services Committee on the QRMC's progress on numerous occasions.

This collaboration was particularly helpful as both the Department and the Quality of Life Panel had similar objectives. The President stated in the QRMC's charter:

> We owe our service members our support and gratitude, and we recognize the sacrifices they make every day in support of our Nation. Further, our service members deserve a 21st century military compensation system that recognizes and rewards their contributions, reflects the values of our Nation, and incentivizes the next generation of men and women to serve.

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1 House Armed Services Committee, "House Armed Services Committee Announces Creation of a Quality of Life Panel," press release, June 14, 2023.

2 House Armed Services Committee, *Quality of Life Panel Report*, April 8, 2024.

3 Appendix A of this report replicates Sections 643 and 644 of U.S. House of Representatives, National Defense Authorization Act for Fiscal Year 2023, Bill 7900, 117th Congress, 2021–2022.

In the House Armed Services Committee announcement regarding the creation of a Quality of Life Panel,[4] Military Personnel Subcommittee Chairman Jim Banks (R-IN) and Representative Chrissy Houlahan (D-PA) said, respectively:

> Our service members and their families make great sacrifices for our nation and it is up to Congress to ensure we provide them with the quality of life they have earned and deserve. As Chairman of the Subcommittee on Military Personnel, I have fought to ensure our troops have the resources they need for success in their professional and personal lives.
>
> A strong national defense today, tomorrow, and for many years to come relies on a strong military. We cannot have a strong military if we don't continue to improve the lives and livelihoods of our service members and their families.

At the time of this writing, Congress is considering legislation in furtherance of these objectives. The QRMC's findings and recommendations are directed at ensuring the compensation system adequately rewards the contributions of Service members so that the national defense remains strong.

The research conducted in support of the 14th QRMC was overseen by a Senior Advisory Group cochaired by the Deputy Assistant Secretary of Defense for Military Personnel Policy and the Associate Director of the Comptroller for Military Personnel and Healthcare. Its primary role was to help ensure that the Office of the Secretary of Defense (OSD) and the Military Departments reached consensus on the QRMC's findings and recommendations.

Each of the organizations represented in the Senior Advisory Group also designated a broader group to serve as the QRMC's working group. The working group conducted the initial assessments of the QRMC's supporting research and formulated recommendations for approval by the Senior Advisory Group.[5]

In view of the parallel interests of both the Department and Congress, the QRMC gave regular progress reviews to the Deputy's Workforce Council (DWC), cochaired by the Honorable Kathleen H. Hicks, Deputy Secretary of Defense, and Admiral Christoper W. Grady, Vice Chairman of the Joint Chiefs of Staff. The Secretaries of the Military Departments, Military Service Chiefs, and the OSD Principal Staff Assistants held standing invitations to the DWC and were authorized to delegate invitations to their deputies when appropriate.

The DWC was supported by a Workforce Management Group, chaired by the Honorable Ashish S. Vazirani, performing the duties of Under Secretary of Defense for Personnel and Readiness, with appropriate Senior Executive Service and military three-star representation from other Components as needed. The QRMC provided progress reviews to this group before briefing the DWC.

The recommendations, as briefed to the DWC, are presented in this report.

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4 House Armed Services Committee, 2023.

5 Membership of the QRMC Senior Advisory Group and working group are listed at the end of this report.

Improvements to Military Compensation, 2020–2024

Since the Thirteenth Quadrennial Review of Military Compensation (13th QRMC) published its findings in 2020, the Department has implemented numerous improvements to military compensation. These initiatives encompass the coronavirus 2019 (COVID-19) response, expanded leave benefits, basic pay raises, increases to BAH and BAS, adjustments to the COLA for the continental United States (CONUS) and the overseas COLA (OCOLA), and establishment of BNA and new tax benefits. Collectively, the variety of positive improvements to military pay policy in this short period of time, which are summarized in Table 1.1, have significantly contributed to the 14th QRMC's overall assessment that the current military compensation program is strong.

TABLE 1.1 Military Compensation Policy Initiatives, 2020–2024

Topic Area	Initiatives
COVID-19 response	• Because members were unable to take leave during the latter part of 2020, the Department authorized members to retain accrued annual leave in excess of 60 days (up to 120 days) provided the excess was used before the end of fiscal year (FY) 2023. • The Department authorized increases in BAH rates during the period October 1, 2021, through December 31, 2021, in 56 military housing areas (MHA) in response to increases in rental housing costs due to low availability and low turnover of rental housing stock during the COVID-19 pandemic. • In response to unusually large spikes in rental housing costs in select MHAs, the Department authorized automatic, temporary increases in BAH rates during the period October 1, 2022, through December 31, 2022, in 28 MHAs. • The Department authorized Hardship Duty Pay–Restriction of Movement at a rate of $100/day (up to $1,500/month) to assist in defraying costs for members who were ordered to restrict movement for self-monitoring due to exposure or suspected exposure to COVID-19 and who were required to pay for additional lodging.
Leave benefits	• Beginning in January 2023, expanded parental leave benefits provide male and female Service members of the armed forces with up to 12 weeks of parental leave following the birth, adoption, or placement of a child in long-term foster care. Such parental leave is in addition to convalescent leave for the birth mother. • New bereavement leave benefits provide a service member of the armed forces performing full-time duty up to two weeks of leave to be used in connection with the death of an immediate family member. This leave is not chargeable to the extent the service member has fewer than 30 days of accrued leave. • A service member of the armed forces when on active duty orders for 30 or more consecutive days may be granted an administrative absence for a period of up to 21 days to receive, or to accompany a spouse or dependent who receives, noncovered reproductive health care.
Basic pay raises	• Basic pay increased 9.8 percent from 2022 to 2024. • Basic pay increase of 4.5 percent for 2025.
BAH increase	• BAH increased 18 percent from 2022 to 2024 in response to unprecedented growth in housing costs in the aftermath of COVID-19.
BAS increase	• BAS increased 13 percent from 2022 to 2024.
OCOLA adjustment process	• The Department is allowed to announce OCOLA decreases twice per year. • The Department implemented a policy of phasing in decreases to the OCOLA that result from changes in annual cost-of-living assessments. Changes due to currency fluctuations and OCOLA rate increases are implemented in full, immediately.

TABLE 1.1 Continued

Topic Area	Initiatives
CONUS COLA	• Lowered the threshold by which local costs must exceed the baseline index from 108 to 107 resulting in an additional 7,000 members receiving the COLA in 2024.
Target intervention	• The BNA, a monthly allowance for active duty Service members, was established for members with dependents whose gross household income falls below 130 percent of federal poverty guidelines based on location and family size. Payment of this allowance began in January 2023. The threshold was increased to 150 percent effective July 1, 2023. The threshold was further increased to 200 percent of the federal poverty guidelines in the FY 2025 NDAA.
New tax benefits	• Available to Service members in January 2024, Dependent Care Flexible Spending Accounts allow participants to decrease their taxable earnings by contributing up to $5,000 each year in a pretax account and to pay eligible dependent care expenses with those pretax earnings. • Available to Service members in March 2025, Health Care Flexible Spending Accounts allow participants to decrease their taxable earning by contributing up to $3,200 each year in a pretax account and to pay for eligible health care expenses with those pretax earnings.

Organization of This Report

The findings and recommendations of the QRMC are presented in the remainder of this report.

- Part II examines aspects of the adequacy of military compensation—a centerpiece for each QRMC. Research for the 14th QRMC compared military and civilian pay and what the results suggest for the 70th percentile benchmark used in these comparisons since 2002 (Chapter 2), conducted a review of the basic pay table (Chapter 3), examined whether the Employment Cost Index (ECI) should continue to be used in setting the annual basic pay adjustment (Chapter 4), examined whether adjustments should be made in how key allowances are calculated (Chapter 5), and took a special look at food insecurity (Chapter 6).
- Part III explores select special pays—entitlements for deployed members (Chapter 7) and compensation for critical skills (Chapter 8).
- Part IV delves into the increase in dual-income military households and the implications of this new reality of military service for compensation (Chapter 9).
- The final chapter, in Part V, presents the core findings and recommendations of the 14th QRMC.

Three additional volumes of this report contain the research papers prepared in support of the 14th QRMC—Volume II, *Basic Pay and Select Special Pays*; Volume III, *Allowances and Food Insecurity*; and Volume IV, *Dual-Income Military Households*. These papers provide considerable detail regarding the analyses presented in this volume. A list of the individual reports and authors appears toward the end of this volume.

PART

Adequacy of Military Compensation

CHAPTER 2

Comparison of Military and Civilian Pay

A perennial topic for QRMCs is a review of military compensation and benefits to ensure that DoD is appropriately compensating Service members. This analysis focuses specifically on the level of military pay, how it compares with the pay of civilians with similar characteristics as military members, and whether the benchmark used to compare these pays is still an appropriate target for achieving the Department's recruiting and retention goals. This comparison is important because decades of research of the all-volunteer force (AVF) have consistently found that recruiting and retention outcomes are positively related to improvements in military pay relative to civilian pay.

The current benchmark for assessing the adequacy of military pay levels was formalized in 2002 by the Ninth Quadrennial Review of Military Compensation (9th QRMC), which found that "pay at around the 70th percentile of comparably educated civilians has been necessary to enable the military to recruit and retain the quality and quantity of personnel it requires."[1] The decision by the 9th QRMC to recommend a benchmark above the average civilian pay (which is the 50th percentile) reflects conclusions drawn by commissions, study groups, and prior QRMCs that higher levels of military pay relative to civilian pay may be needed to compensate for the conditions of military service and the need to recruit and retain volunteers. Since that benchmark was set, each subsequent QRMC has determined that military pay—which has provided high-quality recruits and stable retention—has been at or above the 70th percentile benchmark.

Yet, what does the 70th percentile mean when discussing comparisons of military and civilian pay? In such comparison, RMC is traditionally used as the measure of military pay following conclusions of the Gorham Commission in the 1960s, which found that RMC was the appropriate counterpart to civilian earnings. RMC consists of basic pay, BAH, BAS, and the tax advantage associated with receiving these allowances tax-free. The 70th percentile means that when comparing average RMC of an enlisted member or officer with the earnings of 100 civilians with similar characteristics, the military member would earn on average more than 69 of those civilians (Figure 2.1). That is, average military pay would equal or exceed the 70th percentile of pay of similar civilians.

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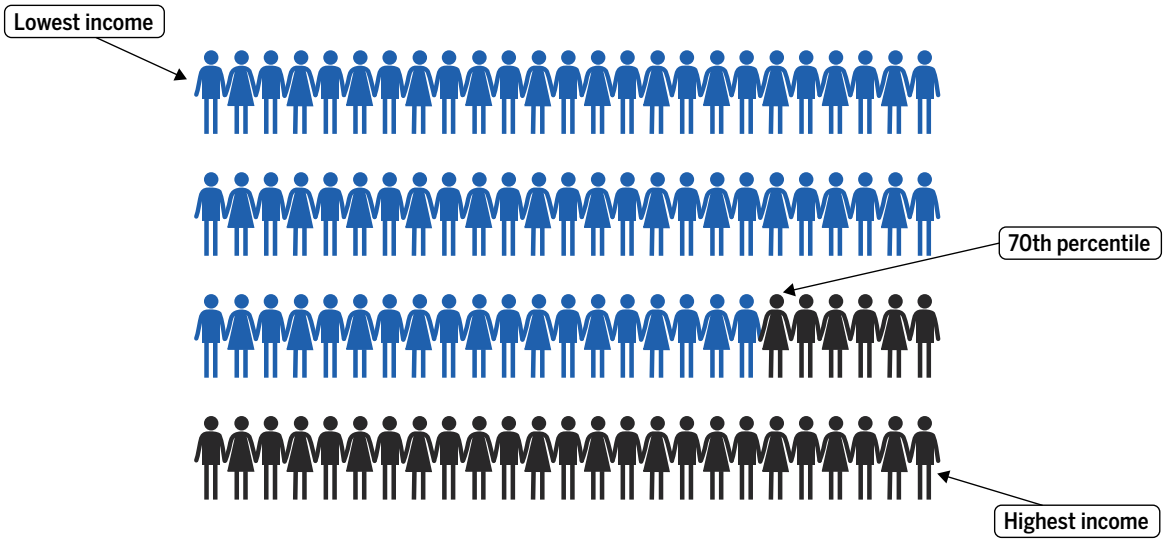
1 DoD, Office of the Under Secretary of Defense for Personnel and Readiness, *Report of the Ninth Quadrennial Review of Military Compensation*, Vol. 1, March 2002, p. xxiii.

FIGURE 2.1 An Illustration of the 70th Percentile



The 13th QRMC was the last to compare military and civilian pay and reported in December 2020 that RMC was more than adequate compared with civilian pay, not only because average RMC exceeded the 70th percentile but also because the Services were meeting their recruiting and retention objectives overall. But much has changed in the past four years: The civilian labor market has changed, amplified by changes stemming from the COVID-19 pandemic; rapid inflation beginning in 2021 has reduced the purchasing power of military and civilian pay; and the Military Services have struggled with recruiting.

These changes point to two questions, which this QRMC examined:

- How do military and civilian pay compare today?
- Is it time to change the 70th percentile benchmark?[2]

Updated Comparison of Military and Civilian Pay

Educational Attainment

Educational attainment of the force has remained a central element of military and civilian pay comparisons because extensive research shows that it is an important determinant of civilian labor market opportunities. The distribution of post–high school educational attainment of each pay grade for enlisted personnel is shown in Table 2.1 and dates to 1999, when the 70th percentile benchmark was first institutionalized. Enlisted personnel increasingly have bachelor's degrees or

[2] The discussion and research findings reported in this chapter are drawn from Beth J. Asch, Michael G. Mattock, Jason M. Ward, Samuel Absher, Patricia K. Tong, and Anton Shenk, *A Review of the Military Basic Pay Table: Analysis in Support of the Fourteenth Quadrennial Review of Military Compensation*, Chapter 2 and Appendix B, RAND Corporation, a supporting research paper included in Volume II of this report. The paper contains details about the data sources, methodology, and background information supporting these findings.

higher, although it is not technically required, with most E-9s having at least a bachelor's degree in 2020. Specifically, attainment of bachelor's degrees for enlisted personnel in the grade of E-9 has increased from 27 percent in 1999 to 57 percent in 2020. Education attainment among officers has changed little between 2017 and 2020, as Table 2.2 indicates. Nonetheless, the trend of a high percentage of more-senior officers having obtained advanced degrees that was observed in the 9th QRMC remains.

TABLE 2.1 Educational Attainment of Enlisted Personnel, by Pay Grade

	Percentage with Some College or Associate's Degree				Percentage with Bachelor's Degree or Higher			
Pay Grade	**1999**	**2009**	**2017**	**2020**	**1999**	**2009**	**2017**	**2020**
E-1	7	NR	NR	25	1	NR	NR	0
E-2	18	28	33	28	0	1	0	1
E-3	22	48	43	42	2	3	4	5
E-4	31	54	50	48	5	7	9	9
E-5	47	67	66	63	6	6	10	11
E-6	57	73	73	65	10	9	14	18
E-7	60	73	64	63	18	16	27	28
E-8	56	67	56	49	22	24	39	41
E-9	57	49	40	34	27	44	55	57

SOURCES: 1999–2017 education distributions come from Smith, Asch, and Mattock, 2020; 2020 distributions come from Status of Forces Survey of Active Duty Members (SOFS-A) for 2020 (DoD, OPA, 2020).

NOTE: NR = not reported. To make the calculations, survey responses are weighted to be representative of the force using Status of Forces Survey (SOFS) observation weights (i.e., the data element *finalwgt* in the SOFS dataset).

TABLE 2.2 Educational Attainment of Officer Personnel, by Pay Grade

	Percentage with College Degree				Percentage with Advanced Degree			
Pay Grade	**1999**	**2009**	**2017**	**2020**	**1999**	**2009**	**2017**	**2020**
O-1	97	93	91	92	3	6	8	6
O-2	91	87	87	83	9	11	12	16
O-3	59	60	57	55	39	39	42	44
O-4	31	30	20	20	69	69	79	79
O-5	15	13	7	8	85	85	93	91
O-6	8	4	2	2	92	96	98	98

SOURCES: 1999–2017 education distributions come from Smith, Asch, and Mattock, 2020; 2020 distributions come from SOFS-A for 2020 (DoD, OPA, 2020).

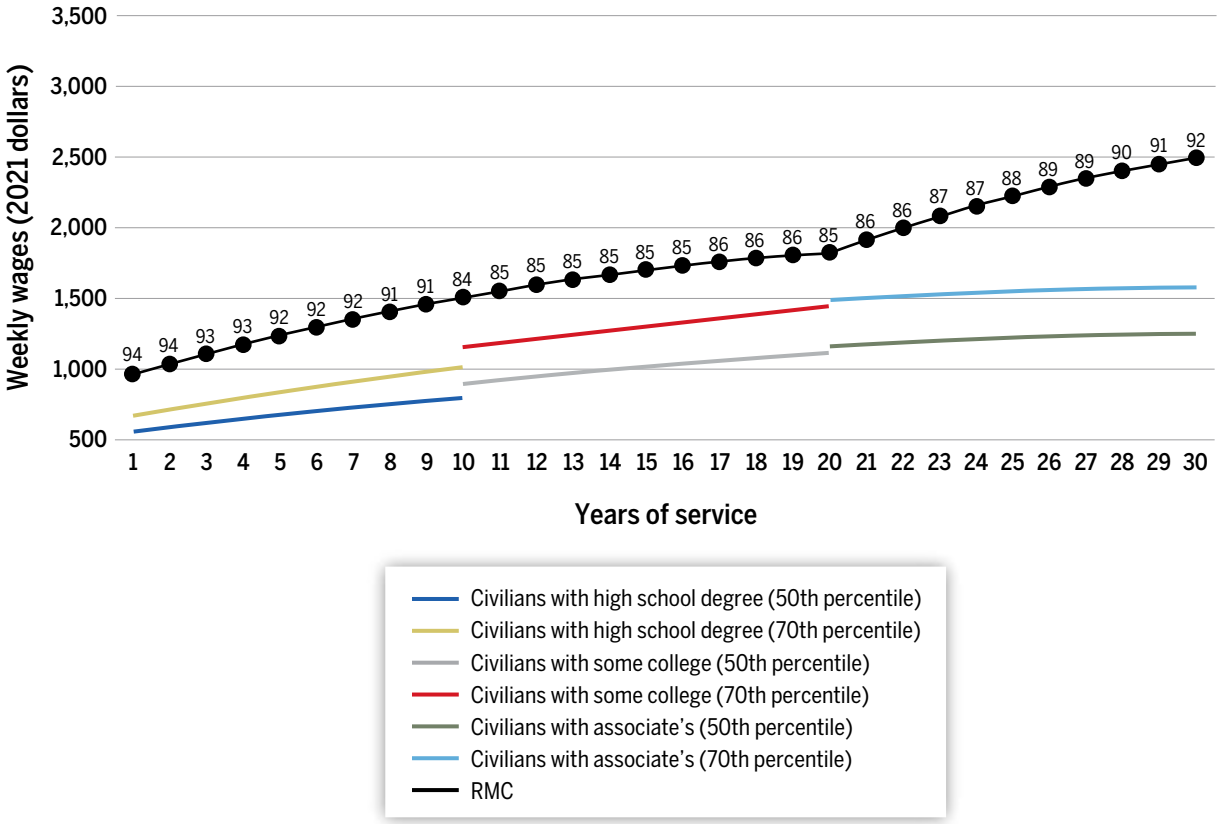
NOTE: To make the calculations, survey responses are weighted to be representative of the force using SOFS observation weights (i.e., the data element *finalwgt* in the SOFS dataset).

Regular Military Compensation and Civilian Pay Comparisons

Comparisons of RMC and civilian pay are based on pay earned by full-time, full-year workers. Wages are weighted to reflect the gender makeup of the force. In 2020, the most recent year for which data are available, women made up 16.9 percent of the enlisted Active Component and 19.7 percent of the Active Component commissioned officer corps, shares which have risen in recent years. Thus, comparisons of RMC and civilian wages reflect not only the U.S. population but also the gender distribution of the Active Component as well. Wages are also adjusted for experience in the civilian labor force to allow comparison with military years of service. Comparison with comparable civilians in terms of educational attainment, as mentioned earlier, reflects a composite of civilian education.

For enlisted personnel, the QRMC compared enlisted RMC with two civilian educational composites. The first includes civilians with a high school degree (fewer than ten years of service), civilians with some college (between ten and 20 years of service), and civilians with an associate's degree (between 20 and 30 years of service) (Figure 2.2). The second (Figure 2.3) is similar to

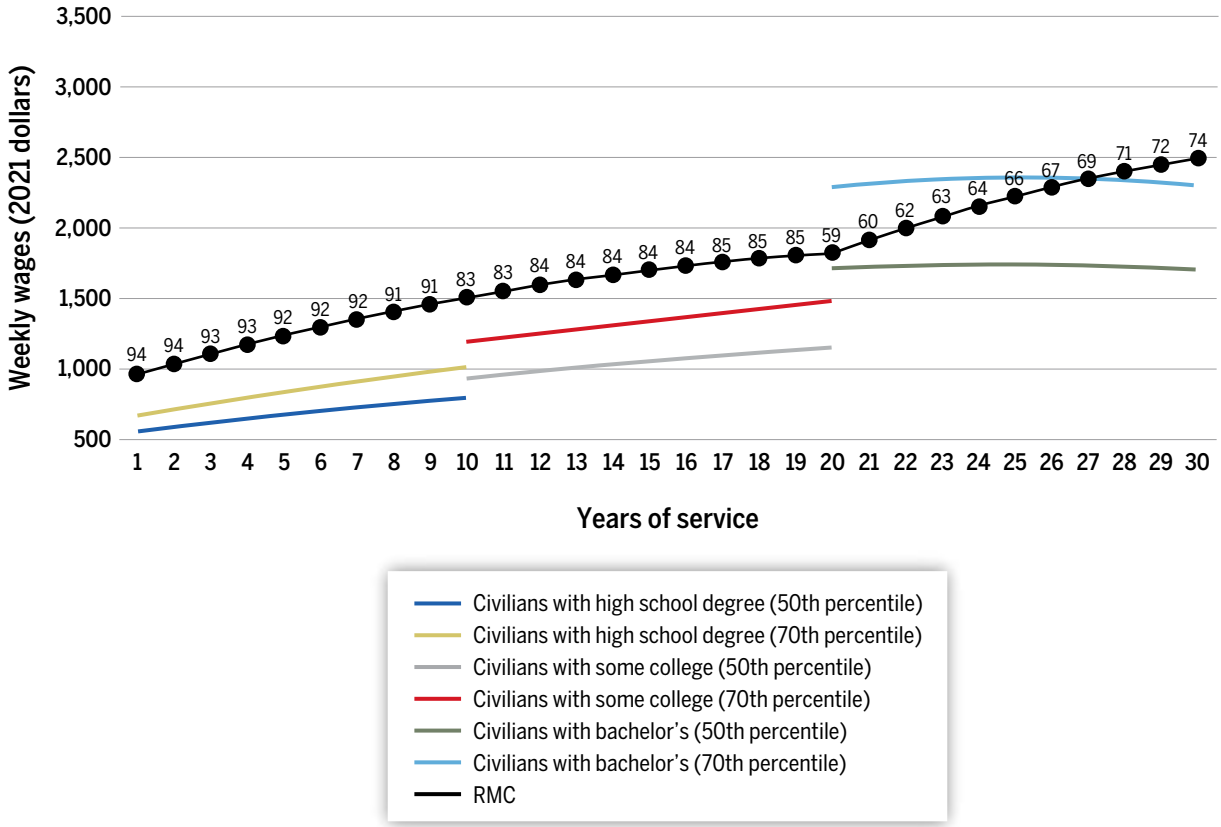
FIGURE 2.2 Enlisted RMC Compared with Wages of Civilian Workers with a High School Degree, Some College, or an Associate's Degree and RMC Percentiles, 2021



SOURCES: Calculations using the Greenbook (DoD, OUSD (P&R), Directorate of Compensation, 2023), the March Annual Social and Economic Supplement (CPS ASEC), *Population Representation in the Military Services* (DoD, OUSD (P&R), undated), SOFS-A (DoD, OPA, 2020).

NOTE: RMC and civilian wage percentiles have been smoothed using quadratic regressions on the raw data. Civilian data are weighted by the standard Current Population Survey (CPS) weights multiplied by the military enlisted gender mix. Weekly pay for full-time, full-year workers is expressed in 2021 U.S. dollars.

FIGURE 2.3 Enlisted RMC Compared with Wages of Civilian Workers with a High School Degree, Some College, or a Bachelor's Degree and RMC Percentiles, 2021



SOURCES: Calculations using the Greenbook (DoD, OUSD (P&R), Directorate of Compensation, 2023), the March Annual Social and Economic Supplement (CPS ASEC), *Population Representation in the Military Services* (DoD, OUSD (P&R), undated), and SOFS-A (DoD, OPA, 2020).
NOTE: RMC and civilian wage percentiles have been smoothed using quadratic regressions on the raw data. Civilian data are weighted by the standard CPS weights multiplied by the military enlisted gender mix. Weekly pay for full-time, full-year workers is expressed in 2021 U.S. dollars.

the composite in Figure 2.2, except that senior enlisted with more than 20 years of service are compared with civilians with a bachelor's degree, given the large share of E-9 enlisted members with at least a bachelor's degree. Against both composites, military pay, particularly among junior enlisted personnel, compares favorably with civilian pay. The RMC percentiles below ten years of service are higher than the 90th percentile of earnings for civilians with a high school diploma. Midcareer enlisted personnel also fare well against their civilian counterparts—those with some college education—with estimated RMC well above the 70th percentile benchmark.

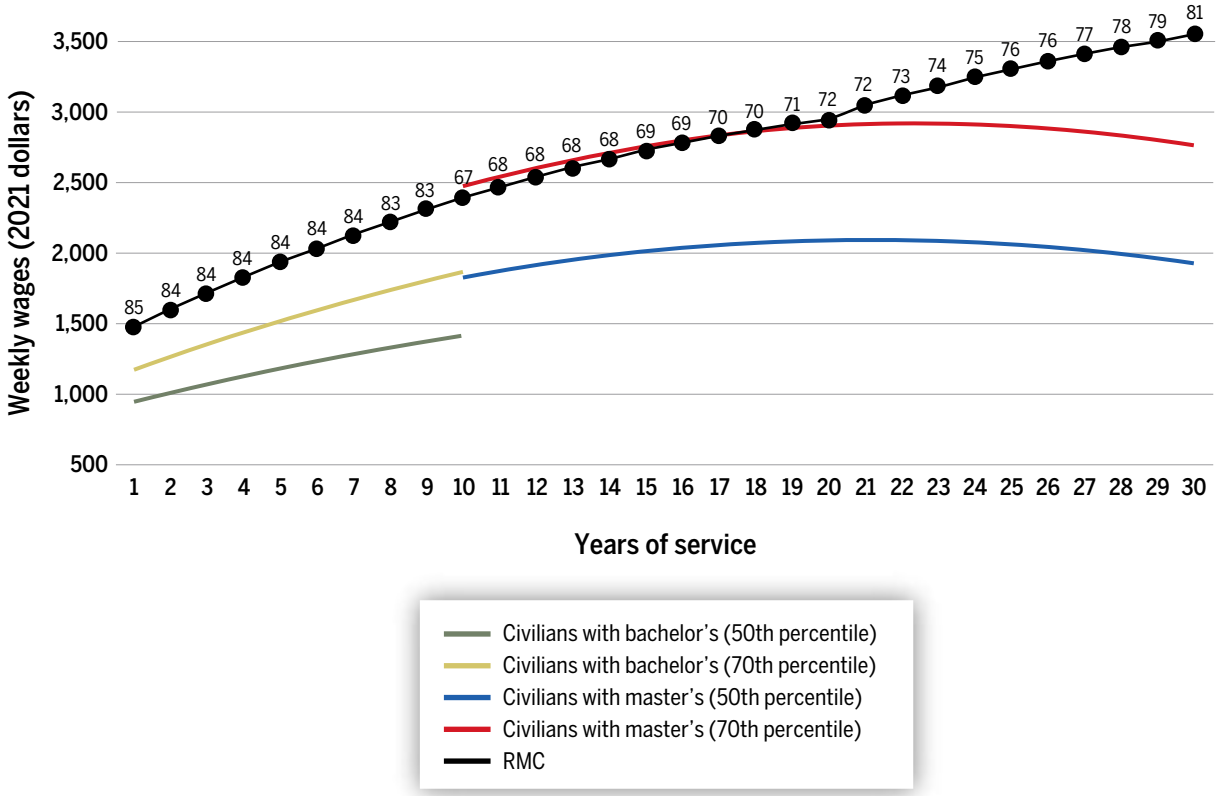
Only when senior enlisted pay is compared with civilians who have obtained a bachelor's degree does RMC fail to meet the 70th percentile benchmark (Figure 2.2), but when compared with civilians with an associate's degree rather than a bachelor's degree, the estimated RMC is well above its recommended floor (Figure 2.1). At 20 years of service, the RMC percentile for enlisted personnel is 59 when compared with civilians with a bachelor's degree and 85 when compared with civilians with an associate's degree; at 30 years of service, the pay comparison is at the 74th percentile and the 92nd percentile for bachelor's and associate's degrees, respectively.

Whether it is appropriate to compare RMC for more senior enlisted personnel with the pay of civilians with a bachelor's degree depends on whether the Services require senior enlisted personnel with a bachelor's degree and therefore require pay levels that enable them to retain such personnel.

For officers, earnings for those with fewer than ten years of service are compared with civilians with a bachelor's degree and earnings of more-senior officers are compared with civilians with a master's degree (Figure 2.4). The RMC percentiles for junior officers are consistently at about the 80th percentile of comparable civilian earnings. When the comparison group changes to those with master's degrees or higher, the RMC percentile predictably declines, but only slightly below the 70th percentile threshold and either meets or exceeds the threshold by the 17th year of service. From ten to 30 years of service, officer RMC increases from the 67th percentile of civilian earnings to the 81st.

In comparing RMC with civilian pay overall, the QRMC computed a single weighted average of the RMC percentiles based on the educational distribution by rank at each year of service and then took the weighted average across years of service (Table 2.3). The QRMC found that RMC is well

FIGURE 2.4 Officer RMC Compared with Wages of Civilian Workers with a Bachelor's Degree or with a Master's Degree or Higher and RMC Percentiles, 2021



SOURCE: Calculations using Greenbook (DoD, OUSD (P&R), Directorate of Compensation, 2023), the March Annual Social and Economic Supplement (CPS ASEC), *Population Representation in the Military Services*, (DoD, OUSD (P&R), undated), and SOFS-A (DoD, OPA, 2020).

NOTE: RMC and civilian wage percentiles have been smoothed using quadratic regressions on the raw data. Civilian data are weighted by the standard CPS weights multiplied by the military officer gender mix. Weekly pay for full-time, full-year workers is expressed in 2021 U.S. dollars.

TABLE 2.3 Regular Military Compensation as a Percentile of Civilian Wages, 2017 and 2021

Personnel	2017	2021
Enlisted (0–20 years of service)	85	83
Enlisted (0–30 years of service)	84	82
Officer (0–20 years of service)	77	76
Officer (0–30 years of service)	76	76

above the 70th percentile for both enlisted members and officers. For enlisted personnel, RMC is at the 83rd percentile for those with up to 20 years of service and at the 82nd percentile for those with up to 30 years of service—just below the values in 2017, which were 85 and 84, respectively. RMC for officers is at the 76th percentile—also nearly the same as the estimates for 2017.

These percentile comparisons indicate that average military pay, as measured by RMC, continues to compare well relative to the earnings of civilians with similar education and similar experience. Whether military pay levels are adequate, however, must be judged not only on how military pay compares with civilian pay but also on whether the Services are able to recruit and retain the personnel needed to meet their military personnel objectives.[3] Recent retention trends indicate that the Services have experienced strong retention overall, generally reaching at least 100 percent of their active duty reenlistment mission among members ending their initial obligation and those in their midcareer. Officer retention has been strong as well.

The main challenge for the Services in recent years has been enlisted recruiting, especially in the Army. In FY 2023, the Army, Navy, and Air Force fell short of their Active Component enlistment objectives. The Army fell short of its Active Component recruiting objectives in 2022 and in 2023 by about 25 percent in each year and missed its objective in 2018. Despite these missed accession goals, recruit quality has remained high overall.

While research shows that recruiting is responsive to increases in military pay relative to civilian pay, the recent recruiting challenges do not provide a compelling reason to increase military pay relative to civilian pay, given that retention has been strong. Such pay raises make sense only when the Services are experiencing both recruiting and retention problems—which has not been the case. Moreover, the Services have more efficient means of improving recruiting that they are pursuing, including increasing advertising expenditures, adding more recruiters, and expanding

[3] It is important to acknowledge that other aspects of the compensation package, including the military retirement benefit and the value of the military health benefit, among others, also affect retention.

the use of enlistment bonuses, which are discussed further in the next chapter. The Army and Navy have also established prep courses to help applicants achieve height/weight and aptitude requirements, and those Services have made extensive use of waivers. These efforts appear to have been successful: During the writing of this report, DoD announced that all the Services, except for the Navy, achieved or exceeded FY 2024 active duty accession goals.[4]

Should the 70th Percentile Benchmark Be Changed?

While the adequacy of military pay should be ultimately judged on readiness outcomes, since the 9th QRMC in 2002, both DoD and Congress have used the 70th percentile of civilian earnings as a benchmark to consider the adequacy of RMC. Because comparisons of civilian and military pay continue to exceed that threshold, the question is often asked whether it is time to change the 70th percentile benchmark. The QRMC's investigation into this question did not result in a definitive answer because there are some factors that support increasing the benchmark and others that support leaving the threshold as it is. Nevertheless, understanding how factors affecting recruiting and retention have changed over the past several decades can inform a decision about changing the benchmark.

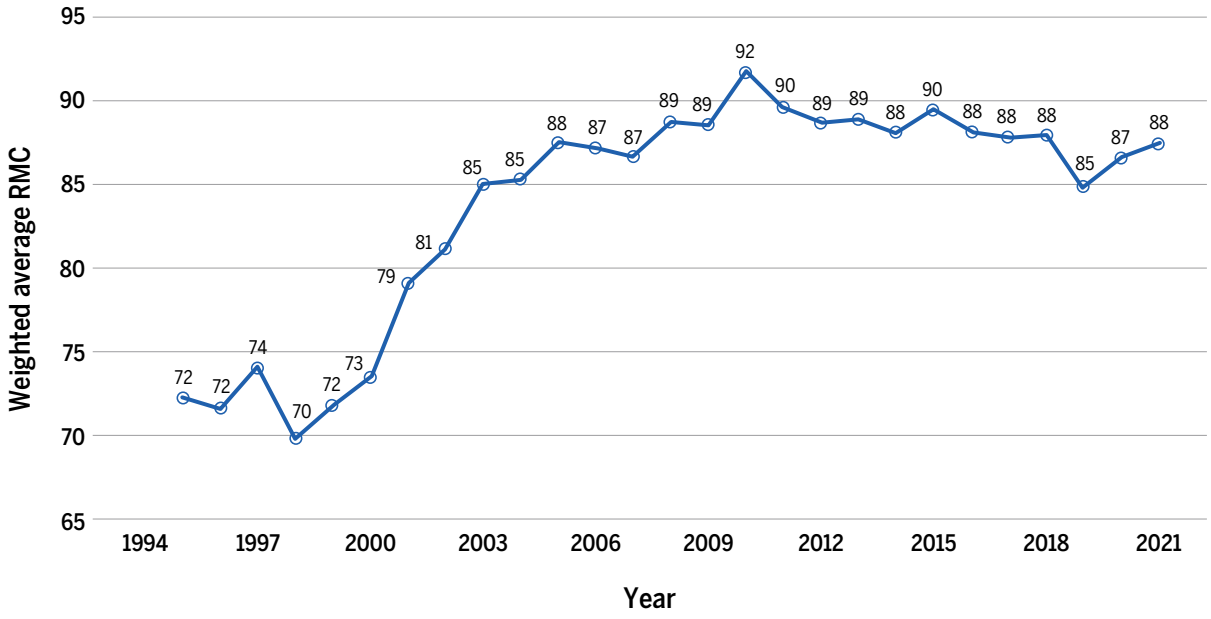
RMC has exceeded the 70th percentile for quite some time for both enlisted members and officers, as Figures 2.5 and 2.6 illustrate. Through the mid-1990s weighted enlisted RMC across all years of service hovered around the 73rd percentile of the wage distribution of similarly educated civilians and reached a low of about 70 in 1998. Enlisted RMC then began a steady climb and reached the 92nd percentile of the civilian wage distribution in 2010. It stayed relatively constant at around the 88th percentile until 2018, dipped to the 85th percentile in 2019, and reverted to the 88th percentile in 2021. Weighted officer RMC also increased steadily through the 2000s and reached the 81st percentile in 2009. It stayed just above or just below the 80th percentile through 2021. In short, average RMC has exceeded the 70th percentile since the late 1990s, when the 70th percentile was established.

The 70th percentile benchmark has come to serve as a type of early warning system for assessing pay adequacy among policymakers. If pay falls short of the benchmark, it signals the need for a closer look at whether pay is sufficiently competitive, whether the Services can meet their recruiting and retention requirements, and, if not, whether pay or other resources are the appropriate policy response.

Overall, both recruiting and retention have been strong between the earlier periods that correspond to the data on which the 70th percentile was based and during the 2018–2023 period following the 13th QRMC, notwithstanding the years during which recruiting goals were missed. But taking a closer look, the QRMC found that numerous factors have changed that influence recruiting and

[4] The Navy achieved its contracting goals but fell short of its accession mission by 4,796 individuals because of insufficient spaces in basic training. See: DoD, "Department of Defense Announces Recruiting and Retention Numbers Fiscal Year 2024–Thru September 2024," news release, undated.

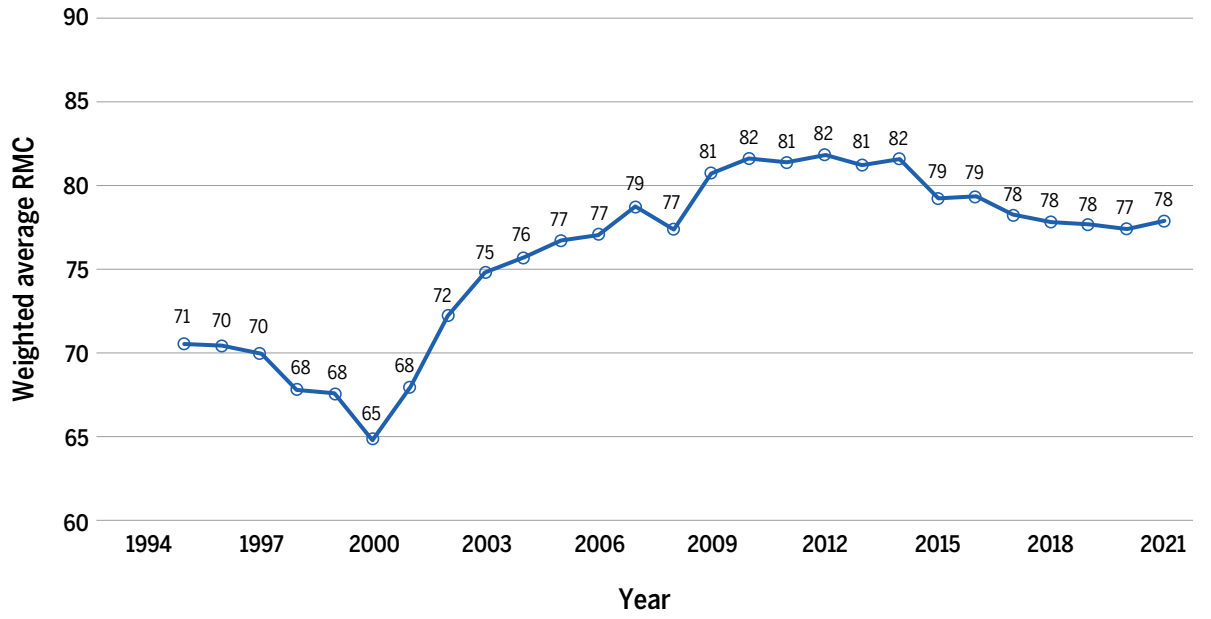
FIGURE 2.5 Enlisted Regular Military Compensation as a Percentile of Civilian Wages, 1994–2021



SOURCE: Calculations using the Greenbook (DoD, OUSD (P&R), Directorate of Compensation, 2023), *Population Representation in the Military Services* (DoD, OUSD (P&R), undated), SOFS-A (DoD, OPA, 2020), March Annual Social and Economic Supplement (CPS ASEC), and Defense Manpower Data Center (DMDC) active duty pay files.

NOTE: These average RMC percentiles (or summary percentiles) are weighted by level of education and year of service with education estimated from the active duty master file.

FIGURE 2.6 Officer Regular Military Compensation as a Percentile of Civilian Wages, 1994–2021



SOURCES: Calculations using the Greenbook (DoD, OUSD (P&R), Directorate of Compensation, 2023), *Population Representation in the Military Services* (DoD, OUSD (P&R), undated), SOFS-A (DoD, OPA, 2020), March Annual Social and Economic Supplement (CPS ASEC), and DMDC active duty pay files.

NOTE: These average RMC percentiles (or summary percentiles) are weighted by level of education and year of service with education estimated from the active duty master file.

retention outcomes, as detailed in Table 2.4. This invites examination of what has changed since the late 1980s and what these changes mean in terms of the RMC benchmark.

On the one hand, multiple factors indicate that a benchmark above the 70th percentile may not be needed:

- Recruit quality has remained relatively unchanged in terms of the Armed Forces Qualification Test scores and has improved in terms of education.
- Retention has been stronger at key milestones (years of service four and eight).
- The Services have maintained a larger recruiter force.
- Average enlistment and reenlistment bonus budgets have increased in real value.
- The number of deployments has declined.
- Active duty members report working fewer overtime duty days.
- Trust in the military has increased.
- Accession and retention objectives are lower.

Thus, the sustainment or improvement of recruit quality and strong retention may reflect increases in recruiting resources other than pay, improvements in some conditions of service, and lower accession objectives—suggesting that RMC percentiles above the 70th percentile benchmark observed in recent years may be higher than needed to achieve the outcomes of the late 1980s and mid-1990s.

On the other hand, other factors that affect recruiting and retention outcomes have become more challenging in recent years:

- Fewer young people express an interest in joining the military, which makes recruiting more difficult.
- The share of young people qualified for service without a waiver has declined over time; many disqualified for medical reasons, especially weight, and for behavioral health concerns, which have increased among American youth.
- Civilian job opportunities are robust, reflecting a strong economy and low unemployment.
- Recruiter productivity has declined, perhaps a consequence of a more challenging recruiting market.
- The share of Active Component members who express satisfaction with the military way of life has drifted downward.
- The share of spouses who support their member staying in the military has also drifted downward.

These factors, which are not expected to change in the coming years, suggest that a benchmark above the 70th percentile could be appropriate despite the factors that have made recruiting and retention less challenging, including lower end strength across the force.

TABLE 2.4 Weighted Average Enlisted and Officer RMC Percentiles and DoD Recruiting and Retention Outcomes and Selected Factors Related to Outcomes, 2018–2023 and Selected Benchmark Years

Factor	Average 2018–2023	Average 1993–1997	Average 1988–1989
Officer RMC percentile[a]	87	75	73
Enlisted RMC percentile[a]	79	71	71
Recruiting			
Accession mission	159,928	189,975	290,343
Percentage accession mission achieved	95.2%	100.2%	100.5%
Percentage Tier 1 (high school diploma graduates or at least 15 college credits)	96.8	95.4	92.5
Percentage Armed Forces Qualification Test categories I–IIIA	68.1	70.4	65.5
Retention			
Enlisted continuation rate at the 4th year of service	80%	63%	62%
Enlisted continuation rate at the 8th year of service	90%	84%	87%
Officer continuation rate at the 8th year of service	92%	89%	88%
Recruiters	15,101	11,967	12,796
Annual accessions per recruiter	10.2	15.9	22.7
Enlistment bonuses ($1,000)[b]	$529,019	$48,357	$113,369
Reenlistment bonuses ($1,000)[b]	$1,122,752	$386,126	$865,952
Deployments (number of Service members receiving Imminent Danger Pay or Hazardous Duty Pay)	22,397	41,770	5,947
Average number of duty days worked longer than normal in the past 12 months among active duty members[c]	84	138[d]	N/A
Percentage of Americans expressing a "great deal/quite a lot" of trust in the military	68.7%	64.2%	60.5%
Adult unemployment rate	4.9%	5.8%	5.4%
Percentage of young people with positive enlistment propensity	10.9%	14.2%	18%
Enlisted end strength	1,078,229	1,277,637	1,815,034
Percentage of active duty members			
Satisfied or very satisfied with the military way of life	54%	67%[d]	N/A
Reporting greater than usual work stress	46%	42%[d]	N/A
Percentage of active duty spouses who favor their spouses staying in military[e]	57%	61%[f]	N/A

SOURCES: Various. See Asch et al., Table 2.7, in Volume II of this report.

NOTE: N/A = not applicable.

[a] The RMC percentile for 2018–2023 includes only 2018–2021.

[b] Constant 2023 dollars.

[c] The data for 2018–2023 only include 2019 and 2020 responses.

[d] Response is for the year 2003, not 1993–1997.

[e] The data for 2018–2023 only include 2019 and 2021 responses.

[f] Response is for the year 2006, not 1993–1997.

Policy Considerations: Raising the Compensation Benchmark

So, where should the benchmark fall? Despite recruiting success in FY 2024, the recruiting environment remains challenging. Because these difficulties are expected to continue, an RMC percentile benchmark above the 70th percentile could be appropriate as an early warning signal. If the benchmark were to be increased, a figure of around the 75th to 80th percentile for enlisted personnel and around the 75th percentile for officers is likely the right ballpark. In considering a higher benchmark for enlisted members and officers, however, future QRMCs should be required to periodically revisit any new benchmark to ensure it remains relevant *as an early warning system* of potential issues with the level of military pay relative to civilian pay.

CHAPTER 3

Review of the Basic Pay Table

As the previous chapter stated, the adequacy of military compensation hinges primarily on DoD's ability to attract and retain the right personnel in the right numbers to conduct the Department's missions during peacetime and conflict. The compensation system must embed incentives for high performance; induce personnel to select the assignments, duties, and career fields where they are best suited; and eventually induce personnel to voluntarily separate from service at the end of their career. Being competitive means that the system must sustain a high-quality force with a wide range of skills and leadership capabilities that can keep up with innovation and technological evolution—skills that are valued in the private sector as well. Thus, competition with the civilian sector for high-quality personnel, especially during periods of low unemployment, contributes to the challenge of sustaining the AVF and is expected to persist.

Given this underlying competition, trends in the civilian labor market bear directly on military pay because military pay affects recruiting and retention success. Thus, civilian labor market trends affect not only comparisons of civilian and military pay but also the level of pay and the structure of the pay table, as well as the annual adjustment to pay and pays targeted to critical skills and deployment—two topics discussed in later chapters. In terms of broad changes in the labor market and changes in the economy in general in recent years, several factors stand out.

Rapid inflation since 2021 has reduced the real value of military and civilian pay. Overall, inflation as measured by the Consumer Price Index (CPI) for urban consumers has hovered between 0 and 4 percent since 2000, but grew rapidly during the pandemic, rising to 7.5 percent in 2022. While historically basic pay has risen substantially faster than inflation, basic pay has lagged inflation since 2020. In addition, the earnings of lower-income civilian earners have risen faster since 2020 than the earnings of higher-income earners, creating pay compression in the civilian labor market. Put another way, the median earnings of high school graduates and those with some college between the ages of 18 and 30 have grown faster since 2020 than the earnings of college graduates—reducing the premium in pay usually afforded to college graduates. This shift improves the civilian labor market opportunities of high-quality

recruits and junior enlisted, increasing competition with military service. Tracking this trend will be important because this age group is a key demographic from which the military recruits and retains junior enlisted personnel.

Unemployment also grew during the pandemic but has since fallen to 5.7 percent in 2023 for those between the ages of 18 to 30, its lowest rate since 2000. Although 2023 unemployment rates are lower than in 2000, labor force participation and employment rates have declined, indicating that fewer young people are working or looking for work. This trend is particularly true for young men aged 18–24. Other broad changes in the civilian labor market that have occurred in recent years are the rise of voluntary part-time work and nontraditional employment, such as temporary work and gig work, and an overall reduction in hours worked among working young adults.[1] These changes, along with COVID-induced changes such as increased opportunities for telework and flexible work hours, draw into question whether the basic pay table is adequately suited to enable the Services to compete for talent.

RMC is the core of military compensation, as explained in the previous chapter. The largest share of RMC is basic pay, which is determined by rank and tenure of service. Thus, a review of the basic pay table is prudent to ensure that pay is set at a level that allows the Department to recruit and retain the force it needs. The 14th QRMC's comprehensive review examined basic pay for junior enlisted, midcareer and senior enlisted, and officers and explored the implications of linking enlisted and officer basic pay to address pay inequity.[2] The discussions in this chapter center on the effects of changes to the pay table on annual pay, differences in pay across the ranks, recruitment, retention, and cost. The proposals to change basic pay that are discussed were developed on the basis of proposals and recommendations of past studies and commissions that have assessed military compensation, discussions with subject-matter experts, and review of the academic literature.

Junior Enlisted Basic Pay

Considerations of junior enlisted pay sometimes focus on the annual basic pay of an E-1 to measure military entry pay. But pay of first year Service members exceeds the pay of an E-1 for three reasons. First, Service members who enter with additional qualifications, such as college credit, enter as an E-2 or E-3. Second, enlisted personnel are promoted rapidly during the first

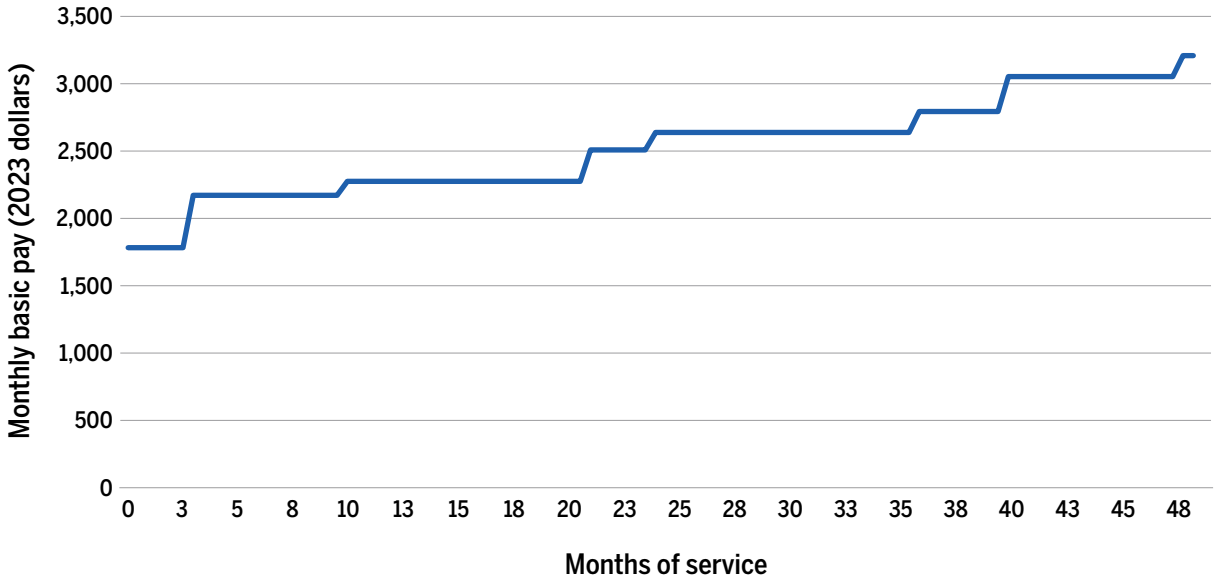
1 The number of temporary workers, or "temp" workers, has grown steadily since the early 1990s, with the largest numbers employed by transportation and material moving, production, and office and administrative support occupational groups. The gig economy can generally be thought of as the online platforms that match consumers with providers, such as Uber and Instacart.

2 The findings and analysis discussed in this chapter are drawn from Beth J. Asch, Michael G. Mattock, Jason M. Ward, Samuel Absher, Patricia K. Tong, and Anton Shenk, *A Review of the Military Basic Pay Table: Analysis in Support of the Fourteenth Quadrennial Review of Military Compensation*, Chapters 3–5 and Appendixes C–E, RAND Corporation, a supporting research paper in Volume II of this report. The chapters and appendixes include information on underlying data and methodology. A more in-depth overview of trends in the civilian labor market can be found in Asch et al., Appendix A, in Volume II of this report.

year, and members typically reach the grade of E-3 by the end of their first year—resulting in a 27 percent increase in monthly basic pay over the first year. Third, since basic pay is only one component of RMC, Service members also receive allowances and the tax advantage in addition to basic pay. RMC for junior enlisted in the first years of service compares favorably with the federal poverty line, except for families of six or more persons (which applies to less than 0.2 percent of active Services members in the grades of E-3 or below). However, basic pay grows substantially over the first enlistment term. Over a four-year period, as shown in Figure 3.1, monthly basic pay grows by 80 percent, reflecting annual pay increases and those resulting from promotion.

Notwithstanding these pay increases, food insecurity reported among military personnel, especially among junior enlisted members, together with recent recruiting difficulties and rapid inflation since 2020, have put a spotlight on basic pay for junior enlisted Service members—those in pay grades of E-1 to E-4.[3] These concerns, together with the changing civilian labor market, motivated Congress to put forward two proposals to increase junior enlisted basic pay in the spring of 2023, and, in the winter of 2024, the House Quality of Life Panel argued for a junior enlisted basic pay increase as well.

FIGURE 3.1 Monthly Basic Pay over an Early Enlisted Career, 2023



NOTE: The figure shows basic pay from the 2023 pay table and assumes average promotion times.

[3] Food insecurity among military personnel is explored in Chapter 6.

Basic Pay Proposals for Junior Enlisted Members

The QRMC analyzed seven proposals for changing the basic pay table for junior enlisted members: two Congressional proposals and five alternatives, as summarized in Table 3.1. The two Congressional proposals are as follows:[4]

1. *Representative Mike Garcia*, in H.R. 2591,[5] proposed to set pay at a minimum $15 per hour, or $31,200 per year, for E-1s with fewer than four months of service and for E-4s with less than two years of service. This proposal would set monthly basic pay at a minimum of $2,600, using the 2023 pay table.
2. Section 8138 of the *House Appropriations Committee (HAC)* FY 2024 defense bill targets increases to basic pay for members in grades E-1 to E-6.

The five additional proposals (including two that fall under proposal 4) are as follows:

3. *Junior civilian pay catch-up proposal* aims to restore the real value of basic pay, given the changes in civilian earnings since 2020 of high school graduates and those with some college. This proposal increases E-1 to E-4 basic pay across the board by 12 percent. Because this proposal would result in pay for some E-5s that is less than lower-ranked E-4s, E-5 pay is also increased where needed to mitigate the pay inversion.
4. *Recruiting catch-up proposal* is designed to increase military pay relative to civilian pay to the level needed for the Army, Navy, and Air Force to increase high-quality enlistments. Across the three Services, recruiting fell 15 percent short relative to the 2023 mission—a shortfall that would require a 22 percent pay raise to eliminate. However, because the Services already have an array of initiatives underway to address their recruiting shortfalls, this proposal contains two smaller alternatives:
   (a) increase E-1 to E-4 pay by 7 percent
   (b) increase E-1 to E-4 pay by 15 percent; to avoid pay inversions, the pay for some E-5s is also increased.
5. *AVF catch-up proposal* would restore junior enlisted pay to its historical structure at the beginning of the AVF in 1973 and increase equity relative to career enlisted. Pay for E-1 to E-4 is lower relative to E-5s under the current pay table than under the 1973 table because junior enlisted members received smaller pay raises than other enlisted members in 1981, 1988, 2000–2004, and 2007. This proposal increases E-1 to E-4 basic pay to real 1973 levels relative to E-5 pay.[6]
6. *Boot camp pay catch-up proposal* restores pay for E-1s in basic training. Currently E-1s with fewer than four months of service, who are typically in basic training or "boot camp," receive

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4 Details about the pay increase and pay tables associated with these proposed changes to the basic pay table for junior enlisted members is contained in Asch et al., Chapter 3 and Appendix C, in Volume II of this report.

5 U.S. House of Representatives, RAISE Minimum Base Pay Act, Bill 2591, April 13, 2023, 118th Congress, 2023–2025.

6. Such pay table restructuring does not have to use the 1973 pay table as the baseline; an alternative year could be chosen, but the results are illustrative of the outcomes of restructuring the pay table in this way.

TABLE 3.1 Proposals to Increase Junior Enlisted Pay

Proposal Name	Motivation	Description
1. Proposal of Representative Mike Garcia	Reflects H.R. 2591	Create a minimum $15 per hour or $31,200 per year for E-1 < 4 months to E-4 < 2 years
2. HAC proposal	Reflects Section 8138 of HAC FY 2024 defense appropriations bill	Target pay raises for E-1 > 4 months to E-6 < 2 years
3. Junior civilian pay catch-up proposal	Restore real value of basic pay given changes in civilian earnings since 2020 of high school graduates and those with some college	Increase E-1 to E-4 basic pay across the board by 12%
4a. Recruiting catch-up proposal (7%)	Increase high-quality enlistments to meet FY 2023 goal	Using estimates of high-quality enlistment pay elasticities to infer effect of a pay raise on high-quality enlistments; increase E-1 to E-4 basic pay by 7%
4b Recruiting catch-up proposal (15%)	Increase high-quality enlistments to meet FY 2023 goal	Using estimates of high-quality enlistment pay elasticities to infer effect of a pay raise on high-quality enlistments; increase E-1 to E-4 basic pay by 15%
5. AVF catch-up proposal	Restore junior enlisted pay to historical structure, and increase equity relative to career enlisted	Increase E-1 to E-4 basic pay to real 1973 levels relative to E-5 pay
6. Boot camp pay catch-up proposal	Restore pay for E-1 in boot camp	Raise E-1 < 4 months basic pay to level of E-1 < 2 years

lower pay than E-1s with four or more months of service. This proposal raises pay for E-1s with fewer than four months of service to the level for E-1s with more than four months of service.

The QRMC evaluated the effects of these proposals in six areas: pay levels, compression of basic pay table relative to E-5 to E-9 basic pay, high-quality enlistments, retention of enlisted force in each Service, cost per enlisted member, and efficiency. It also considered how these proposals might affect military cash compensation and food insecurity.

Annual Basic Pay. The proposals differ in terms of the magnitude and timing of effects on annual basic pay over the first four years of service, as detailed in Table 3.2. The percentage increase in basic pay across years of service is the same under the civilian pay catch-up proposal (proposal 3)—equal to 12 percent—as well as under the recruiting catch-up proposals (proposals 4a and 4b), except for the fourth year of service.[7] The remaining proposals, including the two Congressional proposals, front-load the pay increases to the beginning of the career. The largest percentage increase is in the first year of service for these other proposals—except for the HAC proposal

[7] The fourth year of service differs because Service members only spend a partial year as an E-4 in the fourth year of service and a partial year as an E-5. E-5s do not receive the targeted junior enlisted basic pay increase, so the pay raise in the fourth year of service is less than the earlier years of service for these proposals.

TABLE 3.2 Annual Basic Pay in the First Four Years of Service Under the Current Basic Pay Table, and Percentage Change in Annual Basic Pay for Each Proposal

	Years of Service			
Annual Basic Pay	**1**	**2**	**3**	**4**
Annual basic pay, 2023	$25,326.00	$28,580.40	$31,579.20	$35,538.00
	Percentage Change in 2023 Annual Basic Pay			
1. Proposal of Representative Mike Garcia	23.2	9.2	0.0	0.0
2. HAC proposal	22.9	24.1	16.3	6.9
3. Junior civilian pay catch-up proposal	12.0	12.0	12.0	8.5
4a. Recruiting catch-up proposal (7%)	7.0	7.0	7.0	2.2
4b. Recruiting catch-up proposal (15%)	15.0	15.0	15.0	10.4
5. AVF catch-up proposal	14.4	8.2	3.3	1.1
6. Boot camp pay catch-up proposal	1.7	0.0	0.0	0.0

NOTE: Calculations based on average promotion times to each grade.

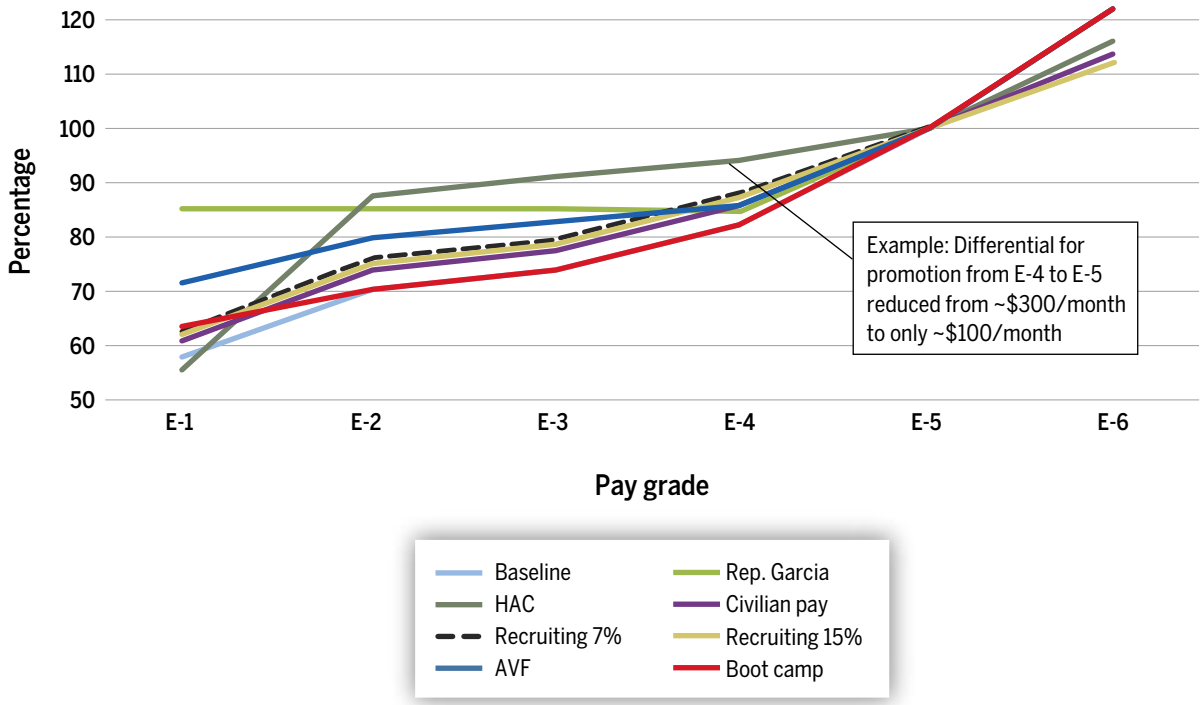
(proposal 2), where the largest increase is in the second year.[8] The HAC proposal would increase basic pay the most over the first four years, followed by the recruiting catch-up proposal, assuming a 15-percent pay increase (proposal 4b). The proposal of Representative Mike Garcia (proposal 1) would increase basic pay the most in the first year. The bootcamp catch-up proposal (proposal 6) would increase pay the least, with an increase in the first year of 1.7 percent.

Compression of the Basic Pay Table. All seven proposals compress the structure of basic pay across grades, with the two Congressional proposals compressing the pay structure the most, as is illustrated in Figure 3.2, which shows monthly pay at promotion for each grade relative to basic pay of an E-5. Under Representative Garcia's proposal, the pay structure is flat, which means that there is no financial reward associated with promotion in the early grades. The HAC proposal results in a large jump in pay between E-1 and E-2, but little increases in pay associated with promotion after E-2. The final proposal, the boot camp pay catch-up proposal, compresses the pay structure the least in that it affects only the pay increase associated with promotion to E-2, but thereafter maintains the financial gains from promotion associated with the current pay table.

Pay compression matters because it can affect performance incentives. In the military, promotions are the primary means by which the Services financially reward superior performance, especially beginning with promotion to E-5. Eliminating pay increases in the lower grades weakens incentives to become a high performer, or to perform above the minimum required to remain in the military. Moreover, pay compression in the early grades can also affect retention by reducing incentives for the most talented and qualified members to remain in the military and perform at a

[8] The largest increase occurs in the second year of service rather than the first year of service under the HAC proposal because this proposal does not increase the pay of an E-1 with fewer than four months of service.

FIGURE 3.2 Basic Pay Relative to Pay of an E-5 Under Alternative Proposals



NOTE: The figure shows basic pay at promotion to each grade relative to E-5 basic pay at promotion. Basic pay at E-1 is entry pay.

level that would result in faster promotion. Thus, to ensure that the most-senior ranked personnel are the "best and the brightest," the pay structure must be set so that these personnel are incentivized to stay in the military and perform well when they are more junior. Research shows that to sustain performance incentives, the pay raises associated with promotion should increase with each subsequent promotion—directly the opposite of the pay compression resulting from these proposals.[9]

Effects on High-Quality Enlistments, Retention, and Cost. Raising junior enlisted pay increases the pool of better qualified applicants by increasing military pay relative to opportunities available to these applicants in the civilian job market. All proposals evaluated would increase high-quality enlistment but to varying degrees, as shown in the second column of Table 3.3, which presents results for the Army.[10] The HAC proposal is estimated to increase high-quality enlistments by 12 percent, which is the most among the proposals, followed by the 15 percent recruiting catch-up proposal, which increases high-quality enlistments by 9.5 percent. These two proposals increase basic pay the most but also cost the most in terms of basic pay and retirement accrual costs—$3.9 billion and $3.7 billion annually, respectively, across all Services.

[9] Edward P. Lazear and Sherwin Rosen, "Rank-Order Tournaments as Optimum Labor Contracts," *Journal of Political Economy*, Vol. 89, No. 5, 1981; Beth J. Asch and John T. Warner, *A Theory of Military Compensation and Personnel Policy*, RAND Corporation, MR-439-OSD, 1994.

[10] Results for each Service are contained in Asch et al., Appendix C, in Volume II of this report.

TABLE 3.3 Predicted Effects of Junior Basic Pay Proposals on Recruiting and Retention

Proposal	Percentage Change in Army High-Quality Enlistments[a]	Percentage Change in Army Retention[b]	Annual Cost of Proposal to the Army (Billions of 2023 Dollars)[c]	Annual Cost of Proposal to All Services (Billions of 2023 Dollars)[c]
1. Proposal of Representative Mike Garcia	5.5	3.9	$0.617	$1.684
2. HAC proposal	12.0	19.6	$1.420	$3.869
3. Junior civilian pay catch-up proposal	7.7	27.6	$1.036	$2.954
4a. Recruiting catch-up proposal (7%)	4.0	8.1	$0.516	$1.463
4b. Recruiting catch-up proposal (15%)	9.5	35.3	$1.297	$3.709
5. AVF catch-up proposal	4.6	6.1	$0.583	$1.712
6. Boot camp pay catch-up proposal	0.3	0.4	$0.018	$0.046

[a] Previous studies have determined a 0.69 ratio between first-term military pay and high-quality enlistments. A high-quality recruit has a high school diploma and an Armed Forces Qualification Test score in category I, II, or IIIA.

[b] Retention is measured in terms of steady state man-years per accession. Results are relative to a baseline (5.6 years).

[c] Costs include basic pay and retirement accrual.

Under a scenario in which the increase in civilian earnings since 2020 persists, the recruiting catch-up proposal (15 percent) and junior civilian pay catch-up proposal are predicted to produce the largest increases in steady-state retention—35.3 percent and 27.6 percent, respectively—as well as the largest increase in cost per member compared with the current pay table—13.3 percent and 10.9 percent, respectively. Annual costs for these two proposals are also among the highest, although the HAC proposal is more costly with a smaller increase in retention. The smallest predicted changes in retention occur under the boot camp pay catch-up proposal. In this case, predicted retention is expected to increase by 0.4 percent with an annual cost of $0.018 billion for the Army.

A notable outcome of these analyses is that the predicted effects on Army recruiting differ from the predicted effects on Army enlisted retention. From the perspective of which proposal is "best," the question becomes "What problem are we solving?" There is no clear "winner" for both recruiting and retention. Additionally, the Services have been achieving their retention objectives, and retention does not appear to be a problem that needs to be solved.

Efficiency. The QRMC used marginal cost as a measure of efficiency—that is, the ratio of percentage change in cost over percentage change in retention.[11] The higher the marginal cost, the less efficient the program. The most efficient proposals, again using the Army as an example, are the two recruiting catch-up proposals (proposals 4a and 4b) and the civilian pay catch-up proposal (proposal 3), with marginal cost estimates of 0.38, 0.47, and 0.39, respectively. The next most efficient are the HAC proposal (proposal 2) and the AVF catch-up proposal (proposal 5), with estimated marginal cost of 0.53 and 0.54, respectively. The least efficient in terms of marginal cost

[11] Marginal cost was measured as the ratio of percent change in cost of a proposal over percent change in retention relative to the baseline (current pay table). Asch et al., in Volume II of this report, describe the methodology in more detail.

are the Rep. Garcia proposal (proposal 1) and the boot camp pay catch-up proposal (proposal 6), with estimates of 0.80 and 0.82, respectively.

Although the recruiting catch-up proposal, which assumes a 15-percent pay increase, is the most efficient proposal for the Army, it is also one of the most expensive in terms of cost for both the Army ($1.297 billion per year) and for DoD ($3.709 billion per year). For both the Army and DoD as a whole, the HAC proposal is the most expensive proposal but is far less efficient than the 15 percent recruiting catch-up proposal. The boot camp pay catch-up proposal is both the least expensive and least efficient.

But this look at efficiency considers the efficiency of the seven proposals relative to each other, and all use pay as the vehicle to increase recruiting and retention (and potentially to resolve food insecurity) among the junior enlisted force. But the more salient question about efficiency, alluded to earlier, *is whether pay is the right policy lever* to achieve better recruiting and retention outcomes.

Research shows that enlistment bonuses and recruiters are more cost-effective approaches to increasing enlistments than raising pay. The QRMC used data from past research to estimate how much it would cost the Army per year to achieve the same increase in high-quality enlistments as each of the basic pay proposals by increasing bonuses or by increasing the number of recruiters instead of raising pay. These results, illustrated in Table 3.4, show that across the board annual costs to the Army of increasing enlistment bonuses to achieve the same enlistment effect as pay is less for each proposal and is even lower using recruiters. For example, the most-costly proposal from the HAC would cost the Army $1.420 billion annually to increase high-quality enlistments by 12 percent, or 4,956 recruits. Achieving that same increase using bonuses would require an estimated increase in bonuses of 156.5 percent at a cost of $427 million per year; similarly, to

TABLE 3.4 Costs to the Army of Increasing High-Quality Enlistments Using Basic Pay, Enlistment Bonuses, or Recruiters to Achieve the Same Enlistment Effect as Each Proposal

Proposal	Estimated Percentage Change in High-Quality Enlistments Based on Past Studies	Annual Increase in Army Basic Pay and Retirement Accrual Cost (Billions of 2023 Dollars)	Annual Cost to Army of Increasing Enlistment Bonuses (Billions of 2023 Dollars)	Annual Cost to Army of Increasing Recruiters (Billions of 2023 Dollars)
1. Proposal of Representative Mike Garcia	5.5	$0.617	$0.184	$0.110
2. HAC proposal	12.0	$1.420	$0.427	$0.240
3. Junior civilian pay catch-up proposal	7.7	$1.036	$0.264	$0.154
4a. Recruiting catch-up proposal (7%)	4.0	$0.516	$0.132	$0.080
4b. Recruiting catch-up proposal (15%)	9.5	$1.297	$0.331	$0.190
5. AVF catch-up proposal	4.6	$0.583	$0.153	$0.092
6. Boot camp pay catch-up proposal	0.3	$0.018	$0.010	$0.006

achieve the same increase in enlistments with recruiters would require an estimated addition of 2,076 recruiters at an annual cost of $240 million. For each proposal, pay is the least cost-effective approach.

Food Security. One of the motivations for raising junior enlisted pay is to address the higher rate of food insecurity among these personnel. Initial evidence using the 2018 SOFS-A data merged with DMDC pay records for these members indicates that average pay for food insecure junior enlisted members is not statistically different from the average pay of food secure members. While raising junior enlisted pay could reduce food insecurity among junior personnel, the fact that there is little statistical difference in pay among food secure and food insecure junior enlisted members suggests *pay increases may not be the correct solution*. This topic is addressed in further detail in Chapter 6.

Midcareer and Senior Enlisted Basic Pay

Military pay on average for midcareer and senior enlisted members compares favorably with civilian pay, and retention is strong overall. These two factors might suggest little need to consider changes to the pay table for these grades. However, experts consulted by the QRMC are concerned that the enlisted pay table lacks performance incentives for midcareer and senior enlisted members. The previous discussion of the junior enlisted basic pay raised concerns about pay compression in the enlisted basic pay table that would occur under certain proposals to raise basic pay for junior enlisted. A more general point related to pay compression is that the link between performance and basic pay may be too weak and that basic pay increases associated with years of service (or longevity) were overemphasized compared with pay increases that would be earned via promotion or better performance, especially for midcareer personnel and E-9s.

Enlisted members are typically promoted to E-9 at around 21 years of service and continue to receive annual pay increases and some longevity increases, but they have no further promotion opportunities. Moreover, E-9s have varying levels of responsibilities, including some who hold supervisory positions over other E-9s, which some experts believe suggests the need for additional grades beyond E-9. The 9th QRMC raised the question of whether an additional grade is needed beyond E-9, reflecting the same concerns discussed today, and saw value in adding an E-10 grade, with a competitive promotion from among the best E-9s and an appropriate increase in basic pay. This recommendation has not been pursued. Other proposals for addressing the lack of performance incentives include a targeted pay raise to E-9s to increase promotion incentives for senior enlisted members or a targeted pay raise to E-7s to recognize the increase in responsibility and better performance associated with advancement to that grade.

Proposals to Strengthen Performance Incentives in the Enlisted Pay Table

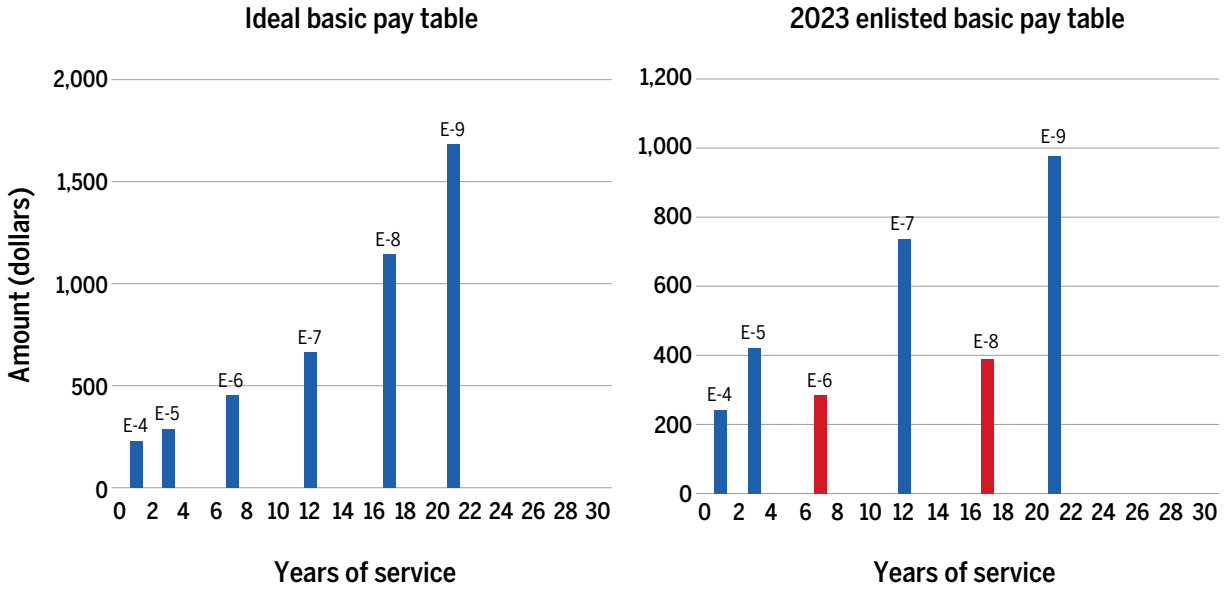
In any large organization, including the military, key objectives of the personnel and compensation systems are to attract and retain enough people to meet its requirements for skills, ability, and experience and with sufficient quality and ability to perform the required tasks. In addition, these

systems must motivate people to work hard and effectively and induce higher-ability people to stay and seek advancement to higher ranks where they can be most productive.

In the military, in the absence of lateral entry to the active force, senior leaders of the future are recruited at entry. Thus, compensation in the military—not only cash pay but also expectation of future retirement benefits or other types of benefits, including nonmonetary benefits—ideally needs to be set so that the difference in compensation between ranks increases at higher grades (Figure 3.3, left panel). In this ideal pay structure, the increase in pay for promotions from E-8 to E-9, for example, is larger than the increase in pay from E-7 to E-8. These larger pay differences at higher grades are designed to motivate people to work harder, encourage more capable personnel to remain in the organization, and sustain the quality of the talent pool from which promotions are made.

Yet the structure of the current enlisted basic pay table, depicted in the right panel of Figure 3.3, deviates from this ideal structure. Rather than the amount of basic pay received at the time of promotion increasing with each promotion, pay received at promotion to E-6 and E-8 *decreases* relative to the previous promotions—working counter to a structure that sustains performance incentives across ranks. This deviation from the ideal structure arose because of faster promotion speeds and targeted pay raises over the last 20 to 25 years—an issue that was not apparent when the 9th QRMC was considering targeted pay raises in 2002. Moreover, the current basic pay structure does not provide performance incentives for the highest-ranked enlisted personnel, though other aspects of service, including nonmonetary factors, could contribute to these incentives.

FIGURE 3.3 Increases in Monthly Basic Pay Associated with Enlisted Promotion: Ideal Enlisted Basic Pay Table Versus 2023 Enlisted Basic Pay Table



NOTE: Depiction of the 2023 enlisted pay table assumes average DoD enlisted promotion times for 2013 to 2018 based on tabulations provided by DMDC. Figures show basic pay and not all military compensation.

To better align the basic pay table for midcareer and senior enlisted personnel to the ideal, the QRMC developed four proposals to increase performance incentives in the enlisted pay table and to improve promotion opportunities for E-9s later in their career. These proposals, summarized in Table 3.5, are as follows:[12]

1. *Add an E-10 grade* to provide additional promotion opportunities and stronger performance incentives to the most competitive E-9s. E-10 pay would be set equal to a 17-percent increase over E-9 pay through 28 years of service. (An alternative would be to give even higher raises to those in E-10 beyond 28 years of service, but that option was not analyzed by the QRMC.)
2. *Add an E-10 grade and targeted pay raises for grades E-6 to E-9* to ensure that E-6 and E-8 promotions are at least as valuable as previous promotions. The targeted raises are focused on addressing the structural concerns in the current pay table at promotion to E-6 and E-8. But to avoid pay inversions, where pay does not increase with longevity or promotion, targeted pay raises are also needed in grades E-7 and E-9.
3. *Add an E-10 grade and targeted pay raises for grades E-6 to E-7* to ensure E-6 promotions are at least as valuable as previous promotions. Under this option, pay raises target only the E-6 promotion point. The justification for this proposal is that the financial incentives for promotion to E-8 also include the virtual certainty of qualifying for higher military retirement benefits, a component of compensation not shown in the basic pay table.

TABLE 3.5 Proposals to Increase Midcareer and Senior Enlisted Basic Pay

Proposal	Motivation	Description
1. Add E-10 grade	Provide additional promotion incentives to top E-9s.	Compute E-10 basic pay equal to 17% increase over E-9 through the 28th year of service.
2. Add E-10 grade plus targeted E-6 to E-9 raises	Same as Proposal 1, plus ensure that E-6 and E-8 promotions are at least as valuable as previous promotions.	Same as Proposal 1, plus target pay raises around average promotion times with E-7 and E-9 increases given to avoid pay inversions.
3. Add E-10 grade plus targeted E-6 to E-7 raises	Same as Proposal 1, plus ensure that E-6 promotions are at least as valuable as previous promotions.	Same as Proposal 2, but omit the E-8 promotion increase because it occurs prior to retirement eligibility, and omit the E-9 increase because E-9 pay inversion disappears.
4. Targeted E-6 to E-9 raises, no E-10 addition	Focus pay raises on restructuring the existing pay table.	Same as Proposal 2, but omitting the addition of E-10.

NOTE: Proposals 1–3 would also increase Senior Enlisted Advisor basic pay by 4.1 percent relative to the basic pay of an E-10 at 40 years of service. The 4.1-percent figure was chosen because this is the percentage difference under the current pay table between Senior Enlisted Advisor basic pay and the basic pay of an E-9 with 40 years of service.

[12] Details about the pay increases and pay tables associated with these proposals is contained in Asch et al., Chapter 4 and Appendix D, in Volume II of this report. Appendix D includes analysis of these proposals for all Services.

4. *Targeted E-6 to E-9 pay raises* to address the lack of performance incentives in basic pay at the E-6 and E-8 promotion points but does not add the E-10 grade, because E-10 is arguably a more difficult policy option to implement since it would involve changing manpower requirements among other policies.

For the first three proposals, all of which add an E-10 grade, the basic pay of Senior Enlisted Advisors would also be increased by 4.1 percent relative to the basic pay of an E-9 at 40 years of service. Today, a Senior Enlisted Advisor's basic pay is 4.1 percent higher than that of an E-9 with 40 years of service. The proposed adjustment to Senior Enlisted Advisor basic pay would maintain this relationship.

The QRMC's assessment of these proposals considered retention, personnel costs, efficiency, and performance incentives.

Effects on Retention, Personnel Costs, and Efficiency. As with the discussion of junior enlisted pay, the relative merit of each proposal depends on which benefits policymakers most want to achieve. Retention and cost effects for each of the four pay table proposals are calculated against an estimated baseline of man-years per accession and cost per member. Table 3.6 shows these estimates for the Army: An Army enlisted accession is expected to provide 4.547 man-years over their career, and per person cost for the enlisted force in the baseline is estimated to be $74,652 for basic pay and retirement accrual costs. All proposals increase retention and cost. Adding an E-10 grade only (proposal 1) has the most modest effect on retention because only a very small part of the enlisted force would be promoted to this grade. It is estimated that this proposal would cost the Army $7 million and the DoD as a whole $21 million per year.

Proposal 2, which adds targeted pay raises for E-6 to E-9 along with the addition of an E-10 grade has the largest effects on retention and cost. Retention is estimated to increase by 5.8 percent over the baseline, while costs per person increase 3.4 percent. This proposal also has the largest increase in annual budgetary cost to the Army ($69 million) and DoD ($153 million). Proposals 3 and 4 are more modest changes that achieve lower retention effects at lower cost.

As it did with changes to the junior enlisted pay table, the QRMC examined the efficiency of these proposals for midcareer and senior enlisted personnel using marginal cost of retention (shown in the middle column of Table 3.7). Proposals 2, 3, and 4 are about equal in efficiency, with estimated marginal costs of 0.57 to 0.59. Proposal 1 is the least efficient, with an estimated marginal cost of 1.17, which means that it costs more under this proposal to achieve an increase in retention compared with the other proposals. However, under this proposal, the increase in retention occurs among the most experienced personnel in the most senior grades of the enlisted force. The increase in retention under proposals 2, 3, and 4 occurs among less experienced personnel, since these proposals target pay raises to midgrade personnel. The value to DoD of these differences in experience would determine how important the efficiency differences are in considering policy options.

TABLE 3.6 Predicted Effects on Retention, Cost, and Efficiency of Basic Pay Proposals for Army Midcareer and Senior Enlisted Personnel

Proposal	Retention: Percentage Change in Man-Years per Accession Relative to Baseline	Percentage Change in Cost per Service Member (2023 Dollars)	Marginal Cost: Ratio of Percentage Change in Cost over Percentage Change in Retention	Increase in Annual Army Basic Pay and Retirement Accrual Cost (Billions of 2023 Dollars)	Increase in Annual DoD Basic Pay and Retirement Accrual Cost (Billions of 2023 Dollars)
Baseline	4.547	$74,682			
1. Add E-10 grade	0.2%	0.2%	1.17	$0.007	$0.021
2. Add E-10 grade plus targeted E-6 to E-9 raises	5.8%	3.4%	0.59	$0.069	$0.153
3. Add E-10 grade plus targeted E-6 to E-7 raises	5.5%	3.2%	0.59	$0.056	$0.128
4. Targeted E-6 to E-9 raises, no E-10 addition	5.6%	3.2%	0.57	$0.062	$0.133

NOTE: Retention is measured in terms of steady-state man-years per accession; personnel costs include basic pay, BAH, and BAS costs of the force, as well as legacy military retirement accrual costs. Results shown are relative to the baseline. Assumes 10 percent of E-9s are promoted to E-10. Asch et al., Appendix D, in Volume II of this report shows results if 50 percent of E-9s are promoted to E-10.

Predicted Effects on Performance as Measured by Retained Ability. Measuring personnel productivity in the military is difficult and beyond the scope of the QRMC. Instead, performance was measured in simulations using a calculated metric for innate ability, which assumes a relationship between a member's promotion speed and performance. Those who perform better are promoted faster, which, in turn, depends on innate ability, and that ability differs among military entrants. In addition, those with higher ability most likely have better external civilian opportunities, which becomes a factor in a member's decision to stay in the military.

Comparing the predicted impact of the various pay proposals on performance with the baseline results from the current pay table, shown in Table 3.7, indicates that the current structure of the pay table results in the selection of higher ability personnel for promotion. The average ability of E-9s in the baseline (59.2) is substantially higher than the average ability of those in E-5 (41.6). Thus, the current structure of the basic pay table encourages higher ability personnel to stay beyond the grade of E-5 and advances them to higher grades while simultaneously inducing lower ability personnel to leave before being promoted.

As for the individual proposals, adding an E-10 grade without any other targeted pay increases, as in proposal 1, would not change the predicted average ability of the overall force, which remains at 46.8. Higher-ability E-9s would be promoted to E-10, resulting in an average E-10 ability of 67.3 and a slightly lower ability among E-9s of 58.1. Adding targeted pay raises to the earlier grades along with the E-10 grade, as in proposals 2 and 3, would increase the overall ability of the force to 47.4 under proposal 2 and to 47.2 under proposal 3, since higher-ability personnel will have a stronger

TABLE 3.7 Average Ability Percentile of Basic Pay Proposals for Army Midcareer and Senior Enlisted Personnel Under Four Basic Pay Proposals

Proposal	Overall Force	E-5	E-9	E-10
Baseline	46.8	41.6	59.2	N/A
1. Add E-10 grade	46.8	41.6	58.1	67.3
2. Add E-10 grade plus targeted E-6 to E-9 raises	47.4	42.0	61.3	67.2
3. Add E-10 grade plus targeted E-6 to E-7 raises	47.2	41.9	61.1	68.6
4. Targeted E-6 to E-9 raises, no E-10 addition	47.4	42.0	62.2	N/A

NOTE: N/A = not applicable.

incentive to stay across the force. These proposals are predicted to also improve the average ability of E-5s and E-9s, with larger increases under proposal 2. The performance of E-10s under these proposals is 67.2 for proposal 2 and 68.6 under proposal 3—results indicating that these proposals would further motivate higher-ability personnel to stay and be promoted to higher grades.

Proposal 4, which includes targeted pay raises for grades E-6 to E-9 but does not include the addition of an E-10 grade, also improves retention among higher-ability personnel, since the average ability of the force increases from 46.8 to 47.4. Average ability of E-5s and E-9s is also higher than the baseline at 42.0 and 62.2, respectively.

All four proposals would improve retention. Overall performance of the force is greater than or equal to the baseline in all proposals. But these proposals would also increase personnel costs—though the proposals that include targeted pay raises were the most efficient compared with only adding the E-10 grade and no targeted pay raises. As with the junior enlisted pay proposals, the relevant question is, What problem would these proposals solve? There is no indication that the Services have either a retention problem or a problem retaining members with high ability. Thus, the proposals might be "solving" a problem that does not exist.

Addressing Pay Inequity Between Enlisted and Officer Basic Pay

Inequality in basic pay between enlisted members and officers is another topic of interest related to the enlisted pay table. Two concerns from the force dominated discussions with experts: a growing divergence between officer and enlisted pay and the pay differences between officers and enlisted personnel who are perceived to have similar responsibilities.

Growing Absolute Differences in Officer and Enlisted Basic Pay

The difference in absolute pay between officers and enlisted members has grown over time, but only in nominal terms. In real 2023 dollars, these differences have declined or stayed about the same depending on the grades considered. This has occurred largely because officers and enlisted members have received the same across-the-board percentage increases in basic pay, which results in a growing difference between the level of enlisted and officer basic pay in absolute

terms—while the relative differences in pay remain the same. The implication is that differences between officer and enlisted monthly basic pay have not increased significantly, when accounting for inflation, over the 50 years of the AVF.

Yet some argue that this absolute difference needs to be resolved and that a solution for this growing absolute difference could be to cap the differences between enlisted and officer basic pay by either a fixed percentage amount or an absolute amount. The motivation to address this problem is based on the concept of fairness, with larger absolute differences perceived as increasingly unfair. At the same time, however, the military must fill its ranks with pay that is set competitively to attract and retain talent. If enlisted pay is efficiently set to accomplish that goal, then increasing enlisted pay to improve fairness and reduce the absolute differences would increase costs, cause the Service to pay more for enlisted talent than it needs to, and create conditions in which retention goals might tighten—meaning that more Service members want to stay in the military than are needed. In effect, greater emphasis on fairness would come at the cost of efficiency.

Results from research in the private sector—where pay inequity within organizations has received renewed attention in recent years—suggests that capping the differences between officer and enlisted pay would likely hurt military organizational performance by hindering the ability of the Services to attract and retain higher quality personnel who will eventually fill upper-ranked managerial positions and would result in an ineffective and inefficient military compensation system. Capping differences could result in pay that is too high and excessively costly for some personnel and too low for others. Ultimately, military compensation should be set to meet the principles outlined in the *Military Compensation Background Papers*.[13] In addition, to the extent that employees are demotivated by pay differences that they perceive are not explained by differences in productivity and contributions to the organization, DoD should better articulate why officer and enlisted pay tables differ and why officer pay is higher.

Differences in Basic Pay for Similar Responsibilities

A second concern is that basic pay for senior enlisted members is too low compared with officers who have similar levels of responsibility. For example, an E-9 with 30 years of service earns less than an O-5 with as low as 12 years of service despite perceived similarities in the levels of responsibility and skill among senior enlisted and some midcareer and senior officers. Formally linking enlisted and officer pay is a solution some have suggested to recognize similarities in responsibilities and skills.

[13] In addition to documenting the purposes and legislative history of every item of military compensation, the *Military Compensation Background Papers* details six underlying principles of the military compensation system. "Together they form the logical basis that should set the standards for assessing the effectiveness of the military compensation system" (p. 6). DoD, Under Secretary of Defense for Personnel and Readiness, *Military Compensation Background Papers*: *Compensation Elements and Related Manpower Cost Items—Their Purposes and Legislative Backgrounds*, 8th ed., July 2018, pp. 2–6.

The policy of equal pay for jobs of similar worth, usually defined in terms of skill, effort, responsibility, and working conditions, is known as *comparable worth*.[14] The idea of comparable worth is that job content would be evaluated on a point system that would assign jobs with similar content the same points, and jobs with similar points would be paid the same wage. These policies had limited application, mostly in the 1980s and 1990s, with limited success. Comparable worth lost favor because pay gaps were not eliminated in part because pay differences are attributed to factors other than job content.

Review of the comparable worth literature indicates that linking enlisted pay to officer pay based on job content and levels of responsibility would move the pay setting process away from considerations such as retention, recruitment, motivation, and other principles of military compensation that have guided how military pay has been set for decades. It would de-emphasize career progression considerations that are specific to the enlisted versus the officer force and differences in retention patterns. It could also result in talent management inefficiencies leading to setting pay too high for some parts of the force and too low for others and lead to force changes in the size and experience mix of the force that ultimately could hurt readiness. Furthermore, it would require an extensive job evaluation system that has proven difficult to create in the civilian setting.

Officer Basic Pay

Officer retention has been historically strong in recent years, and average RMC among officers compares well relative to civilian pay. But as with midcareer and senior enlisted basic pay, some experts are concerned about the weak link between performance and basic pay in the officer basic pay table, especially for midcareer officers and very senior officers. A related concern is the executive pay limits that cap basic pay for very senior officers, currently those in grades O-9 and O-10, and beginning in 2025 will likely further limit the O-8 officer basic pay. The cap on basic pay means that officers promoted to these very senior ranks do not receive an increase in basic pay. Experts are also concerned about the need to facilitate higher pay for lateral entrants who are brought into the military at higher grades in recognition of their experience and skills acquired in the civilian sector. The concern here is that lateral entrants receive lower pay compared with officers in the same grade who entered as an O-1.

These concerns influenced the development of alternative proposals for modifying the officer basic pay table.[15]

[14] June O'Neill, Michael Brien, and James Cunningham, "Effects of Comparable Worth Policy: Evidence from Washington State," *American Economic Review*, Vol. 79, No. 2, 1989.

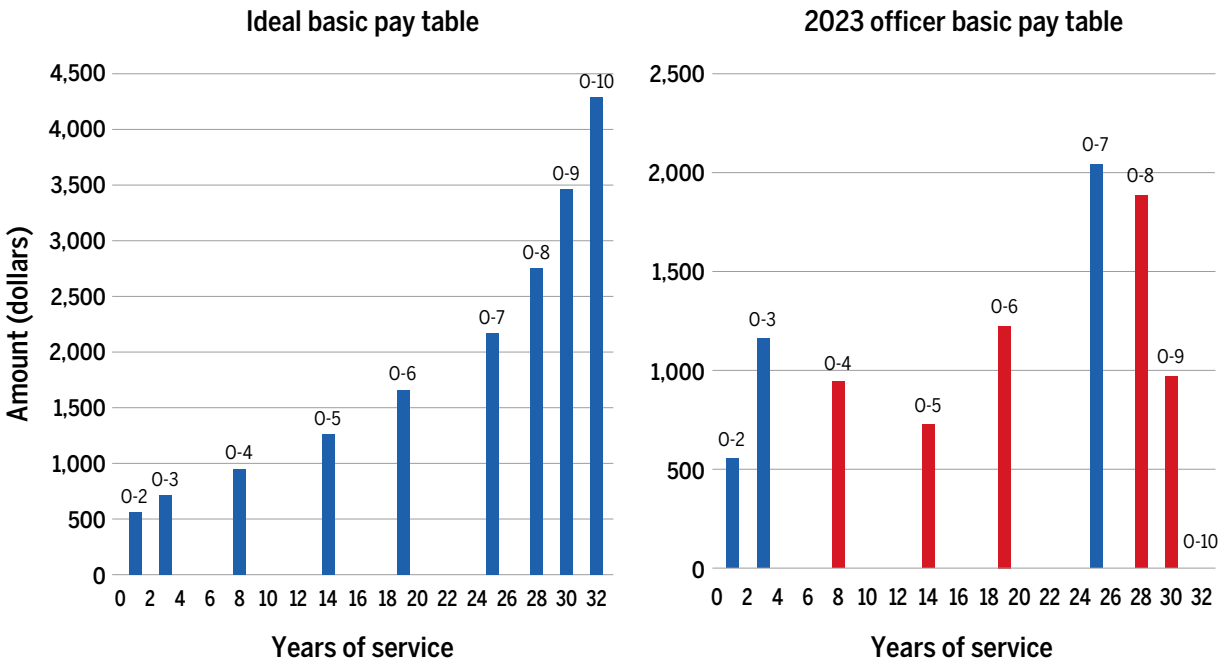
[15] Asch et al., Chapter 5 and Appendix E, in Volume II of this report, detail the pay increases and pay tables associated with these proposals. Appendix E also includes analysis of these proposals for all Services.

Proposals to Embed Stronger Performance Incentives in the Office Basic Pay Table

The same structural issues discussed for the midcareer and senior enlisted basic pay table also apply to the officer basic pay table. Compensation should be set so that differences in compensation between ranks increase with rank (Figure 3.4, left panel). Larger increments in compensation associated with promotion motivate people in the more junior grades to work harder and encourage more talented and better-suited personnel to remain in the organization, thereby sustaining the quality of the talent pool from which promotions are made. Although the figure focuses on basic pay, compensation can come from other forms of cash compensation, benefits such as retirement benefits, or in the form of nonmonetary benefits. In the case of officers, special and incentive (S&I) pays are more common than among enlisted members, and the tax advantage of receiving allowances tax free is larger for officers. Thus, basic pay is generally a smaller share of the compensation package for officers. That said, as the foundational element of the compensation package, it is informative to consider the structure of officer pay in terms of basic pay.

As seen with the enlisted basic pay table, the structure of the commissioned officer basic pay table (Figure 3.4, right panel) deviates from the idealized structure (Figure 3.4, left panel). Rather than increasing with higher ranks, the pay increases associated with promotion to O-4 and O-5 *decrease* relative to the previous grade. In 2023, the increase in basic pay for promotion to O-3, occurring at three years of service, was about $1,161 but decreased to $945 for a promotion to O-4 and decreased further to about $724 for a promotion to O-5. In addition, the O-6 basic pay

FIGURE 3.4 Increases in Monthly Basic Pay Associated with Commissioned Officer Promotion: Ideal Officer Basic Pay Table Versus 2023 Officer Basic Pay Table



NOTE: Tabulations of the 2023 officer basic pay table assume average DoD officer promotion times for 2013–2018 based on tabulations provided by DMDC.

increase is roughly equal to the pay increase at the O-3 promotion point. Basic pay increases again decline for promotion to O-8 and O-9, with no increase in basic pay on promotion to O-10—though the pay increases at the very senior ranks are driven largely by the executive caps. This general pattern holds for the average promotion times for 2013–2018 and during the early 2000s, when promotion times were slower, as well as during the faster promotion times that have prevailed since 2019. The main conclusion is that the basic pay table for officers is not structured to provide performance incentives for the highest-ranked officers, though other aspects of service and other forms of compensation could contribute to such incentives.

The QRMC considered the following three proposals, summarized in Table 3.8, to restructure the officer pay table:

1. *Targeted raises for grades O-4 to O-6* to ensure that promotions to O-4 and O-5 are at least as valuable as prior promotions. Promotion increases at these grades would be about equal to the O-3 promotion. Basic pay would also be adjusted to provide a pay increase for promotion to O-6 that is higher than promotion to O-3. In this option, raises would be targeted between eight and 18 years of service for those in O-4, O-5, and O-6.
2. *Targeted raises for grades O-4 to O-6 and higher increases for O-8 through O-10* to achieve the same objectives as proposal 1 while also providing higher promotion increases for the most senior officers. In addition to targeted raises in proposal 1, this proposal increases the cap on basic pay for O-8 through O-10 from the Executive Schedule II to the higher Executive Schedule I. This change would result in a small pay increase for promotion to O-10, and the pay cap for the Joint Chiefs of Staff and Combatant Commanders would also be raised.
3. *Targeted raise to O-5*, which is the midgrade with the lower pay bump. Pay increases would occur during 14 to 16 years of service.

Effects on Retention, Personnel Costs, and Efficiency. An Army officer accession is estimated to provide 10.9 man-years over their career under the current FY 2023 pay table. Per person cost for the officer force in the baseline is estimated to be $152,468 for basic pay and retirement accrual costs. As shown in Table 3.9, all three proposals increase retention as well as cost, relative to the baseline. Proposal 3 has the most modest effect given that it provides only a targeted raise

TABLE 3.8 Proposals to Increase Commissioned Officer Basic Pay

Proposal	Motivation	Notes
1. Targeted raises for O-4 to O-6	Ensure that O-4 and O-5 promotions are at least as valuable as previous promotions, and adjust O-6 to provide larger raise than O-3.	Focus changes on the 8th through 18th year of service.
2. Targeted raises for O-4 to O-6; replace ES-II cap with ES-I cap	Same as proposal 1, plus enable higher pay increases for O-9 and O-10.	Also raise cap for Joint Chiefs of Staff and Combatant Commanders.
3. Targeted raise for O-5	Target pay raise for O-5, the midgrade, with the lower pay bump.	Focus changes on the 14th through 16th year of service.

NOTE: ES = Executive Schedule.

TABLE 3.9 Predicted Effects on Retention, Cost, and Efficiency of Basic Pay Proposals for Army Officers

Proposal	Retention: Percentage Change in Man-Years per Accession Relative to Baseline	Percentage Change in Cost per Service Member (2023 Dollars)	Marginal Cost: Ratio of Percentage Change in Cost over Percentage Change in Retention	Increase in Annual Army Basic Pay and Retirement Accrual Cost (Billions of 2023 Dollars)	Increase in Annual DoD Basic Pay and Retirement Accrual Cost (Billions of 2023 Dollars)
Baseline	10.9	$152,468			
1. Targeted raises for O-4 to O-6	0.6%	0.5%	0.77	$0.008	$0.039
2. Targeted raises for O-4 to O-6, replace ES-II cap with ES-I cap	0.7%	0.5%	0.78	$0.010	$0.045
3. Targeted raise for O-5	0.4%	0.3%	0.81	$0.005	$0.027

NOTES: Retention is measured in terms of steady-state man-years per accession; personnel costs include basic pay, BAH, and BAS costs of the force, as well as legacy military retirement accrual costs. Results shown are relative to the baseline. Similar results for the other Services can be found in Asch et al., Appendix E, in Volume II of this report. ES = Executive Schedule.

to O-5. Man-years per accession are predicted to increase by 0.4 percent while cost per member increases by 0.3 percent. The increase in the annual budgetary cost to the Army is predicted to be $5 million and to be $27 million across DoD. Proposal 2 has the largest effects on retention and on cost given that it includes targeted pay raises to O-4 through O-6 and raises the Executive Schedule cap from Level II to Level I. Retention is estimated to increase by 0.7 percent, while costs per person are expected to increase by 0.5 percent. Proposal 2 also has the largest increase in annual budgetary cost to the Army ($10 million) and to DoD ($45 million). As for efficiency, as measured by marginal cost, all three proposals are about equally efficient, with marginal cost ranging from .77 to .81.

Predicted Effects on Performance as Measured by Retained Ability. As with the analysis of midcareer and senior enlisted basic pay proposals, an index for retained ability is used as a proxy for performance based on the premise that those who perform better have higher ability and are promoted faster. Under the baseline, the average ability of the overall officer force is 42.5, and the average ability of officers in grades O-7 to O-10 (54.5) is higher than the average ability of officers in grades O-4 to O-6 (39.5) shown in Table 3.10. That is, the current system provides higher-ability officers in grades O-4 to O-6 the incentive to stay and seek advancement while simultaneously inducing lower ability personnel to leave before being promoted.

Targeting pay raises to the field grades O-4 to O-6 in all three proposals increases the average ability in the field grades, which, in turn, increases the talent pool from which senior grade officers can be selected for promotion. Ability for senior grade officers also increases under all three proposals, with ability increasing more under proposal 2 (from 54.5 to 55.1), reflecting the change in the cap on senior officer pay by moving from Executive Schedule II to Executive Schedule I. Even the more narrowly targeted raises for O-5 in proposal 3 increase ability, but by smaller amounts than the other two proposals.

TABLE 3.10 Average Ability Percentile for Army Officers Under Three Basic Pay Proposals

Proposal	Overall Force	Field Grade (O-4 to O-6)	Senior Grade (O-7 to O-10)
Baseline	42.5	39.5	54.5
1. Targeted raises for O-4 to O-6	42.7	39.9	54.9
2. Targeted raises for O-4 to O-6, replace ES-II cap with ES-I cap	42.7	39.9	55.1
3. Targeted raise for O-5	42.6	39.7	54.7

NOTES: Similar results for the other Services can be found in Asch et al., Appendix E, in Volume II of this report. ES = Executive Schedule.

Thus, the results for officers in the midcareer and senior grades are similar to those presented for midcareer and senior enlisted personnel. All proposals to change the officer pay table increase performance incentives, measured in terms of ability, and improve retention, with a modest increase in cost. Those proposals that would more broadly target pay raises (proposals 1 and 2) were more efficient in raising the mean ability of the whole force.

Lateral Entry

The current officer pay table does not accommodate lateral entry as well as it could because lateral entrants begin with zero years of service in the pay table and earn less basic pay than their peers in the same grade who entered as an O-1. Previous studies, including analyses for the Tenth Quadrennial Review of Military Compensation (10th QRMC) and the 2006 Defense Advisory Committee on Military Compensation, have argued that a time-in-grade pay table would better facilitate lateral entry because lateral entrants would start at higher basic pay. Research conducted for the 13th QRMC verified these findings.[16]

Although no prior QRMC has supported adoption of a time-in-grade pay table, the 10th QRMC recommended adjusting the current pay by using a policy of "constructive credit," whereby the Services could credit members with extra *years of service* for the purposes of computing basic pay—an approach supported by the 13th QRMC. Constructive credit is an existing DoD policy; however, existing policy allows constructive credit so that lateral entrants can enter the military at a higher *grade*, but not with additional years of service.

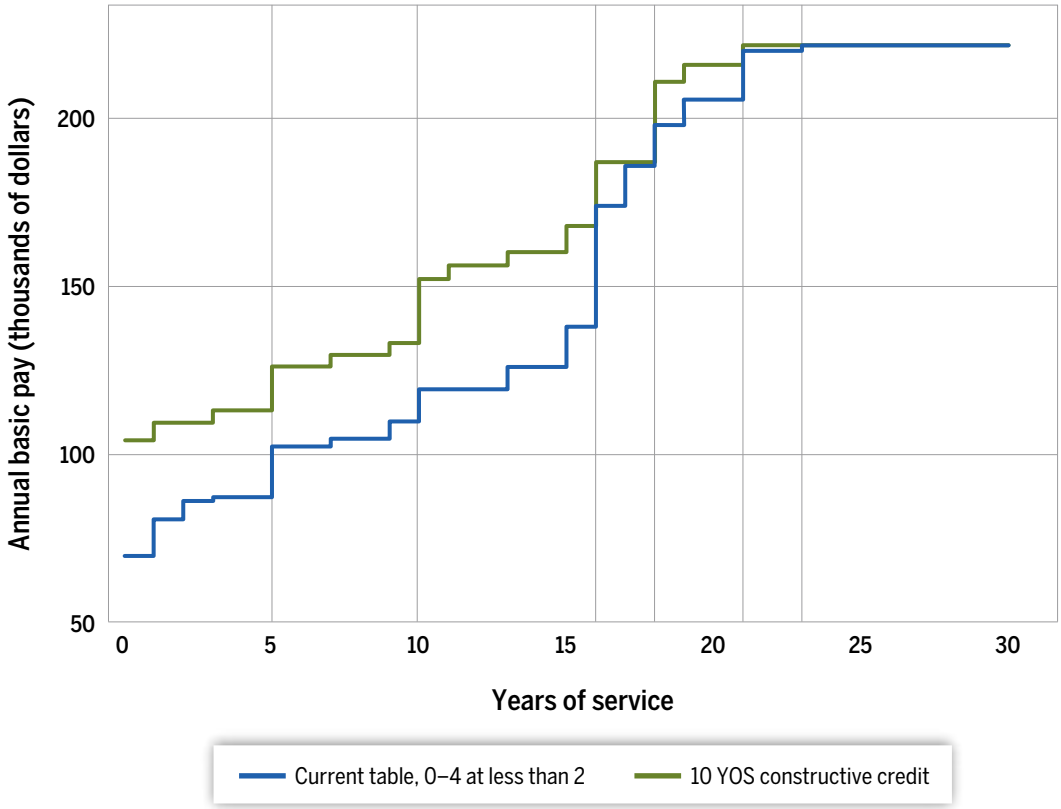
Under the 10th and 13th QRMC approaches, lateral entrants would receive constructive credit for both grade and years of service. In effect, pay over a career under the current time-in-service pay table would virtually replicate the advantages of a time-in-grade pay table for lateral entrants. The implication is that a policy of constructive credit for years of service would enable the Services to increase the pay of lateral entrants, making lateral entry into the military more attractive as an option for civilians with skills acquired in the civilian market.

[16] Beth J. Asch, Michael G. Mattock, Troy D. Smith, and Jason M. Ward, *Setting the Level and Annual Adjustment of Military Pay*, RAND Corporation, RR-A368-1, 2020.

Figure 3.5 illustrates how a policy of constructive credit based on grade *and* years of service could provide higher pay for lateral entrants. Under the current table, a lateral entrant who entered military service as an O-4 would earn basic pay over their career at the level shown by the blue line. If an O-4 lateral entrant could also receive ten years of service as constructive credit at entry for the purposes of computing basic pay, earnings would increase to the green line.[17] Notably, earnings increase substantially in the early years of a career, up to fifteen years of service, and continue to increase but at a lower level between 15 and just after 20 years of service. Such a policy could make lateral entry into the military more attractive.

The Services would have to address multiple considerations in implementing an expanded definition of constructive credit. Lateral entrants who are given nine years of service are not necessarily equivalent in preference for military service or in ability as members who have accumulated nine years of military service after being accessed at zero years of service because they have not been subject to the same incentives for performance. Therefore, the Services would have to exercise care in accessing lateral entrants to ensure they are a good match for military service. Second, the

FIGURE 3.5 Lateral Entry with Constructive Credit for Both Grade and Years of Service



SOURCE: Reproduction of Figure 2.11 in Asch et al., 2020.
NOTE: YOS = years of service.

[17] Constructive credit would be included in the computation of retired pay.

Services would also have to consider how lateral entrants who receive constructive credit for years of service would be considered for promotion, given their limited military experience compared with their peers who are paid at the same rate.

Policy Considerations: Adequacy of the Basic Pay Table

The QRMC's analysis suggests that none of the junior enlisted basic pay proposals dominate in terms of their effects on all factors evaluated (Table 3.11). No proposal simultaneously solves recruiting, retention, and food security, and each has consequences for pay compression and cost. The proposals with the largest pay increases had the largest effects on recruiting and retention but were also the most costly. The two Congressional proposals compressed the pay table the most relative to the pay of midcareer and senior enlisted personnel and were among the least efficient. The least costly proposal considered had a small effect on recruiting and retention and was the least efficient proposal.

Thus, the "best" proposal depends on the problem that DoD is trying to solve as to junior enlisted personnel. If food insecurity is the problem being resolved, this analysis suggests that targeted nonpay assistance may be necessary. Similarly, if DoD is seeking to improve recruiting outcomes, research shows that raising pay is the least cost-effective means of improving recruiting relative to increased advertising, recruiters, and even enlistment bonuses. Raising pay is a permanent policy that affects pay in future years and affects other personnel costs, including retirement accrual. Increasing basic pay to address recruiting challenges begins to make sense only when DoD is also facing retention challenges, which is currently not the case.

TABLE 3.11 Summary of the Effects of Junior Enlisted Basic Pay Proposals

Proposal	Recruiting	Retention	Compression	Cost	Food Security
1. Proposal of Representative Mike Garcia	▲	▲	⬢	▲	✖
2. HAC proposal	●	●	⬢	⬢	✖
3. Junior civilian pay catch-up proposal	●	●	●	⬢	✖
4a. Recruiting catch-up proposal (7%)	▲	▲	●	▲	✖
4b. Recruiting catch-up proposal (15%)	●	●	●	⬢	✖
5. AVF catch-up proposal	▲	▲	▲	▲	✖
6. Boot camp pay catch-up proposal	▲	▲	●	●	✖

KEY: ● = favorable ▲ = acceptable ⬢ = undesirable ✖ = not applicable.

Analysis of the proposals for midcareer and senior enlisted personnel also reveals no single best solution. Determination of the best option depends largely on what problem DoD is trying to solve. Are more promotion incentives needed beyond 20 years of service? Is there a need to ensure that promotions for E-6 through E-9 are at least as valuable as previous promotions to ensure retention of the best and brightest? Is there a need to address pay compression if there is a junior enlisted pay increase? While most of the proposals are effective to some degree, they also require significant cost to implement.

Capping the so-called pay gap between enlisted personnel and officers would likely hurt readiness, artificially constrain force management, and result in an ineffective and inefficient military compensation system. The analysis also reveals that the history of comparable worth economics is not favorable. The fact that a perception of inequality between enlisted and officers may exist within the force may be more an indication of the need for DoD to better articulate to the force the rationale underpinning the differences in enlisted and officer compensation than an indication of a true pay disparity. Moreover, linking enlisted pay to officer pay is likely to result in significant cost.

The three proposals evaluated to increase performance incentives in the midcareer and senior officer grades would improve retention, with a modest increase in cost. That said, officer retention has historically been strong in recent years, and average RMC among officers compares well relative to civilian pay. In addition, the Services do not appear to be having problems retaining high-quality officers. So, it is unclear that there is an urgent problem that needs to be solved by making a change to the pay table. However, expanding the definition of constructive credit to include years of service *in addition to* grade would enable the Services to increase the attractiveness of lateral entry under the current time-in-service pay table.

Basic pay is a blunt and costly instrument and most prudently deployed only when there are system-wide problems, such as both widespread retention and recruiting shortfalls, which cannot be solved more efficiently with other policy instruments. Although many of the proposals analyzed by the QRMC result in a more ideal pay structure, those goals are achieved only at a higher cost. Recent retention is strong, recruiting has significantly improved, and favorable comparisons between military and civilian pay suggests that levels of basic pay are more than adequate.

CHAPTER 4

Annual Adjustments to Basic Pay

The annual process of adjusting basic pay has important implications for the health of the AVF and has at least three key goals. First, these adjustments should ensure that changes in military basic pay keep up with changes in earnings opportunities in the civilian labor market—opportunities that Service members consider when they make retention decisions and that potential recruits consider when making an accession decision. Those decisions in turn affect operational readiness.[1] Second, these adjustments must not grow so fast that compensation costs reduce the military's flexibility to invest in critical equipment, technology, and other resources that contribute to operational readiness. Third, since military spending accounts for nearly half of discretionary outlays by the U.S. government,[2] managing compensation for military personnel has significant implications for the efficient use of taxpayer funds and the broader fiscal health of the nation.[3]

For the last two decades, the ECI—a nationally representative measure of the changes in the hourly labor costs to private sector employers of wage and salary workers computed quarterly by the Bureau of Labor Statistics (BLS)—has been used to provide formal guidance for the annual adjustment of basic pay. This measure was formally adopted by DoD in 2003, following the ECI's adoption as a guide for civilian federal employee pay adjustment in 1990 and the recommendation of its use by the Seventh Quadrennial Review of Military Compensation (7th QRMC). The 7th QRMC also considered alternative sources of guidance for adjusting pay including the Defense Employment Cost Index (DECI), a measure developed by researchers at RAND in the early 1990s.[4] Although the

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1 DoD, Office of the Assistant Secretary of Defense (Force Management and Personnel), *Report of the Seventh Quadrennial Review of Military Compensation: Annual Pay Adjustment, Major Topical Summary (MTS) 5*, August 1992.

2 Congressional Budget Office, "Discretionary Spending in Fiscal Year 2022: An Infographic," fact sheet, 2023.

3 The findings and analysis discussed in this chapter are drawn from Beth J. Asch, Michael G. Mattock, Jason M. Ward, Samuel Absher, Patricia K. Tong, and Anton Shenk, *A Review of the Military Basic Pay Table: Analysis in Support of the Fourteenth Quadrennial Review of Military Compensation*, Chapter 6 and Appendix F, RAND Corporation, a supporting research paper in Volume II of this report.

4 DECI was introduced in James R. Hosek, Christine E. Peterson, Jeannette Van Winkle, and Hui Wang, *A Civilian Wage Index for Defense Manpower*, RAND Corporation, R-4190-FMP, 1992. In James R. Hosek, Christine E. Peterson, and Joanna Zorn Heilbrunn, *Military Pay Gaps and Caps*, RAND Corporation, MR-368-P&R, 1994, the authors used additional years of data to extend the pay gap analysis between the DECI and ECI in the 1992 report.

7th QRMC ultimately did not recommend the formal adoption of the DECI, it did call for "further development of the DECI as a personnel management tool and as a candidate index for future use in the pay adjustment process."[5]

A concern about the ECI, acknowledged by the 7th QRMC, is the large differences in age and educational levels between the overall civilian labor force used in creating the ECI and those of the active duty military force. Age and education are important determinants of civilian earnings. Consequently, the differences between the civilian and military workforce suggest that the ECI is not accurately tracking the change in the civilian opportunities available to military personnel who are currently serving. Research for the development of the DECI showed that because of these differences, substantially lower pay increases over the 1980s would have been sufficient to keep military pay growth comparable with civilian labor market opportunities. Research for the 13th QRMC showed continued divergence between pay adjustment guidance provided by the ECI and the DECI. After 2000, the growth in pay of civilians with similar demographics as military personnel was generally slower than for the overall civilian labor force, especially as a result of the Great Recession and its aftermath beginning in 2009.[6]

The recent, rapid uptick in inflation driven by food costs, housing costs, and costs of durable goods, as well as recent reports of reported food insecurity among Service members, have contributed to a renewed interest in whether the ECI continues to be the best source of guidance for making these adjustments in a timely and accurate fashion. To this end, Congress, in the FY 2023 NDAA, directed DoD to determine whether it should continue to use the ECI to adjust basic pay or should, instead, consider alternative measures, including the DECI—a request motivated by the tumultuous years since the emergence of the COVID-19 pandemic, which put a spotlight on the accuracy and timeliness of the ECI.[7] This requirement was incorporated into the work of the 14th QRMC.

The QRMC evaluated five alternatives that could be used to provide guidance for the annual adjustment to basic pay as follows:

1. ECI, current practice, uses a survey of *employer cost*.
2. DECI, named in the 2023 NDAA as an alternative of interest, uses a survey of *employee earnings* and age, gender, and educational level demographics designed to match that of military personnel.
3. CPI, which *measures inflation*, is used as guidance for major policy decisions.
4. Use a *forecast of the ECI* produced by the Congressional Budget Office (CBO).
5. Use a *more "timely" ECI* for the military pay raise, but the current ECI method for budgeting.

5 DoD, August 1992, pp. 2-2–2-3.

6 Asch et al., 2020.

7 Section 643 of H.R. 7900, 2021–2022.

The following set of criteria was used to guide this assessment of the relative merit of the candidate alternatives:

- *Accuracy*: Does the index reflect the civilian earnings opportunities of military personnel?
- *Timeliness*: Does the index reflect the change in civilian earnings between the time the basic pay raise occurs and the same time in the prior year?
- *Cost-effectiveness*: Is the index an existing measure, or must it be calculated for DoD at an additional cost (and, if so, how costly would this process be)?
- *Credibility*: Can the index be produced by a reputable organization, can it be independently verified, and does it use rigorous methods and underlying data?

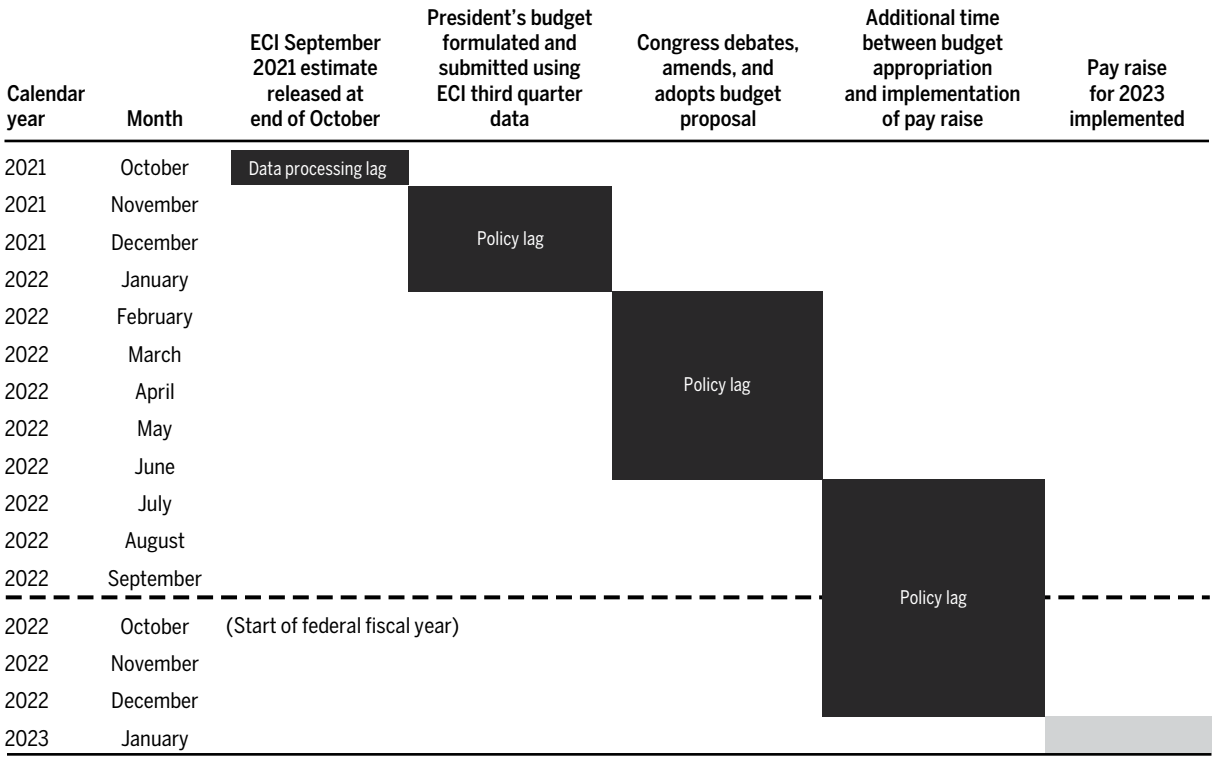
The Employment Cost Index

Produced by the BLS since 1975, the ECI is a quarterly measure of the change in hourly costs of wage and salary workers to private-sector employers over time. The ECI uses data from the National Compensation Survey to produce a measure of changes in the employer cost of labor for a fixed group of jobs. BLS produces several specific ECIs; the one used to guide the military pay raise measures the average change in wages and salaries for all private-industry workers in the third quarter of the year (July through September) preceding the NDAA compared with the same quarter of the previous year. Thus, the ECI is a "backward-looking" index that measures changes in labor costs between the current year and the previous year; it is not a forecast of change in the coming year.

Given the underlying data and method of calculation, the ECI has a strong claim to be representative of the change in wage and salary earnings paid by private-sector employers in the broad civilian labor market. But its accuracy as a guide for adjusting military compensation is limited in several ways. Most importantly, the ECI measures wage and salary earnings for the civilian labor force, which differs in important ways from the active duty military force. Military Service members are, on average, younger and more likely to be male and have differing levels of formal educational attainment. In addition, the mix of occupations used to calculate the measure may not reflect private-sector employment options for currently serving military personnel. Other limitations of the ECI are that it measures earnings from the perspective of employer cost, not from the perspective of what employees can earn; it may not reflect the influence of changing occupations in the job market because the mix of occupations on which the ECI is based is updated only once per decade; and it does not capture the influence on earnings when workers change jobs, which is a key source of higher pay for workers.

The ECI is released around every four weeks after the end of data collection, so the process of producing the measure itself is very timely. But it takes 15 months after the ECI is released before the pay raise on which it was based is implemented by the military, as the simplified process in Figure 4.1 illustrates. The time required by the policy-setting process—to formulate and submit

FIGURE 4.1 Example of 15-Month Timeline for Setting Annual Basic Pay Adjustment

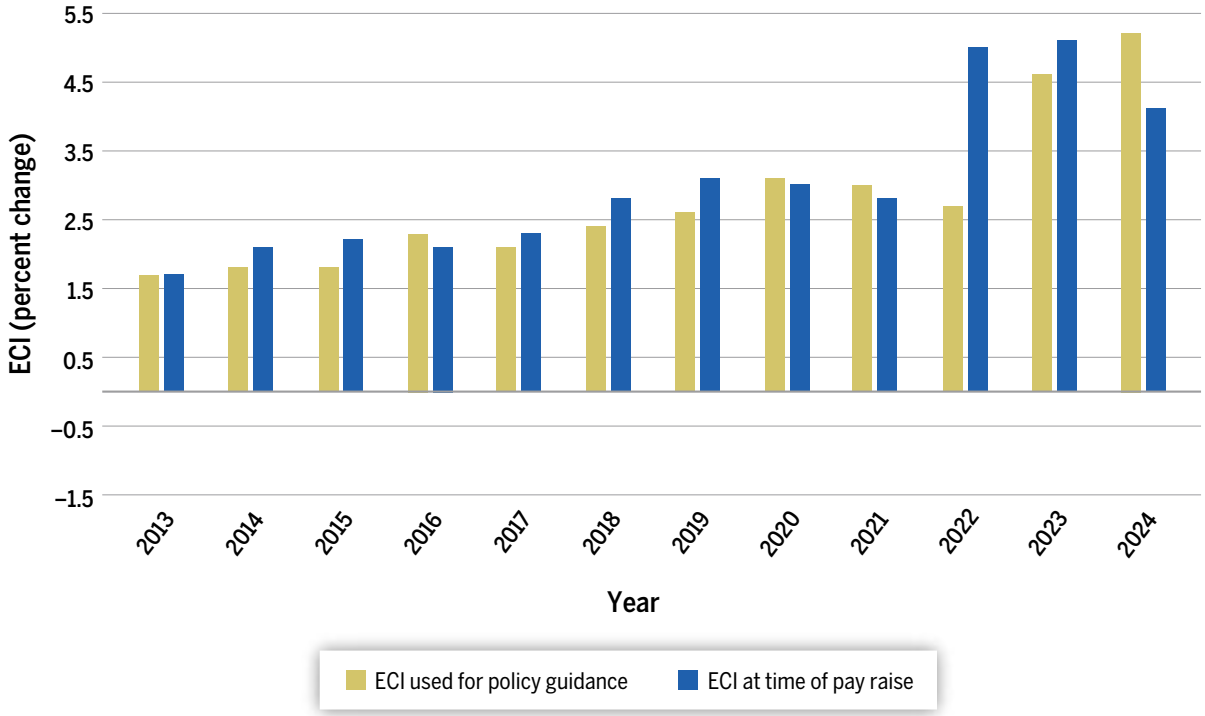


SOURCE: Calculations using data from Aherne, 2023.

a budget to Congress; for Congressional deliberations to adopt the budget, which applies to the fiscal year beginning in October; and for pay raises to take effect three months later in January—is a hurdle any candidate method for adjusting military pay faces. Interestingly, in the 1970s and 1980s pay adjustments took effect at the beginning of the fiscal year in October, so it appears that at least three months of this 15-month delay might be discretionary.

How much does this lag matter? From 2013 to 2021, the ECI used for the pay adjustment and the ECI released a year later (closer to the time of the actual pay raise) differed by only a small amount in most years as Figure 4.2 shows. In seven of those years, the ECI at the time of the pay raise would have led to a smaller pay increase, and in four of those years would have resulted in a larger pay increase. (In 2013, there was no change between the two ECIs.) But during the highly inflationary period since 2022, when both prices and earnings increased rapidly, the difference in the two ECI values induced by the policy lag was more notable. In 2022, the difference between the ECI guidance for the pay adjustment and the ECI immediately preceding the pay raise was significant, with the guidance 2.3 percentage points (85 percent) lower than the annual earnings increase observed at the time of the pay raise. In 2023, the ECI at the time of the pay raise was 11 percent higher, and in 2024, it was 21 percent lower. Thus, the policy lag is especially relevant in times of rapid changes in economic conditions, such as recent periods of inflation.

FIGURE 4.2 Comparison of ECI Used for Policy Guidance with Actual ECI at the Time of the Military Pay Raise (Five Quarters Later)



SOURCE: Calculations using data from BLS.

As for cost and credibility, the ECI is produced and disseminated at no cost to DoD and is, therefore, highly cost-effective. It is also highly credible, given its long-running history, which substantially predates its use in providing guidance for pay adjustment for military and federal civilian workforces.

To summarize, the ECI has some limitations:

- It is backward-looking, and there is a 15-month lag between release of the index and the pay raise on which it is based, which can be problematic during inflationary periods.
- It is designed to reflect employer labor costs, not civilian earnings for workers. This limitation means that the ECI does not capture the upward effect on civilian earnings of workers switching jobs during periods of robust economic growth; nor does it reflect the downward or moderating effect on civilian wages of layoffs and other employment changes associated with economic downturns.
- It holds the mixture of jobs used in the sample constant for several years at a time, which may not fully reflect earnings changes related to growth or contraction in the share of various occupations in the economy.
- It is representative of the overall civilian labor force, which differs in important ways, including age, education level, and gender, from the active duty military force.

However, the ECI has some important advantages. Because it is used in setting pay for federal employees, using this source of guidance helps to ensure some confluence between rates of growth of basic pay and pay in federal government careers, one of the largest sources of veteran employment. The ECI captures broad changes in the civilian labor market in general. To the extent that Service members make retention decisions based on the civilian labor market in general—perhaps taking a career perspective that considers current earnings and future earnings at older ages and considers all civilians rather than the earnings of civilians who currently have characteristics similar to military members—the ECI would capture these civilian earnings better than the DECI, which is discussed in the next section. In addition, the ECI is a timely, well-regarded measure that is produced at no cost to DoD. Finally, one of the shortcomings of the ECI previously pointed out—that it does not capture important economic forces that can lead to both more rapid increases in civilian earnings or moderation or even declines in earnings—could also potentially be viewed as a positive factor insofar as the ECI tends to have relatively small fluctuations over time compared with the DECI or the CPI.

The Defense Employment Cost Index

RAND researchers in the early 1990s created the DECI as an alternative approach to providing guidance for the annual adjustment of basic pay.[8] The DECI is distinguished from the ECI in a number of ways, principle among them being that it is based on the Current Population Survey (CPS), which is a long-running worker-based survey of earnings and other labor market outcomes, which has played a major role in policymaking. By using the CPS, the DECI captures the earnings of potential workers rather than the labor costs of employers (the ECI approach). Also, this survey better captures earnings changes related to job switches and other factors affecting earnings opportunities of workers, such as changes in the mix of occupations from layoffs and job creation—features of the labor market that can be highly responsive to economic changes and arguably should be reflected in the guidance for the annual pay adjustment.

Another important feature of the design of the DECI is that these CPS data are weighted by the demographic composition of the active duty force, which means that the index is constructed to reflect the external labor market opportunities of civilians who have characteristics similar to those of military personnel who are currently serving. The CPS data are weighted using age, education, and (if required) the gender mix of active duty military personnel and thus reflect differences between the military population and the overall civilian labor force. For example, between 1982 and 2023, 17-to 21-year-olds have made up between 18 and 31 percent of the active duty force, while their share in the civilian labor force varied between 4 and 9 percent. Similarly, the share of Service members with high school degrees as their highest educational credential ranged between 62 and 71 percent, compared with 25 to 42 percent of the civilian labor force. Additionally, these weights

8 Hosek et al., 1992. Asch et al., in Volume II of this report, contains an overview of the construction of DECI. Asch et al. (2020) contains additional background on the construction of the DECI and how it compares with ECI.

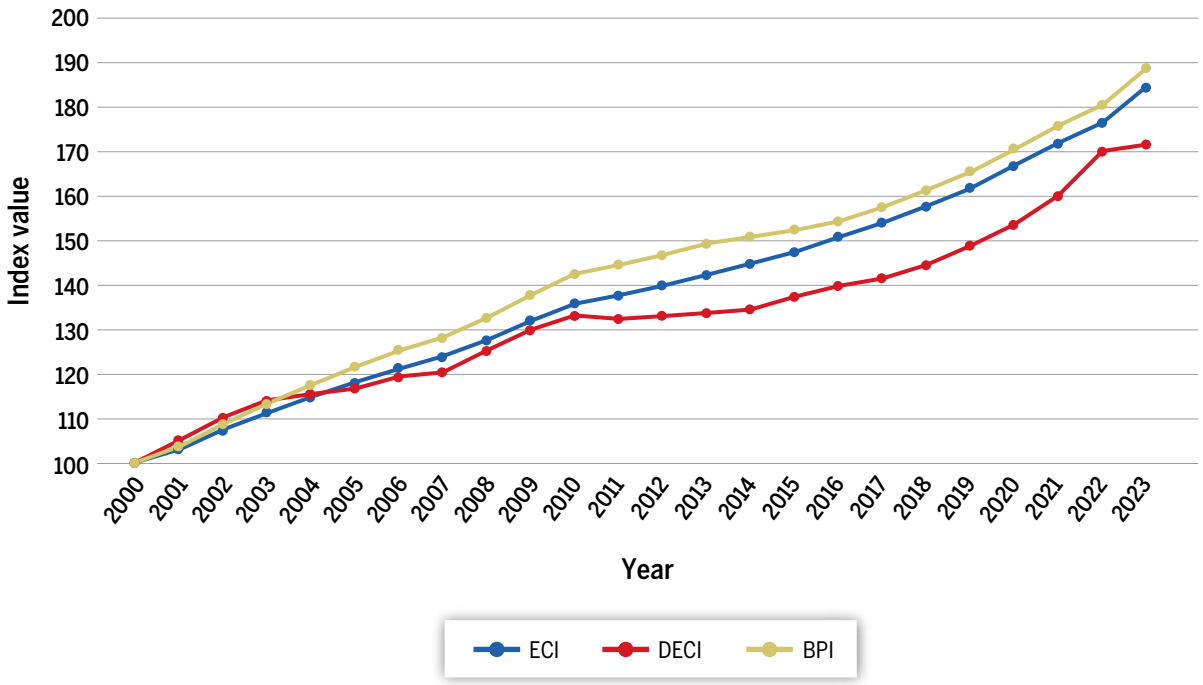
are updated annually (rather than every seven to ten years as with the ECI), so that changes in the mix of military personnel are fully reflected in the guidance for the annual pay adjustment.

These two features address the key limitations of the ECI discussed earlier and make the DECI potentially a more accurate measure of the earnings associated with alternative careers most relevant to active duty Service members and changes in potential earnings from labor market fluctuations. The design of the DECI can also be used to create DECIs specific to subgroups such as enlisted members or officers, specific Services or occupational specialties, and other subgroups of potential policy interest. This flexibility not only makes the DECI a good candidate for setting the annual pay raise but also allows the DECI framework to be a useful tool in considering other aspects of military compensation, such as enlistment or reenlistment bonuses.

The guidance provided by the DECI would have differed over time from the guidance provided by the ECI—a comparison provided in Figure 4.3. This figure not only shows changes over time in the ECI and DECI between 2000 and 2023, but also includes an index of the actual pay increases, referred to here as the basic pay index, or BPI—illustrating how frequently annual adjustments have diverged from ECI guidance over the last two decades.

A few notable patterns are evident. First, over the full 24 years, the growth in basic pay, as shown by the BPI, has been higher than the ECI, suggesting that the guidance provided by the ECI has

FIGURE 4.3 Changes over Time in the ECI, DECI, and BPI Using 2000 as the Baseline Year



SOURCE: Calculations based on CPS data from IPUMS (Flood et al., 2023), DMDC data, and data on basic pay increases from the Congressional Research Service (2023).

NOTE: The 15-month policy-setting time frame is incorporated in these indexes.

not always been heeded. Second, the DECI has often deviated from the ECI and from the annual pay adjustment decided on by policymakers. For example, over the 2008–2009 period, when the annual basic pay adjustment equaled ECI plus 0.5 percent, the DECI, which was increasing at a faster rate, would have suggested a higher increase than the ECI guidance (4.1 percent versus the 3.0 percent in 2008, and 3.7 percent versus 3.4 percent in 2009).[9]

The DECI also more quickly captured the labor market and supply chain disruptions of the COVID-19 pandemic during 2021 and 2022—as indicated by higher rates of change in the DECI compared with the ECI. Most recently, in 2023, the DECI was much lower than the ECI (0.8 percent versus 4.6 percent) as inflation cooled, and unemployment continued to decline, although over the three years since 2020, the DECI would have still led to slightly higher pay relative to the ECI guidance, and the largest increases would have been more front-loaded in the first two years, when inflation was the highest. It is also notable that the DECI guidance would have resulted in a lower level of overall pay increase over the 2000–2023 period, the full period shown in Figure 4.3. In other words, the DECI would have set a lower trajectory of pay growth over more than two decades and the magnitude of the increase of RMC to far above the 70th benchmark would have been attenuated.

These characteristics of the DECI that make it more responsive to civilian earnings may lead to more volatility in the magnitude of changes that would guide the annual basic pay adjustment—volatility that may be less ideal from a policymaking perspective even if it more accurately reflects changes in civilian earnings. However, just as Congress ultimately has set pay at levels that deviated from the ECI since 2000, it could also deviate from the DECI in a discretionary fashion to tamp down DECI's greater swings. Alternatively, it could more formally adopt an approach to moderate the swings by, for example, using a moving average of the DECI.

Although data for computation of the DECI are readily available, since the CPS and military administrative data are already collected at no additional cost to DoD, the DECI would need to be generated by DoD or a contractor at some cost, which somewhat reduces its cost-effectiveness relative to existing indexes. In addition, it is possible that there could be concerns about the credibility of the DECI depending on the organization used to calculate it and the transparency of the process. However, given that there are now two decades of research on the DECI, including publication of the code used in its calculation, these concerns should be relatively minor.[10]

It is also the case that the DECI could be used as an additional tool for policymakers in setting the annual basic pay adjustment even if the ECI continued to be the formal measure for guidance. Policymakers have on numerous occasions in recent years departed from the ECI guidance and enacted basic pay adjustments reflecting other considerations. The DECI can help to inform these

9 A full discussion of the comparison of the path of ECI, DECI, and BPI from 2010 to 2019 is provided in Chapter 4 of Asch et al. (2020).

10 Computer code for computing the DECI is provided in an Appendix to Asch et al. (2020).

departures from the ECI guidance first, by considering how it differs from the ECI and second, by creating DECI measures for subgroups of interest in the military population (e.g., officers), which could help to develop a more well-rounded picture of the appropriate basic pay adjustment.

The Consumer Price Index

The CPI is the source of official inflation measures for the United States and is used to govern adjustments to payments and other obligations in a wide variety of contracts and policies.[11] Perhaps most importantly, since 1975, the CPI has been used as a source of annual cost-of-living adjustments to benefit levels in the Federal Old-Age Survivors and Disability Insurance program (known more commonly as Social Security).[12] The interest in the CPI as an alternative measure to guide the military's annual basic pay adjustments appears to be motivated primarily by the notion that it would potentially serve as a better safeguard against military pay falling behind during periods of rising prices than the ECI was during the period of rising inflation after the emergence of the COVID-19 pandemic.

There are both theoretical and empirical points to consider regarding the accuracy of the CPI in reflecting changes in civilian earnings that are relevant for Service members. The first is conceptual and relates to the relationship between prices and wages. Economic theory argues that when productivity increases, real wages should increase as well. Since 2000, this relationship has largely held. Real wages increase when nominal wages outpace inflation. That is, growth in nominal wages reflects both changes in productivity and changes in prices. This relates to the CPI because the CPI measures growth in prices (inflation) only but not changes in productivity. Since real wage growth is positive in most years, if a price index is used to guide the annual basic pay adjustment, basic pay increases would be much lower than the growth in civilian earnings (nominal wages).

This theoretical point is supported by the empirical data as well. Given 2000 as the baseline, the CPI was lower than either the ECI or the DECI for 18 of the last 23 years, as shown in Figure 4.4. By 2023, the CPI was 16 index points lower than the ECI and 3 index points lower than the DECI. This pattern is consistent with the notion that a price index would be lower than a nominal wage index (such as the ECI and the DECI) when real wages are growing. Both the theory and empirical evidence indicate that the CPI would not appropriately reflect changes in civilian earnings and, thus, would not meet the accuracy criteria. The CPI is released monthly, is produced at no cost to DoD, and is a highly credible measure because of its long history of use, but, in terms of accuracy, it is not a good candidate to guide the annual basic pay adjustment.

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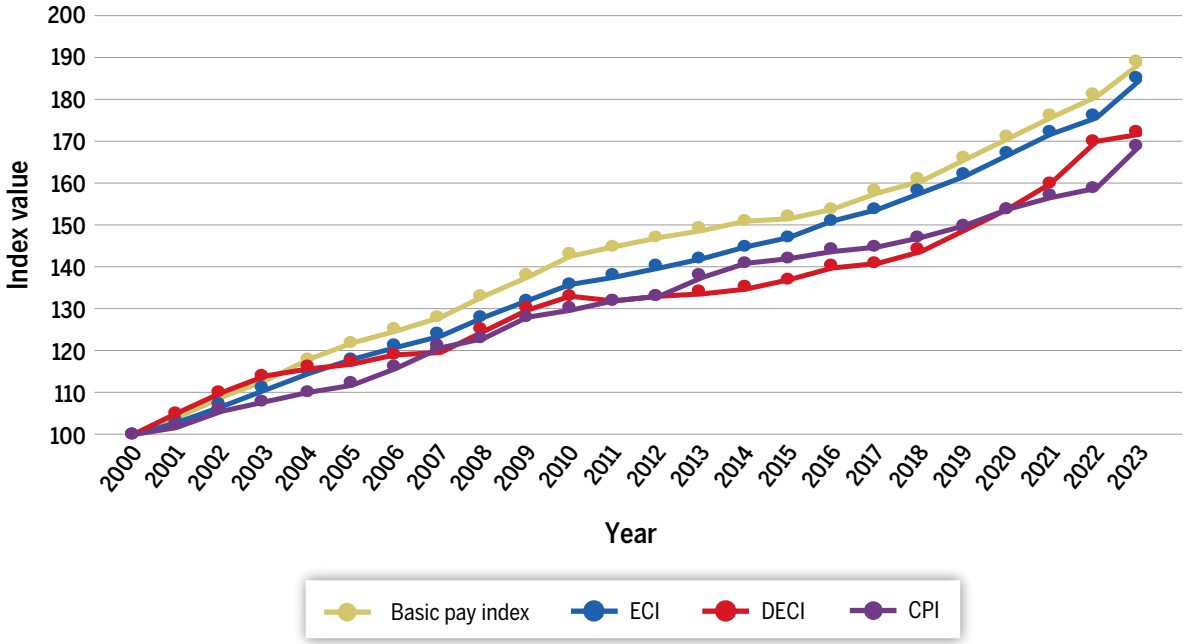
11 Darren Rippy, "The First Hundred Years of the Consumer Price Index: A Methodological and Political History," *Monthly Labor Review*, April 2014.

12 Social Security Administration, "Cost of Living Adjustments," webpage, undated.

FIGURE 4.4 Changes in the CPI, ECI, BPI, and DECI Since 2000



SOURCE: CPI for all urban consumers, percent change from a year ago at the end of third quarter of the relevant year. Seasonally adjusted from Federal Reserve Bank of St. Louis Economic Data (FRED).

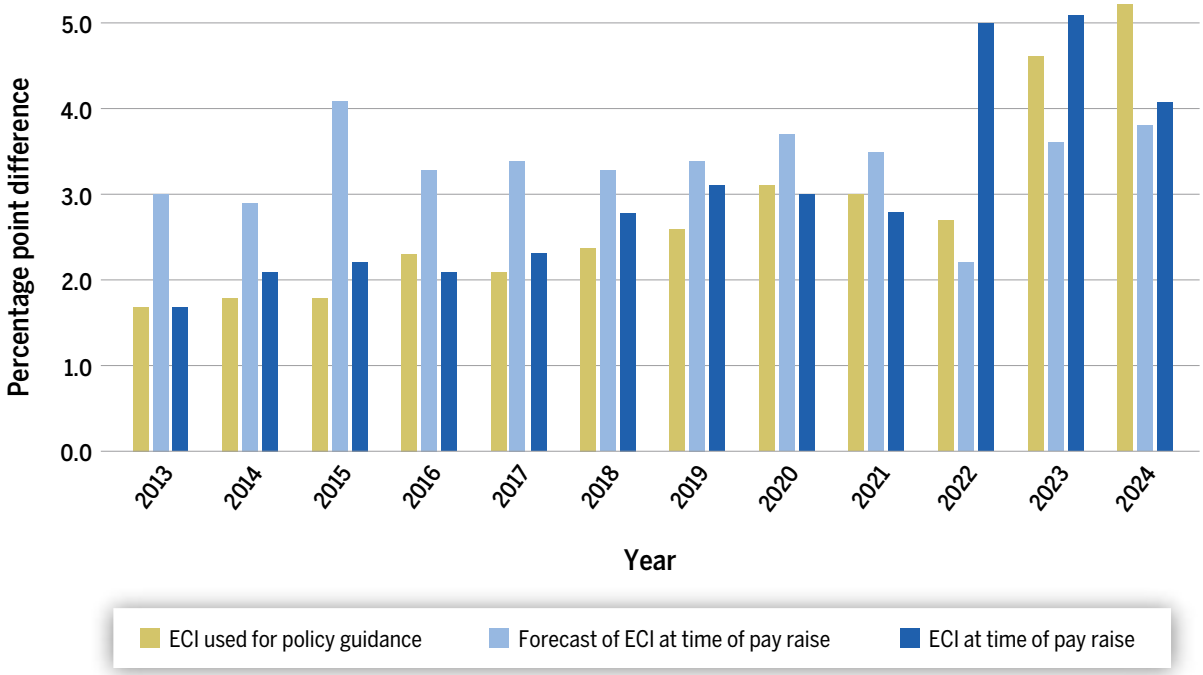
The Congressional Budget Office's Employment Cost Index Forecast

The ECI is inherently a backward-looking measure that uses the recent past to try to inform the trajectory of future civilian earnings opportunities of Service members. The QRMC explored using a forward-looking measure of earnings changes that forecasted the future path of civilian earnings opportunities. The forecast of the ECI generated by CBO is one such measure. CBO's ECI forecast is part of a larger series of forecasts of economic indicators called the "Budget and Economic Outlook Updates," which are produced for use in the Congressional budget process.[13]

In considering the accuracy of CBO's ECI forecast, many of the issues related to the accuracy of the ECI itself also apply—namely, that it reflects employer labor costs and that it is not representative of characteristics of the military population. But another dimension of accuracy as relates to the forecasted ECI is how well it predicts the actual future value of the ECI. The results of this assessment, which evaluated the accuracy of the ECI forecast in the fourth quarter of the year, is illustrated in Figure 4.5, which compares the ECI used for policy guidance, the forecast of the ECI at the time of the pay raise, and the actual ECI at the time of the pay raise. From 2013 to 2021 the ECI forecast was uniformly higher than the actual ECI at the time of the basic pay adjustment, which, if used to guide annual pay raises, would have resulted in dramatically higher pay raises than under current guidance. Only in 2019 and 2024 was the forecasted ECI more accurate

[13] Congressional Budget Office, "Major Recurring Reports," webpage, undated.

FIGURE 4.5 Comparison of ECI Used for Policy Guidance with Forecasted and Actual ECI at the Time of Pay Raise



SOURCE: Calculations using data from the BLS and CBO.

(compared with the eventual ECI at the time the pay raise took effect) than the ECI used for guidance. The implication is that the ECI currently used for guidance would have provided better guidance during this period and is a better alternative than CBO's ECI forecast.

Additionally, CBO's forecast data are released on an irregular schedule, which suggests that the timeliness of this measure would not be dependable. Although the measure is cost-effective—in that it is produced at no cost to DoD—and although CBO is generally considered a credible source, the combination of the accuracy of the forecasts with the irregularity of the schedule suggests that this measure does not improve on current practice.

Incorporating a More Recent Version of the ECI

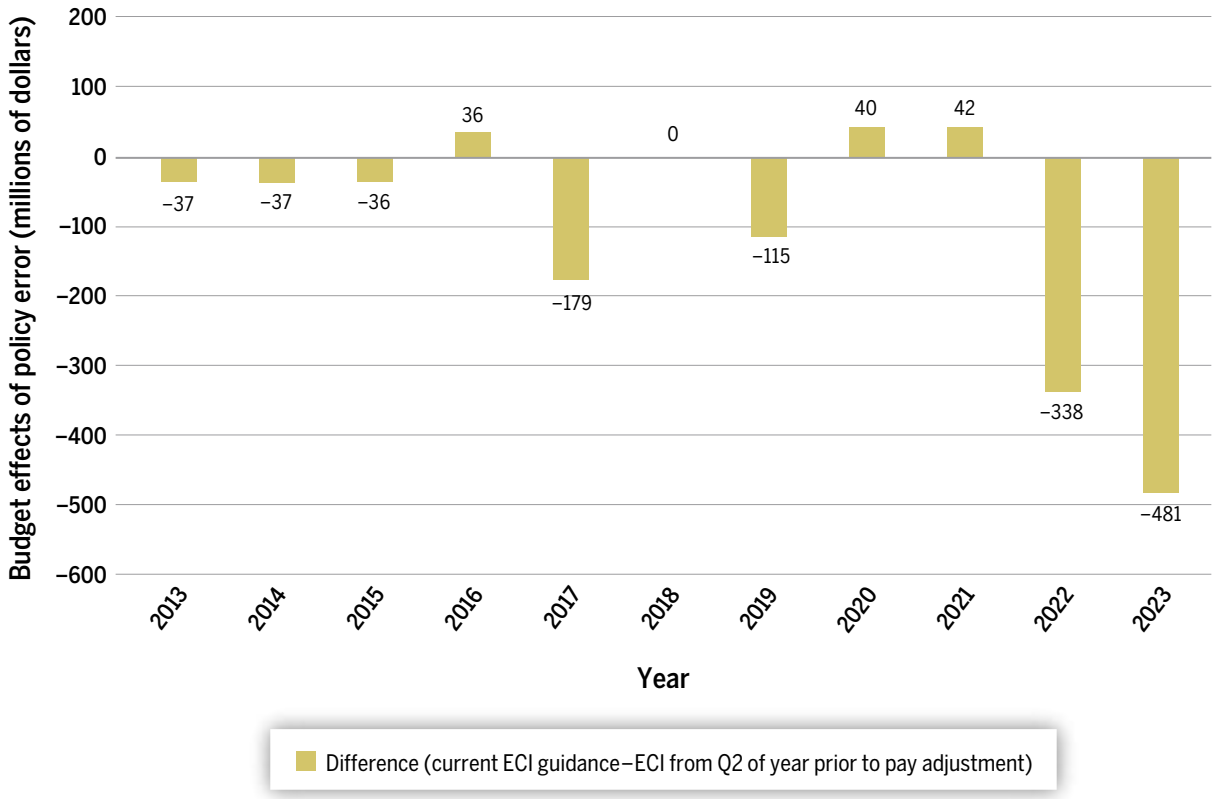
A final alternative is not an alternative index, per se, but rather an alternative way to use the current index, the ECI. The idea is to use an ECI that is computed closer to the time of a pay raise to reduce the lag between when the ECI is computed and when the military pay raise occurs, as illustrated earlier in this chapter. Reducing the lag would be particularly desirable during inflationary periods. A reasonable candidate to achieve that might be the ECI measure at the end of the second quarter of the year prior to the pay raise, which is released in late July and covers the months of April through June. This ECI measure reduces the 15-month lag shown in Figure 4.1 to six months. During the budget process, from the prior November through June, before the second quarter ECI is released,

it would be necessary to use a placeholder ECI—either the current ECI guidance or a forecast of the ECI such as the CBO forecast. DoD would then need to adjust its budget, up or down, once the second quarter ECI is released depending on how it compares with the placeholder ECI. Since this alternative does not use a new index, the accuracy, computation cost, and credibility of this approach matches that of the ECI. But because it would reduce the time lag, it would compare favorably in terms of timeliness.

A pitfall of this alternative is that it introduces a forecasting error that must be managed by DoD in the budgeting process. Dealing with such errors is not without precedent. DoD already uses a placeholder for the BAH, though that budget is considerably smaller than the budget for basic pay—$22.9 billion in 2022 compared with $63.9 billion. Thus, the budget adjustments to manage a forecasting error in basic pay, even a small one, could have substantial fiscal implications.

The QRMC estimated what the size of the budget error would have been if this approach had been used between 2013 and 2023. The assumption in this analysis was that the current ECI guidance would be used during the budget process and that the second quarter ECI would be used to determine the pay raise. The results in Figure 4.6 show that the fiscal implications are mixed, with overages in some years and shortfalls in others. But there are more years in which

FIGURE 4.6 Fiscal Implications of Using the Current ECI Guidance at the Start of the Budget Process and Then Revising with a Later ECI Measure



SOURCE: Calculations using data on force size and basic pay by grade and year of service from the Greenbook (2013–2023) and ECI from the BLS.

the updated second-quarter ECI would have been larger in magnitude than the ECI currently used for guidance (a negative value), resulting in a budget shortfall that would have to have been covered by reprogramming funds from other areas. Over the past decade, as the figure indicates, the budgetary shortfall associated with this alternative fluctuated from around $36 million to $37 million in some years and more than $300 million during the inflationary period in the aftermath of the COVID-19 pandemic. Such shortfalls suggest that the desirability of this approach depends critically on the willingness of policymakers to face potentially consequential budget revisions relatively late in the budgeting process during times of economic volatility.

Policy Considerations: Alternative Measures to Guide the Annual Basic Pay Adjustment

A summary of the results of this analysis is captured in Table 4.1, which compares the alternative measures to guide annual basic pay adjustments with the four criteria used in the evaluation. Overall, the QRMC's analysis leads to the conclusions that the CPI and the CBO's ECI forecast are not viable alternatives. The CPI does not and cannot accurately reflect earnings growth in the civilian labor market and the civilian opportunities faced by military members, while the ECI forecast proved less accurate historically than the ECI currently used. While the DECI has some clear advantages over the ECI, the ECI is not without its benefits, not the least of which is that it

TABLE 4.1 Comparison of Alternative Measures to Guide Annual Basic Pay Adjustments

Index	ECI		Forecast ECI	DECI	CPI
Method	Traditional	Separate Budget and Raise ECIs			
Accuracy	Accurately measures employer costs for entire labor force, not serving members	Same accuracy as ECI	Less accurate than ECI	More accurate than ECI and captures rapid changes in labor market	Significantly less accurate than ECI or any measure of earnings changes
Timeliness	15-month lag	More timely	More timely	Same as ECI	Same ECI
Cost effectiveness	Existing measure	Method introduces budgeting errors	Existing measure but ad hoc	Would need to be computed by DoD or external group	Existing measure
Credibility	High credibility attributed to BLS; widely used	Better messaging to Service members	Unclear if and how it is used	Needs to be computed by independent group	High credibility attributed to BLS, widely used
Other considerations	Less accurate measure of external market earnings of serving members	Reflects more current inflation impact	Less accurate pay adjustment	Represents military skill competitiveness, historically more volatile	Smaller basic pay increases than ECI during periods of increased labor productivity

NOTE: Regarding timeliness, lags in private-sector and other public-sector salary adjustments are also common. Green = Favorable, Yellow = Acceptable, and Red = Unfavorable.

is credible, relatively stable, and adequate in terms of accuracy. That said, even if DoD continues to use the ECI, the DECI could provide useful additional information on whether it made sense to deviate from the ECI guidance.

Regardless of whether the ECI and/or the DECI is used, any measure must contend with the extended period between when the data on earnings are collected and disseminated and when the annual basic pay adjustment is implemented. This 15-month lag is especially relevant in time of rapid changes in civilian labor market conditions or conditions in the broader economy, such as those that occurred following the COVID-19 pandemic. Timeliness would be improved if DoD reverted to pay increases that began at the beginning of the fiscal year, in October, rather than at the beginning of the calendar year, in January. Implementing this approach would involve a one-time cost in the year when the transition from January to October occurred.

CHAPTER 5

Evaluating Methodologies Used in Calculating Allowances

The previous chapters have focused on RMC and, primarily on its largest component, basic pay. As discussed, the level of basic pay a Service member receives is determined by grade and the number of years a member has been in service. In addition to basic pay there are "more than 70 separate pays, allowances, or benefits of one sort or another that go to make up the military compensation system considered as a whole."[1] Although no member receives all the various pays and allowances, most members receive the two allowances that are components of RMC: BAH and BAS.[2] The amount Service members receive for allowances is based on such factors as rank, years of service, a member's duty station, dependency status, and household size.

As part of the 14th QRMC, the President requested a review of the statutory requirements and methodologies used to calculate four allowances—BAH, BAS, the COLAs, which include the CONUS COLA and the OCOLA; and BNA—to ensure members are food secure and obtain suitable housing. In addition, Congress requested an examination of BAH in the FY 2023 NDAA, which was incorporated into the QRMC's work. Reviewing the methodologies underlying these allowances to determine whether they are set at an appropriate level and are achieving their intended purposes contributes to ensuring overall adequacy of pay for Service members.

This chapter discusses the QRMC's reviews of BAH, BAS, and the COLAs.[3] The next chapter examines food security in the Military Services and, as part of that work, touches on the BNA.

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1 DoD, Under Secretary of Defense for Personnel and Readiness, 2018.

2 Some members do not receive these allowances or do not receive them in full. For example, members going through boot camp are not eligible for BAS, and members who receive in-kind housing while living in barracks receive partial BAH.

3 The discussion and research findings reported in this chapter are drawn from Adam M. Clemens, Daniel M. Leeds, Jaclyn Rosenquist, Robert P. Trost, and Samuel A. Yellin, with Robert W. Shuford, *Report on the Calculation of the Basic Allowance for Housing, Basic Allowance for Subsistence, and Cost-of-Living Allowances*, CNA; and Adam M. Clemens, Danielle N. Angers, Russell W. Beland, Shing L. Cheng, Daniel M. Leeds, Rikesh A. Nana, Robert W. Shuford, Susan Starcovic, and Sarah L. Wilson with Glenn Ackerman, Peter Bernstein, Louise Collis, and Joshua Craig, *Evaluation of Basic Allowance for Housing*, CNA—supporting research papers included in Volume III of this report.

Basic Allowance for Housing

As explained in the BAH primer published by OSD, BAH is a form of compensation designed to help members rent adequate housing near their duty stations when government housing is not available.[4] The BAH rate members receive depends on their rank, whether they have dependents, and the MHA of their duty station (with some exceptions if the dependents do not relocate). By law, the rate must be based on the cost of adequate housing for civilians of comparable incomes in the same area.[5] DoD interprets this cost as the local median rental cost for a given housing unit type, or "housing profile," in a suitable neighborhood, plus the average cost of utilities in that area.[6]

DoD collects data on six housing profiles:

- one-bedroom apartment
- two-bedroom apartment
- two-bedroom townhouse/duplex
- three-bedroom townhouse/duplex
- three-bedroom single-family dwelling
- four-bedroom single-family dwelling.

Most pay grades are tied to one of these housing profiles (also referred to as "anchor points") or to a percentage difference between one of these housing profiles and the next. Until passage of the FY 2024 NDAA, law required that BAH for members in the grades of E-1 through E-4 with dependents be tied to the average of the cost of a two-bedroom apartment and a two-bedroom townhouse. The law still requires that Service members in the grades of E-1 through E-4 receive the same BAH rate, but now it does not specify the profile.[7]

To provide some stability in household budgets and reduce the probability that members need to move during a tour at a duty station, the BAH rate a member receives can increase midtour, but it can be reduced only when the member has a permanent change of station (PCS) move, has a rank reduction, or no longer has dependents.[8]

Members may buy a home and use their BAH to make mortgage payments, but DoD policy specifies that BAH values are tied to the rental market and not to ownership costs. Service members are free to spend more or less than their BAH payment on housing as they see fit; any BAH payment not spent on housing is free to be spent on other goods or services.

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4 DoD, Office of the Secretary of Defense, *Basic Allowance for Housing: BAH Data Collection and Rate-Setting Process Overview*, 2023.

5 U.S. Code, Title 37, Section 403, Basic Allowance for Housing.

6 DoD, Office of the Secretary of Defense, 2023.

7 Public Law 118-31, National Defense Authorization Act for Fiscal Year 2024, December 22, 2023.

8 DoD, Office of the Secretary of Defense, 2023

The QRMC evaluated BAH consistent with the requests outlined in the FY 2023 NDAA and, consistent with the results of that evaluation, developed three options for BAH reform that would reduce volatility and improve transparency in the current system.

Evaluation of Basic Allowance for Housing

The QRMC's evaluation of BAH covers several areas: accuracy and efficiency of the current system used to calculate BAH, how well BAH aligns with residential real estate processes to determine rent, responsiveness of BAH to market trends, suitability of housing profiles, and suitability of available housing.

Accuracy. For the purposes of this evaluation, BAH accuracy is interpreted as sufficiency to meet the statutory requirement: enabling members to afford housing comparable with that of civilians of comparable income. For most BAH recipients, BAH is higher than median spending on rent and utilities by comparable civilians—ranging between 17 percent to 60 percent higher than average civilian housing expenditures for Service members with dependents, as Table 5.1 shows. The differences are especially higher for Service members with dependents—particularly junior enlisted personnel because Congress has set a BAH floor for junior enlisted personnel (a common standard for pay grades E-1 through E-4). Service members earn more than civilian renters on average and are able to spend more on housing than civilians of equivalent income, excluding housing.

The table includes comparisons with civilian expenditures for the average BAH rate that members actually receive and comparisons that incorporate the current policy for members to pay a small share of their housing costs out of pocket (an average of 5 percent). Using the E-5 pay grade as an example, the average BAH paid to E-5s with dependents in 2023 is 43 percent higher than what civilian households with the same income, excluding housing, would spend on rent and utilities; it would be 53 percent higher if BAH did not notionally require an out-of-pocket contribution. For E-5s with dependents, the average BAH is 27 percent higher than expenditures of comparable civilians and would be 34 percent higher without the notional out-of-pocket contribution. For all pay grades except W-1s (warrant officers in grade 1) without dependents, and particularly for members with dependents, BAH is on average more than sufficient despite the notional 5 percent out-of-pocket contribution.

To examine the accuracy of BAH across MHAs, the QRMC calculated an upper bound of rent paid by comparable civilians that accounts for the fact that survey data of housing expenditures do not perfectly align with MHAs. For members with dependents, BAH is sufficient in anywhere from 80 percent (for O-2s) to 100 percent (for several pay grades) of MHAs that have a relevant upper bound. By design, BAH is less generous for members without dependents, but for these members BAH is sufficient anywhere from 38 percent (for W-4s) to 84 percent (for O-1s with prior enlisted service) of MHAs that have a relevant upper bound. Although these estimates are not able to determine sufficiency of BAH in high-cost MHAs, such as San Diego or Hawaii, members in those high-cost MHAs are receiving BAH tied to a nationwide housing profile standard, despite the fact

TABLE 5.1 Sufficiency of BAH at the National Average Level, by Pay Grade

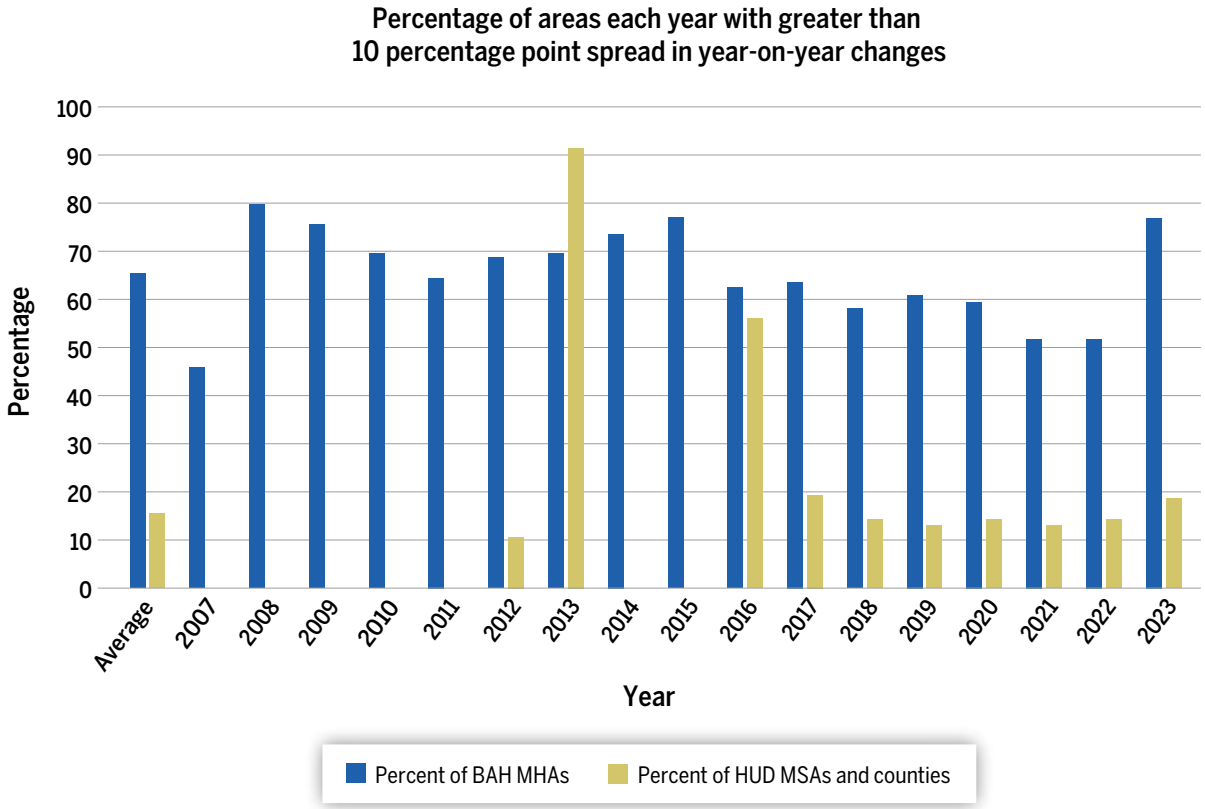
Grade	Percentage Difference From Civilian, with Dependents	"5% Out of Pocket" Added Back In	Percentage Difference From Civilian, Without Dependents	"5% Out of Pocket" Added Back In
E-2	60	68	23	29
E-3	57	65	26	32
E-4	41	49	15	21
E-5	45	53	27	34
E-6	53	61	27	34
E-7	38	46	17	23
E-8	46	53	19	25
E-9	26	32	10	16
W-1	25	32	–15	–11
W-2	39	46	18	24
W-3	37	44	24	30
W-4	26	32	13	19
W-5	17	23	17	23
O-1E	57	65	37	44
O-2E	47	55	30	36
O-3E	46	54	31	38
O-1	27	33	15	21
O-2	39	46	23	29
O-3	35	42	23	30
O-4	38	46	23	30
O-5	51	59	28	35

NOTE: E-2s, E-3s, and E-4s have different results even though their BAH standards are the same because they have different RMCs, and BAH is intended to provide housing quality comparable with civilians with similar incomes. The DoD RMC calculator does not always provide estimates for E-1s, so the E-1 BAH amounts were not included in this assessment.

that civilians tend to consume less housing in more expensive areas. As a result, Service members are likely to be receiving more BAH in more expensive areas than comparable civilians spend on housing.

Efficiency. Efficiency in this evaluation is interpreted as the "volatility" of BAH's annual changes compared with the housing market, and BAH is strikingly volatile. Even within a single MHA, large differences in the increases between various anchor points and pay grades are common. This volatility contrasts with other metrics of housing prices and may contribute to Service members' frustration and dissatisfaction with BAH, as Figure 5.1 illustrates. The figure presents percentage increases in different BAH rates and anchor point rates for each MHA from 2007 through 2023. MHA rates were considered volatile in a specific year if the year-to-year changes for different BAH

FIGURE 5.1 Volatility Comparison of BAH in Military Housing Areas and in HUD Housing Areas



SOURCE: Data generated from historical BAH rates (published at the Defense Travel Management Office, undated a) and historical HUD estimates (Office of Policy Development and Research (PD&R), undated).

NOTES: The HUD data had high volatility in two outlier years—2013 and 2016—which may have been the result of a recalibration of the HUD rates. MSA = metropolitan statistical area.

rates or anchor point rates differed by more than ten percentage points. By this measure, more than half of the MHAs had volatile BAH rates in every year since 2008.

To put this volatility into context, the BAH rates are compared with volatility of Department of Housing and Urban Development's (HUD's) estimates of 50th-percentile housing costs—which are produced annually for approximately 2,600 metropolitan statistical areas and counties. As Figure 5.1 shows, HUD estimates are generally much less volatile than BAH.

Residential Real Estate Processes to Determine Rent. Residential rental rates are based on numerous factors that can vary by location and over time in the real estate market as well as broader economic conditions. Some key factors considered in determining rental rates include location, property type, size and layout of the property, condition and quality of the property, operating costs, historical demand, rent from comparable properties in the neighborhood, and seasonal variation.[9]

9 Eva Hatzenbihler, "How to Calculate the Rental Rate for Your Property," Rentspree, May 16, 2024.

However, the supply and demand conditions that drive the residential real estate market do not necessarily align with the assumptions underlying the six housing profiles used to calculate BAH. The BAH policy that ties profiles to pay grades implicitly assumes that a four-bedroom single-family dwelling (or detached home) is more expensive than a three-bedroom single-family dwelling, which in turn is more expensive than a three-bedroom townhouse or duplex, and so forth.

Yet, in practice, BAH surveys sometimes produce cost estimates for the various anchor points that do not line up in this order for a given MHA. If left uncorrected, these "inversions" would result in some members receiving less BAH than members in a lower pay grade in the same MHA. BAH policy places all pay grades in an order such that an E-6 with dependents receives more BAH than an O-2 with dependents and less than a W-1 with dependents, and so on (although this order differs for members without dependents). The idea is that the housing profiles, and assumed housing costs, align with this ordering of pay grades and, in turn, with BAH levels.

However, analysis of the American Community Survey shows that these inversions are the norm for the private market. Average monthly rent nationwide in 2021 for a three-bedroom townhouse or duplex ($1,456) was greater than for a three-bedroom detached house ($1,183)—a phenomenon that occurs because townhouses tend to be in more expensive locations that are closer to amenities and more employment opportunities. Given differences across markets in the relative cost of a detached home and an attached home, an approach using four anchor points instead of six may be more suitable to define BAH profiles and calculate BAH rates.

Responsiveness to Market Trends. Over the long term, BAH is very responsive to market trends. BAH did not consistently outpace or lag HUD's 50th-percentile growth from 2006 through 2023. The two measures tracked closely for one-bedroom and three-bedroom dwellings. BAH grew more quickly for two-bedroom dwellings, and HUD's estimates of rent grew more quickly for four-bedroom dwellings from 2015 to 2020 (a period when BAH barely increased at all).

BAH's short-term flexibility is another matter. BAH simply was not designed to account for rapid surges in the housing market, such as the surge in rents that occurred in 2021 and 2022. BAH rates are updated once a year in January, when basic pay updates. BAH payments from January through December of a calendar year are based on the prices sampled between March and July of the previous year—leading to a lag between BAH rates and pricing data of at least five months in January and at least 17 months by the end of the year. During periods of rapidly rising residential rents, BAH can fall far behind in some markets in the short term because of this lag.

Suitability of Housing Profiles. Between 82 percent and virtually 100 percent of Service members have sufficient bedrooms for their family size based on bedroom-sharing rules. If instead it is assumed that each child has a separate bedroom, BAH standards have bedroom numbers that are sufficient for between 69 percent and 90 percent of Service member families for their respective pay grades. The academic literature indicates that civilian households with more children tend

to increase their housing expenses by very little or not at all.[10] American Community Survey data suggest a small increase in housing expenses within income levels as household size increases ($36 per additional person, which likely reflects an increase in utilities). Based on these findings, the BAH policy of providing one rate for Service members with dependents regardless of family size appears to be consistent with the civilian population.

Suitability of Available Housing. The QRMC's analysis indicates that most Service members can find suitable housing. Ninety-two percent of Service member families live within their MHA. Of those 8 percent commuting from outside the MHA, about 60 percent reside in an MHA with lower BAH rates (and presumably lower housing costs) than their assigned MHA, so their BAH should be adequate there as well. Service members tend to live in more expensive ZIP codes within their MHAs. Because rent is an indicator of housing quality and location desirability, this finding suggests that Service members are finding available housing in better areas within the MHAs.

Courses of Action for Basic Allowance for Housing Reform

Although BAH is high relative to civilian housing expenditures, it may be lower than some Service members' expectations. This issue is related to the statistical problem of accurately setting the rate for each MHA, which can lead to BAH being far more generous for some MHAs than others and to significant differences in BAH changes across pay grades. Recipients may find that BAH relative to local civilian spending is lower in their current MHA than in their previous one, or they may learn it is lower than the MHA and pay grade combination of someone else they know. As a result of such perceived inequities, Service members may conclude that their BAH is insufficient.

The QRMC evaluated three options to help improve BAH's predictability and perceived fairness. These options do not address two other frustrations with BAH: first, that on-base housing standards are more generous than BAH standards and, second, that some high-cost urban MHAs allow Service members to trade a longer commute for lower rent while other MHAs do not. However, they offer opportunities to address volatility and improve transparency in the current process.

Because publicly available indexes of housing costs do not align with MHAs or with DoD standards, all of the reform options presented here—to "Tweak," "Consolidate," or "Overhaul" BAH—require DoD input or involvement in setting BAH rates. All use government-produced data on the current housing market but differ in the degree to which they retain unique features of the current process. At one extreme, "Tweak BAH" is most similar to what is familiar and would be perceived as the least risky option by stakeholders who are generally averse to change. At the other extreme, "Overhaul BAH" would be the boldest change and would go the farthest toward smoothing BAH's

[10] F. G. Forsyth, "The Relationship between Family Size and Family Expenditure," *Journal of the Royal Statistical Society Series A: Statistics in Society*, Vol. 123, No. 4, 1960; Mike Mei, "House Size and Household Size: The Distributional Effects of the Minimum Lot Size Regulation," working paper, 2022.

relative generosity. "Consolidate BAH" falls in between. Each approach can be implemented in a cost-neutral manner, so each would create winners and losers in the short run. The differences in who benefits and who does not will grow to a greater degree the more the option differs from current practice.

Tweak BAH: Smooth Basic Allowance for Housing Updates Using Department of Housing and Urban Development Data. The most modest BAH reform would keep the current six housing profiles. It would, however, reduce BAH's volatility by reducing the frequency of DoD-specific BAH surveys for each MHA and by filling in the intervening years with percentage changes tied to HUD's median rent estimates. Key elements of this option are as follows:

- A contractor would conduct BAH surveys for one-quarter of all MHAs annually so that each MHA received a new BAH survey once every four years. These BAH surveys would be necessary to account for the fact that housing in suitable neighborhoods for DoD may not follow the same trajectory as housing in the overall civilian market.
- For off-year adjustments, DoD would update each profile according to the percentage change in the HUD median rent estimate for that profile. These year-on-year changes in the HUD estimate are more consistent across the number of bedrooms than are BAH rates under the current process. Using the HUD estimates requires a crosswalk from HUD to MHAs. Duty stations that are not in an MHA would be tied to one with similar median rents (as reported by HUD).
- DoD would adopt a new interpolation table that smooths BAH as a share of RMC across pay grades while keeping the total BAH cost within one half a percent of its current value. These tables also realign the pay grade order to reflect overall RMC levels. The pay grade with the largest reduction in BAH under the new tables is O-4 without dependents. This reduction can be ameliorated by paying O-4s without dependents who have a PCS to a new MHA a BAH amount halfway between its calculated value according to the new table and the higher value it would have had under the legacy table—thus spreading the reduction out over several years.[11]

The Tweak BAH option is the easiest to explain and would be the fastest to implement, though full releveling via BAH surveys would take four years. Limiting releveling to once every four years will stabilize BAH, even in most MHAs with small sample sizes. That said, this option does impose costs without addressing structural issues as the other options do; HUD regions do not always match BAH MHAs, so for some MHAs rates may be less accurate; and some rural MHAs could realize sharp BAH decreases after releveling. BAH rate protection could help mitigate some of these concerns.

[11] Interpolation tables for the Tweak BAH option can be found in Clemens et al., *Report on the Calculation of the Basic Allowance for Housing, Basic Allowance for Subsistence, and Cost-of-Living Allowances*, in Volume III of this report.

Consolidate BAH: Consolidate Profiles to Align with Market Reality. As mentioned, the current six housing profiles lead to frequent "inversions" that must be corrected so that higher pay grades do not receive less BAH than lower pay grades in the same MHA. These inversions occur in part because of idiosyncrasies in local markets that do not align with Service member preferences—such as members trying to find apartments in an MHA with mostly single-family dwellings, or vice versa. But they also occur due to a nationwide trend, as explained earlier, that three-bedroom townhouses are more expensive on average than three-bedroom single-family dwellings because they are in more expensive locations closer to amenities and jobs.

The key elements of the Consolidate BAH option, which aims to correct this problem, are as follows:

- Implement the Tweak BAH option.
- Consolidate the six-bedroom current housing profile into four: one bedroom, two bedroom, three bedroom, and four bedroom.
- Use updated interpolation tables aligned with the four profiles.[12]

This consolidation aligns with how HUD reports median rents, and it accepts the composition of housing types that the market provides rather than trying to impose assumptions about the relative value of an apartment, townhouse, and single-family dwelling. These broader profiles would contain some home types that do not match any current BAH profile but that are available for members to rent using BAH (such as one-bedroom townhouses). Therefore, the sampling approach for these new anchor points could (and perhaps should) place some weight on the home types not currently included in the BAH profiles. In fact, two of the current six profiles are not that common nationwide: Fewer than 9 percent of two-bedroom rentals are townhouses or duplexes, and only 12 percent of three-bedroom rentals are.

Because the new profiles are more broadly defined, the contractor who conducts BAH surveys and the military housing offices at installations would have more discretion in determining which properties to sample and the ability to tailor the sample to local market conditions. It would also alleviate the need to search each MHA for rare housing type-by-bedroom combinations, mitigating small-sample issues in all years.

As with the Tweak option, surveys would take place every four years for each MHA, and intervening annual updates would be tied to the percentage change in the HUD median rent for that number of bedrooms, using a crosswalk of HUD areas to MHAs. Duty stations without an MHA would also be addressed in the same way as in the Tweak BAH option. Consolidating the housing profiles would reduce volatility and increase predictability more than the Tweak option because the consolidated profiles would yield larger sample sizes and be more stable.

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12 Interpolation tables for the Consolidate BAH option can be found in Clemens et al., *Report on the Calculation of the Basic Allowance for Housing, Basic Allowance for Subsistence, and Cost-of-Living Allowances*, in Volume III of this report.

Overhaul BAH: Tie Directly to Statutory Requirement. The statutory requirement for BAH does not mention housing profiles at all, and the current approach of trying to tie BAH to the same set of profiles across all MHAs fundamentally differs from how civilians approach housing decisions. The law says that the rate must be based on the cost of adequate housing for civilians of comparable incomes in the same area, and civilians of comparable incomes consume less housing when they live in higher-cost areas and vice versa. Therefore, one approach to calculating BAH would be to directly tie it to local civilian incomes and housing expenditures rather than to a common set of profiles.

This more aggressive option would overhaul BAH by

- eliminating housing profiles
- basing BAH rates on housing costs of civilians of comparable incomes using Census Bureau data from the American Community Survey.

There are numerous considerations associated with overhauling the BAH system. Civilians with the same incomes (less housing expenses) as Service members tend to spend less on housing, and the difference in their expenditures between high-cost MHAs and lower-cost MHAs is also less than Service members with comparable incomes. These differences could cause significant reallocation of BAH from higher-cost MHAs to lower-cost MHAs, if the concept is implemented in a cost-neutral manner. Furthermore, Service members do not choose where to live and therefore do not necessarily value the amenities or climate associated with higher cost areas as much as civilians who choose to live in those areas.

Why, then, might DoD implement this overhaul? The statutory requirement for BAH is defined in terms of comparable civilians, so it would make sense for it to be generous relative to civilian spending by a roughly consistent amount. Eliminating the need for interpolation tables simplifies the calculation of BAH, and tying BAH directly to the requirement emphasizes its relative generosity. It acknowledges that the government is not dictating what type of home the member will choose and smooths the degree to which it is generous relative to the standard.

This option has not been fully built out, because doing so would require a perpetual collaboration with the Census Bureau to identify households that correspond to a military pay grade in each MHA and to calculate their average household expenses on rent and utilities—something that DoD and the Census Bureau are currently exploring. The average civilian spending then would be multiplied by a factor greater than 1 (and higher for members with dependents than members without dependents) because BAH is currently calculated by excluding certain neighborhoods in an MHA (e.g., neighborhoods with high crime rates) to determine BAH rates. The multiplier would be set such that the total BAH cost is the same as under the current system.

Additional details to work out include how to handle the lag in survey data, how to accommodate the lack of civilians with incomes comparable with that of Service members in some MHAs, and how to compensate privatized housing partners should this approach result in revenue loss in certain areas.

Basic Allowance for Subsistence

BAS is a tax-free allowance meant to offset costs for a uniformed member's meals. This allowance is based on the military's history of providing room and board (or rations) as part of an enlistee's pay and is not intended to offset the costs of meals for family members. Because BAS is intended to offset Service members' meal costs, its level is linked to the price of food as reported in the U.S. Department of Agriculture's (USDA's) food plans for men aged 19 to 50.[13] However, BAS is unique among RMC components in that it is more generous for enlisted Service members than it is for officers. For an average E-5 with six years of service and a family of four, BAS provides 6.5 percent of RMC, whereas for an O-3 with six years of service and a family of four, the figure is 3 percent.[14] In 2025, the BAS rate for enlisted members is $465.77 per month and the BAS rate for officers is $320.78 per month.[15]

Because basic pay tables are linked to private sector wages, which can grow or fall independently of food costs, annual BAS changes will not necessarily mirror changes in basic pay tables; similarly, annual BAS changes may not reflect BAH changes, which are based on local housing costs.

To address BAS sufficiency, the QRMC answered six questions:

- How is BAS currently computed?
- What purchasing power should BAS provide?
- How often should BAS be calculated?
- Should BAS vary by geographic area?
- How do other measures of food prices compare with the USDA's liberal food plan?
- How much would it cost to extend BAS to Service members' dependents?

Computing Basic Allowance for Subsistence

The FY 1998 NDAA was the first legislation that tied BAS values to a formal measure of food costs. It established that Service members should be paid a monthly amount equal to the midway point between the monthly cost of the USDA's moderate food plan (a healthy diet for the second-highest income quartile) and its liberal food plan (a healthy diet for the highest income quartile) for an adult man. However, annual increases were capped at 1 percent until the FY 2001 NDAA established that each year's monthly BAS rate should scale by the percentage growth between the liberal food plan

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13 Public Law 105-85, National Defense Authorization Act for Fiscal Year 1998, November 18, 1994. Because male dietary needs are higher than female dietary needs on average, using the average of food for men ensures that female Service members are compensated sufficiently for food costs.

14 DoD, Office of the Under Secretary of Defense for Personnel and Readiness, Directorate of Compensation, *Selected Military Compensation Tables*, 2024.

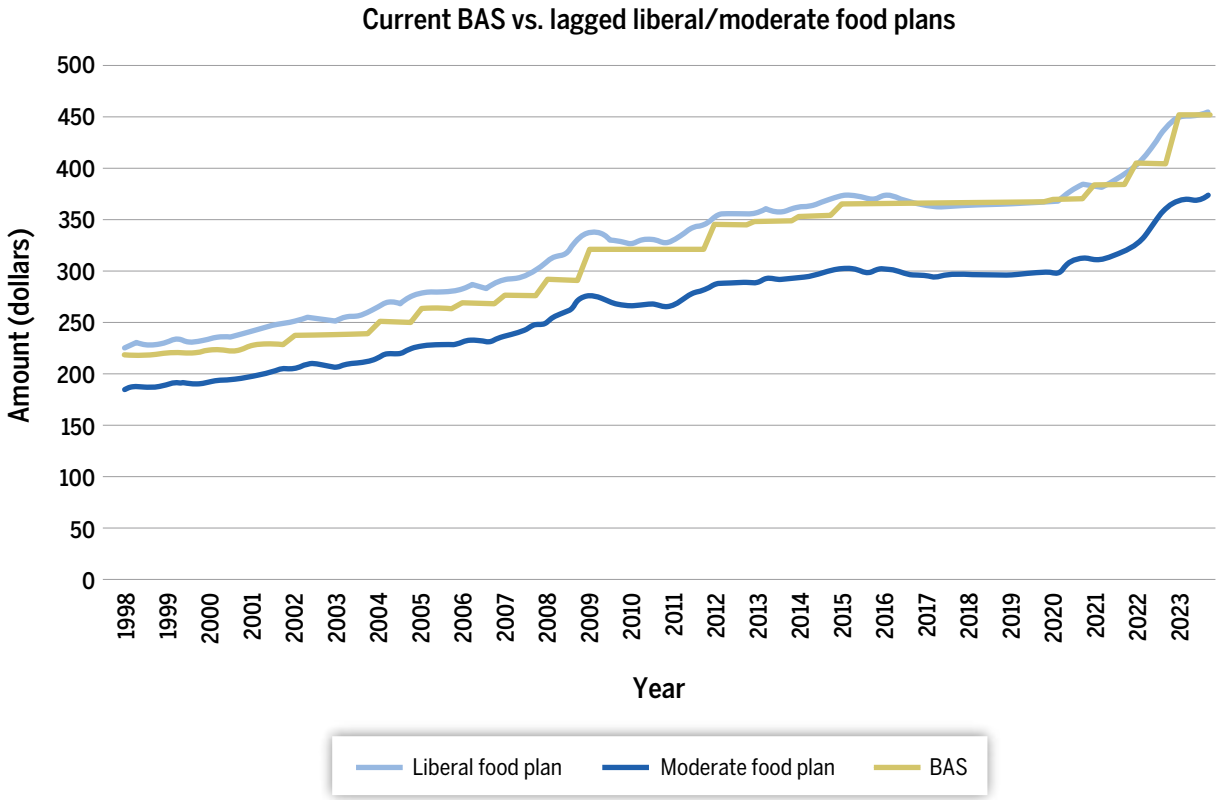
15 DoD, Military Compensation, "Basic Allowance for Subsistence (BAS)," webpage, undated.

costs in October of the previous year and October one year prior, using existing BAS levels as the baseline.[16]

Actual BAS values differ from those that would occur under strict adherence to the formula required by law. Most noticeably, falling food prices do not translate into reduced BAS payments, which has increased the purchasing power of BAS over time, as illustrated in Figure 5.2, which compares enlisted BAS values with the previous October's moderate and liberal food plan costs. As the figure illustrates, BAS was always closer to the liberal food plan than to the moderate food plan, grew closer to the liberal food plan in 2010, and caught up to it by 2018.

In addition, using unrounded growth in food costs tends to result in overestimates of BAS. In each year from 2002 through 2009, for example, actual enlisted BAS was slightly lower than the strict formula predicts. As a result, BAS grew by 98 percent over that period instead of by 87 percent, based on strict adherence to the formula established in 2001.

FIGURE 5.2 Current Year's Monthly Enlisted Basic Allowance for Subsistence and Previous Quarter's Moderate and Liberal Food Plan Costs



SOURCE: Analysis of USDA, 2024; Defense Finance and Accounting Service, undated.
NOTE: Data shown are for January of each year.

16 Public Law 106-398, National Defense Authorization Act for Fiscal Year 2001, October 30, 2000.

Better Defining Basic Allowance for Subsistence Purchasing Power

Two arguments exist for rethinking how BAS values are set. First, without a policy change, BAS values will continue to rise in real terms whenever food costs fall, as illustrated in Figure 5.2. Second, by setting BAS equal to the midpoint of the moderate and liberal food plans in 1998 but having its growth mirror only that of the liberal food plan starting in 2021, Congress set up BAS in a way that prevents it from having an obvious or easily interpretable benchmark. The current formulas could lead to a wide range of outcomes depending on how costs of the liberal and moderate food plans change relative to each other—not all of which would logically match Congress's intent.

Anchoring BAS to a fixed reference point, such as the liberal food plan, would ensure it can provide a consistent purchasing value into the future. It would also provide a clear standard that Service members could easily understand and thereby increase trust in the military compensation system. Such an approach could be implemented with the stipulation that BAS values cannot fall, but that increases can be delayed until the cost of the liberal food plan once again exceeds BAS levels.

Frequency of Calculating Basic Allowance for Subsistence

Because BAS is updated annually in January and monthly food costs rise more often than they fall, BAS has a lag that often results in undershooting its target level over the course of the year. If BAS had been indexed to the cost of the liberal food plan in 2001, it would have paid an average of $11 per month below liberal food plan values between 2001 and 2023 (maintaining the condition that BAS payments can never fall). If the inflationary COVID-19 period were excluded, BAS would have fallen below the liberal food plan by $6 per month.

How to reform BAS calculations largely depends on trade-offs among three priorities: (1) ensuring long-term accuracy on average, (2) ensuring month-to-month accuracy, and (3) not falling below the target value, which in the QRMC's analysis used the cost of the liberal food plan. Table 5.2 illustrates these trade-offs with several notional scenarios. For example, if BAS overshoots the liberal food plan by $100 half the time and undershoots by $100 half the time, it would offer the best long-term accuracy and the worst month-to-month accuracy because it would be off by $100, and would meet or exceed the target (the liberal food plan) half the time. Other scenarios would

TABLE 5.2 Examples of Competing Priorities for Forecasting Basic Allowance for Subsistence

Scenario	Long-Term Average Accuracy	Month-to-Month Accuracy	Meets or Exceeds Target
BAS overshoots liberal food plan by $100 half the time and undershoots by $100 half the time.	Best (perfect on average)	Worst (off by $100)	Middle (half the time)
BAS is always $5 below liberal food plan.	Middle (off by $5)	Best (off by $5)	Worst (never)
BAS is always $20 above liberal food plan.	Worst (off by $20)	Middle (off by $20)	Best (always)

rate differently against these priorities and collectively illustrate how pursuing one priority might conflict with the other two.

The QRMC examined four sets of BAS values against actual USDA liberal food plan values: (1) the actual BAS values, which are updated annually; (2) quarterly updates indexed to liberal food plan values; (3) annual updates under a hypothetical scenario where the average liberal food plan value over the course of each year could be perfectly predicted; and (4) an annual update that builds in a forecast of future food growth based on growth over the previous year.

Which options perform "best" based on analysis of historical data depends on how the different objectives are prioritized. Annual updating in practice can perform considerably better than quarterly updating at achieving priority 1 (ensuring long-term accuracy on average) but performs worse at achieving priority 2 (ensuring month-to-month accuracy) and priority 3 (not falling below the target value). Annual updating comes close to actual liberal food plan values on average, but it does so through a combination of overshooting and undershooting its target values. Specifically, annual updating tends to undershoot actual liberal food plan values during periods of sustained growth (such as the 2007–2008 period or the 2021–2022 period) and then overshoot once this growth comes to an end (such as during 2009–2011 or during 2023).

Geographic Variance

Unsurprisingly, food costs vary widely by geographic location. An examination of the variation in cost per meal for food secure individuals in the 50 MHAs containing the most Service members indicated that food costs in the most expensive MHA (Honolulu County, Hawaii) are 50 percent higher than those in the least expensive MHA (Fort Cavazos, Texas). Limiting the variance to CONUS locations, food costs in the Washington, D.C., metro area are still 50 percent higher than those at Fort Cavazos. Even eliminating the ten highest and ten lowest cost locations, the 11th-most expensive MHA (Fort Meade, Maryland) has costs more than 14 percent higher than the 40th-most expensive MHA (Fort Johnson, Louisiana).

How this geographic variation in food costs translates to the basket of goods that determine BAS values is unclear. This analysis is based on data for the USDA thrifty market basket, which is intended for those in the lowest income quartile and is tied to benefits for the Supplemental Nutrition Assistance Program; BAS values nearly approximate the highest cost plan, the liberal food plan.[17] The food types in each plan are quite different—in types of vegetables, amount of fruit, types of dairy, amount of red meat and eggs, and amount of soft drinks. Nevertheless, liberal food plan costs are also likely to vary geographically.

Yet geographic differences in food costs do not necessarily imply that BAS values should vary. Service members with convenient access to mess halls or wardrooms have the cost of these meals

[17] The thrifty food plan was used in these calculations because the QRMC was unaware of any data sources reporting local variation in the liberal food plan's cost.

indexed to BAS and therefore have a degree of insulation from local food costs. Commissaries can also provide a less expensive source of groceries in more expensive areas, providing another degree of insulation from local food costs for food consumed outside of mess halls. As a result, variation in local food costs is likely to be the most relevant for Service members who do not have convenient access to these sorts of on-base amenities. Although it is unclear how much of the difference in local food costs gets passed on to Service members, it is unlikely that most Service members in high-population MHAs fully bear the cost of higher local food prices.

That said, variation in food costs would have to be borne by accompanying dependents in high-cost food areas. Dependents are not covered by BAS, but they are accounted for in the CONUS COLA, which considers the overall cost of living (of which food is one component). To the extent that local variation in food costs affects dependents, this variation is better addressed through the COLA than through BAS.

Other Food Price Measures

To accurately index BAS to food costs, DoD will need an appropriate measure of food costs. The QRMC examined two other market baskets that could be relevant for DoD: the Retail Price Schedule, which is used as a component in determining the OCOLA, and the CPI, which is used to compute overall inflation—both of which are designed by BLS. The QRMC determined that the USDA's construction is superior for the purpose of computing BAS in part because it is tailored to the 19–50 age group. The BLS construct is not designed with a specific age group in mind: It contains foods such as baby food and formula that are relevant to dependents (which BAS does not cover) but not to Service members; and it reflects nutritional needs for more diverse groups from children to senior citizens. The BLS construct also contains categories of food, such as alcoholic beverages and convenience categories, that DoD may not wish to factor into servicemembers' daily lives let alone be seen as subsidizing.

Extending Basic Allowance for Subsistence to Dependents

The QRMC estimated that extending BAS to dependents would add either $5 billion or $6.2 billion to the program's cost, depending on whether it is tied to the moderate or the liberal food plan—estimates that would almost double the program's cost. These estimates assume that officers' dependents would receive the same BAS as enlisted members' dependents. As a point of comparison, the 2024 BAS rate generates a program cost of $6.6 billion.

There are also philosophical and practical grounds to consider. Philosophically, BAS reflects DoD's commitment to individual Service members, not to their families. BAS has never been extended to enlisted Service members' families, but for a period of 27 years it was extended to officers' families. That practice ended with an explicit statement that BAS was intended only for Service members; extending BAS to all dependents would expand the program far beyond its original intent. As a practical matter, a near doubling of the program's cost could meet resistance in Congress. Expanding BAS is not an efficient solution to food insecurity because the expanded

benefit would apply to all Service members rather than specifically to those in need. More targeted tools are a more appropriate solution to aiding members and families facing food insecurity, as is discussed elsewhere in this report.

Cost-of-Living Allowances

A cost-of-living allowance is calculated separately for locations in CONUS and for locations outside the continental United States (OCONUS). The QRMC examined the methodologies used in the calculation of each COLA to determine if changes are needed to better compensate Service members.

Continental U.S. Cost-of-Living Allowance

The CONUS COLA is a taxable supplemental allowance designed to help offset expenses for Service members assigned to expensive CONUS areas. The rate varies by geographic location and by "spendable income," which is a function of rank, years of service, and number of dependents. It is updated annually and applies only to members in MHAs with a COLA index (i.e., ratio of local cost to national average) above a set threshold.

Because the cost of living varies across the United States, the military has developed allowances to help offset the inequity that Service members experience if they must live in a more expensive location. As discussed previously, BAH is designed to compensate Service members for higher housing costs in expensive locations; the COLA is designed to assist with higher expenses in other categories, such as food, clothing, and transportation. Unlike BAH, the COLA is provided to Service members whose official quarters are government owned, such as barracks or ships.

Calculation of the CONUS Cost-of-Living Allowance. DoD employs a contractor who develops an index representing cost-of-living differentials for nonhousing expenditures for a given family size and income level for at least 300 locations nationwide where Service members are stationed. This index compares costs in these 300 locations with average expenditures for a particular market basket of goods and services by a typical civilian household in a "standard city." Whether a duty location has commissaries or exchanges has a major effect on the CONUS COLA's calculation—data which are captured in a triennial Living Pattern Survey (LPS), which measures where Service members shop and the proportion of shopping that occurs on military installations, at local community outlets, and online.

Members receive a CONUS COLA if the average expenses in a location meet the established threshold index of 107 when compared with the baseline (national average) cost-of-living index, which is normalized to 100.[18] That is, costs in a particular locale must be greater than 7 percent above the standard city for the standard market basket of goods and services. For example, an area with a COLA index of 115 would be eligible for a COLA payment of 8 percent. An area with

[18] The CONUS COLA threshold was reduced from 108 to 107 on April 1, 2024.

a COLA index of 106.9 would not receive a CONUS COLA. The rationale for this threshold is that Service members are stationed in lower-cost areas at some times and higher-cost areas at other times, so the costs will balance out over the course of a career, unless at some point they are stationed in an area that is a true high-cost outlier.

Although the current process used to collect prices and calculate the CONUS COLA index for each CONUS MHA is detailed and thoroughly documented, its output is not well understood. For example, the standard city (national average) cost of living increased from $5,373 per month for 2023 to $6,684 per month for 2024, a 24 percent increase. This increase is far higher than other inflation estimates over that period and is reportedly driven primarily by increases in the estimated cost of "personal services" (childcare), "personal care" (hygiene items and haircuts), and public transportation to correct for implausibly low estimates from 2023.[19]

The QRMC examined some aspects of the COLA calculation to evaluate whether other data might be used instead, particularly because the LPS is conducted only every three years, and the LPS at different locations shows large differences in the percentage of goods purchased at on-base commissaries. Table 5.3 shows the results of a comparison of commissary usage as reported in the LPS and active duty commissary sales data from the Defense Commissary Agency for four CONUS installations: two with unusually low commissary usage (less than 20 percent) and two with unusually high usage (greater than 40 percent) as reported by the LPS.[20]

TABLE 5.3 CONUS Commissary Sales to Active Duty Service Members and Their Dependents for Four Installations

Military Installation	MHA	FY 2023 Commissary Sales	Active Duty Personnel	Sales per Service Member in FY 2023	LPS Commissary Usage
Naval Air Station Corpus Christi	TX275	$1,228,816	2,301	$534	7–11%
Fort Cavazos	TX286	$17,872,757	33,522	$533	16–20%
Fort Leonard Wood	MO163	$14,240,117	9,663	$1,474	40–45%
McGuire Air Force Base–Lakehurst Maxfield Field	NJ204	$19,120,668	7,655	$2,498	39–41%

SOURCES: Installation personnel numbers provided by OUSD (P&R) on "eligibles" per MHA, January 2024. Commissary sales provided by Defense Commissary Agency. LPS commissary usage provided by OUSD (P&R).

NOTE: "LPS Commissary Usage" column in the table reflects average percentage of meat, poultry, dairy, and groceries purchased at the commissary, as reported in the LPS.

19 The nationwide cost of all goods less shelter increased 2.5 percent according to Federal Reserve Economic Data, the CPI increased 3.3 percent according to BLS, and the gross domestic product deflator increased 1.7 percent according to the Bureau of Economic Analysis.

20 There are more extreme outliers at small installations, but this analysis focused on installations with at least 2,000 active duty personnel.

As the table shows, both Naval Air Station Corpus Christi and Fort Cavazos have low sales per Service member and low commissary usage according to the LPS. McGuire Air Force Base–Lakehurst Maxfield Field has the highest sales per Service member but lower commissary usage than Fort Leonard Wood according to the LPS. These comparisons suggest that there is some correlation between LPS-reported commissary usage and actual commissary usage, but it is not fully accurate. Since actual commissary usage is verifiable, using this data instead of the LPS would be more accurate, especially since the data are updated more frequently and are readily available.

Overseas Cost-of-Living Allowance

The OCOLA is a nontaxable allowance designed to ensure Service members assigned to a permanent duty station OCONUS (i.e., foreign countries, U.S. territories, Alaska, and Hawaii) maintain a level of purchasing power equivalent to Service members stationed in CONUS. It differs from the CONUS COLA because the OCOLA is not taxable, the OCOLA can be updated more frequently to reflect changes in the exchange rate, and the OCOLA has no minimum threshold analogous to the CONUS COLA.

DoD updates OCOLA rates based on an assessment of three primary data points: the triennial LPS, the annual Retail Price Schedule (which measures the cost of a 150-item market basket of nonhousing goods and services from the outlets where Service members indicate they shop), and, for foreign locations, currency exchange rate fluctuations.

Annually, DoD compares LPS and Retail Price Schedule data collected overseas with similar data collected in CONUS (an average CONUS baseline) to establish the OCOLA index for the OCONUS location. Service members in overseas military locations receive an OCOLA when their local living costs exceed those of CONUS locations. As currently structured, if the average CONUS cost of living rises faster than that of an overseas location, an OCOLA decrease is justified—even if overseas living costs were also rising. The converse is also true: The OCOLA may increase if OCONUS prices rise at a greater level than CONUS prices. These cost-of-living effects are driven largely by inflation, but similar changes in the OCOLA can occur as a result of changes in the strength of the U.S. dollar against foreign currencies. Because OCONUS rates may increase or decrease over time, these fluctuations should be considered in household budgeting but are often not well understood.

The QRMC examined elements of the OCOLA calculation, evaluating the accuracy of the LPS in overseas locations and identifying the primary drivers of OCOLA changes over time.

Living Pattern Survey. Data from the LPS and OCONUS commissary sales raise questions about the accuracy of the LPS in representing Service member purchasing patterns. One notable example, illustrated by the data in Table 5.4, shows that some overseas locations in the same country that are not very far apart geographically have large OCOLA differences. Kaiserlauten and Wiesbaden are only 60 miles apart and have approximately the same relatively

TABLE 5.4 OCONUS Commissary Sales to Active Duty Service Members and Their Dependents for Four Installations

Military Installation	MHA	FY 2023 Commissary Sales	Active Duty Personnel	FY 2023 Sales Per Active Duty Service Member	LPS Commissary Usage[c]
Kaiserslautern	N/A	$51,325,479[a]	12,715[a]	$4,037	34–35%
Wiesbaden	N/A	$10,544,619	2,452	$4,300	27–30%
JB Pearl Harbor/Hickam	HI408	$70,715,311[b]	41,768[b]	$1,693	45–51%
Anchorage area	AK404	$19,015,878	13,419	$1,417	15–18%

SOURCES: Sales data from Defense Commissary Agency. LPS data for Kaiserslautern from OUSD (P&R). Personnel numbers for Kaiserslautern and Wiesbaden are from OUSD (P&R) "OCOLA Notice, 27 June 2023." Personnel numbers for JB Pearl Harbor/Hickam and Anchorage are from OUSD (P&R) MHA "eligibles" data.

NOTE: N/A = not applicable.

[a] Kaiserslautern commissary sales are combined sales for the Vogelweh and Ramstein commissaries. Kaiserslautern personnel numbers are the total for that military complex.

[b] JB Pearl Harbor/Hickam commissary sales are the combined sales for Pearl Harbor and Hickam commissaries. Personnel numbers are for JB Pearl Harbor/Hickam.

[c] LPS data for meat, poultry, dairy, and groceries categories.

high commissary sales per Service member. Yet Wiesbaden had a much higher OCOLA index than Kaiserlautern in part because the LPS reported lower commissary usage for Wiesbaden. This disparity was also driven by large differences in some market basket categories between military consumers in these two locations: Meat and dairy (29 COLA points higher in Wiesbaden) and household furnishings (43 COLA points higher in Wiesbaden) are two such categories.[21]

Data reported for Alaska and Hawaii also raise questions about the LPS because self-reported commissary use is three times higher in Hawaii than in Alaska, but the actual commissary expenditures are only 20 percent higher. As with the CONUS COLA, using commissary and exchange sales data to estimate on-base savings would be more reliable than using the LPS.

Overseas Cost-of-Living Allowance Variation over Time. OCOLA payments can vary substantially from year to year, as shown in Table 5.5. The OCOLA payment for Service members living in Yokota, Japan, for example, went from a biweekly payment of $421 in 2021 to $0 in 2024. It is difficult to disentangle why OCOLA payments change. It is difficult, for example, to determine how much inflation influences the OCOLA in some locations because the market baskets changed dramatically—both the items in the market basket and the weights assigned to categories of items. Although Congress implemented changes to the frequency and amount of reductions allowed for OCOLA payments in the FY 2024 NDAA, the QRMC's analysis suggests that these revisions would not have had any effect on the examples in Table 5.4. Some commands do not understand the OCOLA process and incorrectly inform their Service members about how their pay will change.[22]

[21] DoD, Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs, *Overseas Cost-of-Living Allowance—Germany*, 2023.

[22] Seth Robson, "COLA Cuts Will Affect Some Pacific-Based Marines After All, Command Says," *Stars and Stripes*, May 23, 2023.

TABLE 5.5 Monthly Overseas Cost-of-Living Allowance Payments for an E-6 with Three Dependents, 2019–2024

Location	2019	2020	2021	2022	2023	2024
Kaiserslautern	$333	$345	$491	$416	$232	$239
Yokota	$333	$311	$421	$277	$116	$0
Okinawa	$267	$276	$351	$243	$116	$40
Guam	$267	$311	$316	$312	$347	$278
Naples	$700	$656	$807	$693	$579	$636
Oahu	$300	$276	$281	$277	$309	$199

SOURCE: Defense Travel Management Office, undated b.

NOTE: Assumes ten years of service. Dollars shown are for January of each year.

The Office of the Under Secretary of Defense for Personnel and Readiness (OUSD (P&R)) could develop a process to stabilize OCOLA payments. One method could be to follow a BAH-like procedure of rate protection such that the OCOLA payment cannot decline below the amount the Service member receives when they first arrive at their OCONUS duty station, but the payment can increase.[23] Another possibility is launching a new messaging campaign to better manage Service members' expectations of OCOLA and better assist local commands in communicating about it.

Rate protection might offer several advantages, but two benefits are particularly noteworthy. First, it can facilitate Service members' financial planning while they are assigned to a particular duty station, allowing them to better budget for expenses. Second, rate protection can improve perceptions of fairness by addressing psychological bias that may make Service members more sensitive to losses than to gains.[24] Losses tend to be more acutely noticed and, as a result, can lead to resentment and loss of morale, which creates potential retention concerns.

Several positive initiatives that the QRMC supports have recently occurred. First is the decision by OUSD (P&R) to eliminate the "miscellaneous" category that accounted for the purchase of an automobile in the OCOLA market basket of goods and services. Eliminating this category aligns with State Department practices, is more intuitive, and has a limited effect on cost. Second is the provision in the FY 2024 NDAA to restore DoD's ability to employ its exchange rate accumulator to adjust OCOLA rates in the military's biweekly pay periods to account for 5 percent or larger swings in exchange rates—an initiative that is intuitive and fair and a policy that OUSD (P&R) intends to return to using.

[23] A proposed rate protection calculation is in Clemens et al., *Report on the Calculation of the Basic Allowance for Housing, Basic Allowance for Subsistence, and Cost-of-Living Allowances*, in Volume III of this report.

[24] This notion is based on what is called prospect theory, or loss aversion theory, in behavioral economics. See Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica*, Vol. 47, No. 2, 1979.

Policy Considerations: Calculating Allowances

The QRMC's research suggests that BAH, BAS, and the COLAs cover the costs they are intended to, though the timing of when the allowances are calculated can create a lag in actual costs experienced by Service members. Some adjustments could help minimize the lag. In the case of BAH, options could be minimal or involve a substantial restructuring of the BAH methodology.

Basic Allowance for Housing. The transparency and predictability of BAH could be improved by tying its rate of change to publicly available data (estimated by the U.S. Census Bureau and published by HUD) on changes in local median rents in three of every four years and by rebaselining BAH in year four. Another improvement would be to consolidate the current six BAH housing profiles into four to improve the available sample size and avoid imposing assumptions about the relative market value of one property type versus another. Because the statutory requirement for BAH does not include the housing profiles that DoD currently uses to calculate BAH, a more substantial overhaul of the system could be implemented without a change in statute. Such a change would involve partnering with the U.S. Census Bureau to tie BAH to civilian incomes and housing expenditures in each MHA.

Basic Allowance for Subsistence. The statutory definition of BAS is unclear and has led to BAS drifting upward over time relative to the USDA's estimates of the cost of food. To alleviate this problem, BAS could be redefined to align with the actual value of the USDA liberal food plan for adult men. Doing so would not substantially change BAS's value in the short term but would offer more stability in the long term. How often BAS should be calculated depends on DoD's priorities and on challenges and costs associated with more frequent updates—publishing updated BAS values, updating the costs of goods and services indexed to these values, and incorporating new BAS values into paychecks. Service members would also need instruction in why there has been a change for any BAS reform. It may be optimal to build a forecast into the BAS calculation to address its lag because food prices rise more often than they fall. Estimates suggest that extending BAS to dependents would almost double the cost of the program while moving away from its intended purpose, and this approach would be inefficient for addressing food security concerns for military families. To the degree that dependents are affected by food costs, the COLAs are better designed to account for differences in food costs across MHAs.

Cost-of-Living Allowances. Because members have access to savings on base that help offset differences in the local cost of living, both the CONUS COLA and OCOLA attempt to account for how much members use these savings through an LPS. However, more frequent and directly verifiable data about how much shopping members do on base are available. Some MHAs align with metropolitan areas for which FRED publishes CPI indices that do not include shelter, and these data series are correlated with the CONUS COLA indexes computed by OUSD (P&R). This suggests that OUSD (P&R) can continue to check this correlation in the future to confirm its approach and can use the comparison to identify outliers that merit further exploration.

CHAPTER 6

Food Insecurity and Military Compensation

Prior analysis of survey data from the DoD SOFS-A for 2018 and 2020 showed that the estimated food insecurity rate for active duty Service members is about 25 percent.[1] This rate is higher than the 2020 food insecurity rate of 11 percent for U.S. households overall,[2] despite research consistently finding that average military pay significantly exceeds the average pay of civilians with similar ages and education. The SOFS-A and the CPS determine food insecurity via a series of questions designed by USDA asking about access to food over the prior 12 months.

Given the reported rate of food insecurity on the SOFS-As, particularly among junior enlisted, policymakers have raised questions about the economic security of members and whether military compensation plays a role. In the FY 2022 NDAA, Congress authorized a BNA for eligible Service members with dependents in response to reports of low food security among Service members and their families, and expanded the eligibility criteria in the FY 2023 and FY 2025 NDAAs.[3] Because the reported rates of food insecurity continue to be concerning and because of difficulties in recruiting,[4] Congress passed a basic pay raise of 14.5 percent in the NDAA for FY 2025 for junior enlisted members in addition to a 4.5 percent pay raise for the rest of the military.[5]

The higher rate of reported food insecurity among military members compared with comparable civilians is a puzzling circumstance that has raised questions about why reported food insecurity rates are so high, what are the root causes, and why survey results reveal other puzzling results, such as a high rate of emergency savings among those who report being food insecure. Because

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1 Beth J. Asch, Stephanie Rennane, Thomas E. Trail, Lisa Berdie, Jason M. Ward, Dina Troyanker, Catria Gadwah-Meaden, and Jonas Kempf, *Food Insecurity Among Members of the Armed Forces and Their Dependents*, RAND Corporation, RR-A1230-1, 2023.

2 Alisha Coleman-Jensen, Matthew P. Rabbitt, Christian A. Gregory, and Anita Singh, *Household Food Security in the United States in 2020*, U.S. Department of Agriculture, Economic Research Service, Economic Research Report Number 298, September 2021.

3 As provided for in the FY 2022 NDAA (Pub. Law 117-81, Section 601), Service members with dependents and a gross household income under 130 percent of the federal poverty guidelines are eligible for BNA. In the FY 2023 NDAA (Pub. Law 117-263, Section 611) Congress increased the threshold to 150 percent and further increased the threshold to 200 percent in the FY 2025 NDAA (Public Law 118-159, Section 621).

4 Although this chapter focuses on food insecurity, the QRMC concluded that increasing the number of recruiters, increasing advertising, and making targeted pay raises were more efficient ways to address recruiting than an across-the-board pay raise.

5 President Biden signed the bill on December 23, 2024.

of the interest in military compensation as a policy lever, the 14th QRMC set out to assess how much the level of military compensation explains food insecurity in the U.S. military and whether variability in military pay is also a factor.[6] As part of this assessment, the QRMC considered whether financial knowledge, well-being, and management skills reduce the likelihood of military food insecurity and whether these factors affect the relationship between food insecurity and compensation. The QRMC also investigated why military food insecurity is reported to be so much higher than it is for civilians to determine whether demographics, differences in the surveys, or other factors might be the cause.[7]

Relationship Between Food Insecurity and Military Cash Compensation

As a starting point for understanding the relationship between food insecurity and compensation in the military, the QRMC compared the level of monthly cash compensation and household income in 2022 for members who report food insecurity and those who do not. Monthly compensation is the sum of basic pay, allowances, and any bonuses and S&I pays received in a month. As shown in Figure 6.1, average total monthly cash compensation of members who are food secure and those who are food insecure is similar within the junior grades of E-1 to E-4. Average monthly compensation is higher among E-5s to E-9s who are food secure and O-4s to O-6s who are food secure compared with members in the same grades who are food insecure, although the magnitude of the difference is small (roughly 6–7 percent of monthly compensation). Compensation is also similar between food-insecure and food-secure members in the same grades, even after taking into account whether members have dependents. When comparing across grades, however, more senior respondents are less likely to be food insecure.

Increases in Levels of Pay

Increases in monthly cash compensation are associated with a reduced likelihood of food insecurity among all active duty military personnel who responded to the 2022 SOFS-A. However, the estimated effect is relatively small, and, for junior personnel, this association was not statistically significant. As shown in Figure 6.2, in the baseline analysis that includes all enlisted members and officers responding to the survey, a 15-percent increase in monthly cash compensation is associated with a 3.5–percentage point decline in the likelihood of food insecurity in the base model.

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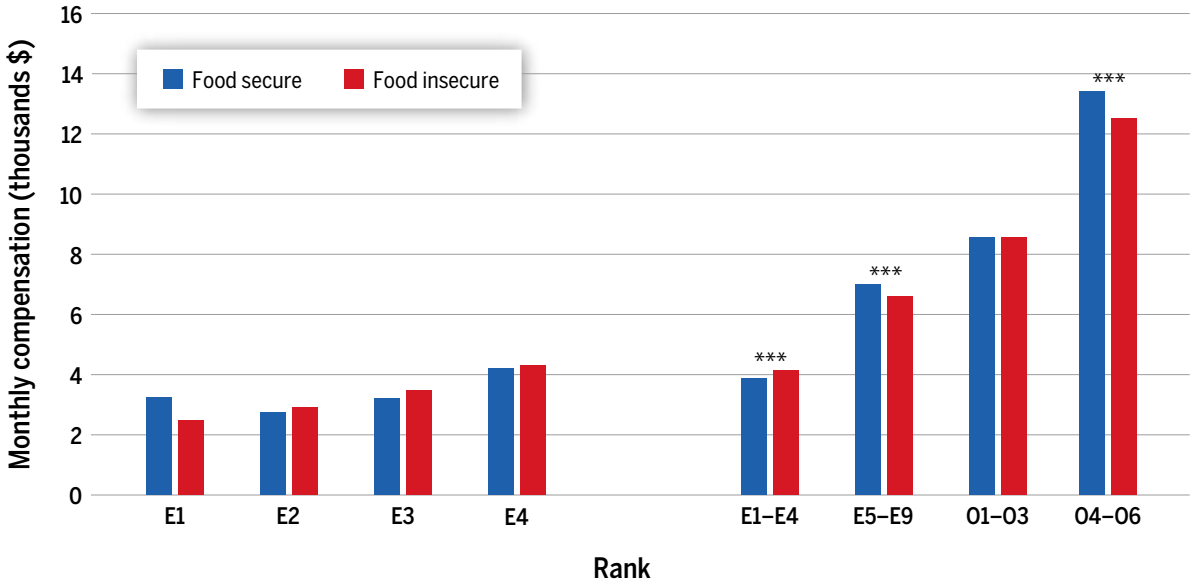
6 Although the QRMC charter requested an examination of the BNA methodology and its contribution to ensuring food security, the allowance has been in effect only since January 2023, and expanding eligibility is under consideration, so sufficient data are not yet available to conduct such an analysis. Instead, the QRMC assessed the relationship between food insecurity and military compensation.

This analysis used three waves of SOFS-A survey data: 2018, 2020, and 2022 and administrative pay and personnel records from DMDC. An in-depth analysis of the root causes of food insecurity was beyond the scope of this effort.

7 The analysis in this chapter is drawn from Patricia K. Tong, Beth J. Asch, and Stephanie Rennane, *Military Compensation and Food Insecurity: Analysis in Support of the Fourteenth Quadrennial Review of Military Compensation*, RAND Corporation, a supporting research paper in Volume III of this report. The paper includes details on the modeling parameters and assumptions underlying the analysis, additional details on the survey and survey data used in the modeling, and additional findings.

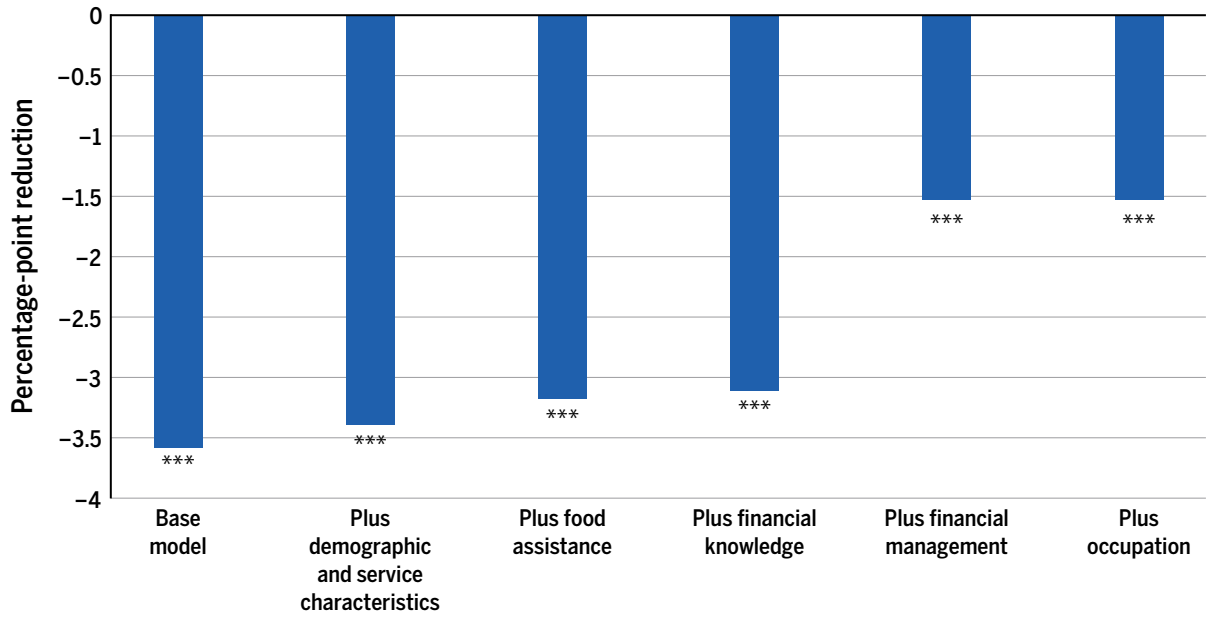
FIGURE 6.1 Average Monthly Cash Compensation for Food-Insecure and Food-Secure Members, by Grade, 2022



SOURCE: Produced using SOFS-A 2022 data matched to DMDC pay records.

NOTE: Tabulations included members of the Coast Guard and used survey weights. *N* = 10,568. *** denotes that food insecurity rate is significantly different from the overall average at the 1-percent level.

FIGURE 6.2 Estimated Percentage-Point Change in Likelihood of Food Insecurity Associated with a 15-Percent Increase in Monthly Cash Compensation Among 2022 Respondents



SOURCE: Produced using SOFS-A 2022 data matched to DMDC data.

NOTE: Analysis was restricted to members who had two full years of pay history. *N* = 9,135. *** denotes that result is statistically significant at the 1-percent level.

But many other characteristics that could also be correlated with compensation, food insecurity, or both vary across these groups. Isolating the effect of these factors suggests that demographic and Service characteristics, use of food assistance, or financial knowledge have little effect on the relationship between pay and food insecurity. Accounting for financial management, however, reduces the relationship between pay and food insecurity by approximately one-half: A 15-percent increase in pay is associated with a 1.5–percentage point reduction in the likelihood of being food insecure. These findings for the military are consistent with research on civilians that shows that higher-income civilians are less likely to be food insecure, but that savings and financial management skills mediate the relationship.[8] Occupation categories do not significantly change the relationship between food insecurity and levels of pay after considering all the other characteristics.

Variability of Pay

One hypothesized underlying cause of food insecurity in the military is that the nature of military service introduces volatility in earnings beyond what civilians experience.[9] Military personnel are required to change locations and assignments every few years, and such moves can result in changes in BAH, eligibility for and amount of COLA, eligibility for certain special pays if duties change, out-of-pocket childcare expenses, and spouse employment and earnings. Furthermore, these moves can involve out-of-pocket moving costs, pays can be subject to errors, or the receipt of new pays can be delayed.

Some changes in military compensation are, by design, intended to smooth the effect of changes associated with military service on Service member consumption and welfare. For instance, when members are required to move to new locations with higher housing costs, their housing allowance is adjusted to reflect the change in housing costs. These changes could increase volatility, but member well-being should be improved if the increase enables them to pay for a change in expenses. Alternatively, if the volatility creates uncertainty and hinders planning it could hurt well-being despite the benefits. Research on the civilian population shows that earnings instability—whether an increase or decrease—is associated with greater hardship (especially for lower-income people), including worse educational and behavioral outcomes for children, worse child health, food insecurity, and an inability to pay household expenses or get medical care.[10]

In the military, pay variability declines as seniority increases. Pay variability declines 30 percent between the most junior enlisted members and members in grades E-5 to E-9. Relative to the average monthly earnings for an E-4, this translates into smoothing out monthly swings in income by approximately $200. Decreasing variability is associated with a decline in food

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8 Craig Gunderson and James P. Ziliak, "Food Insecurity Research in the United States: Where We Have Been and Where We Need to Go," *Applied Economic Perspectives and Policy*, Vol. 40, No. 1, February 16, 2018.

9 Asch et al., 2023.

10 Taryn W. Morrissey, Yun Cha, Sharon Wolf, and Mariam Khan, "Household Economic Instability: Constructs, Measurement, and Implications," *Children and Youth Services Review*, Vol. 118, 2020; Sharon Wolf and Taryn Morrissey, "Economic Instability, Food Insecurity, and Child Health in the Wake of the Great Recession," *Social Service Review*, Vol. 91, No. 3, 2017.

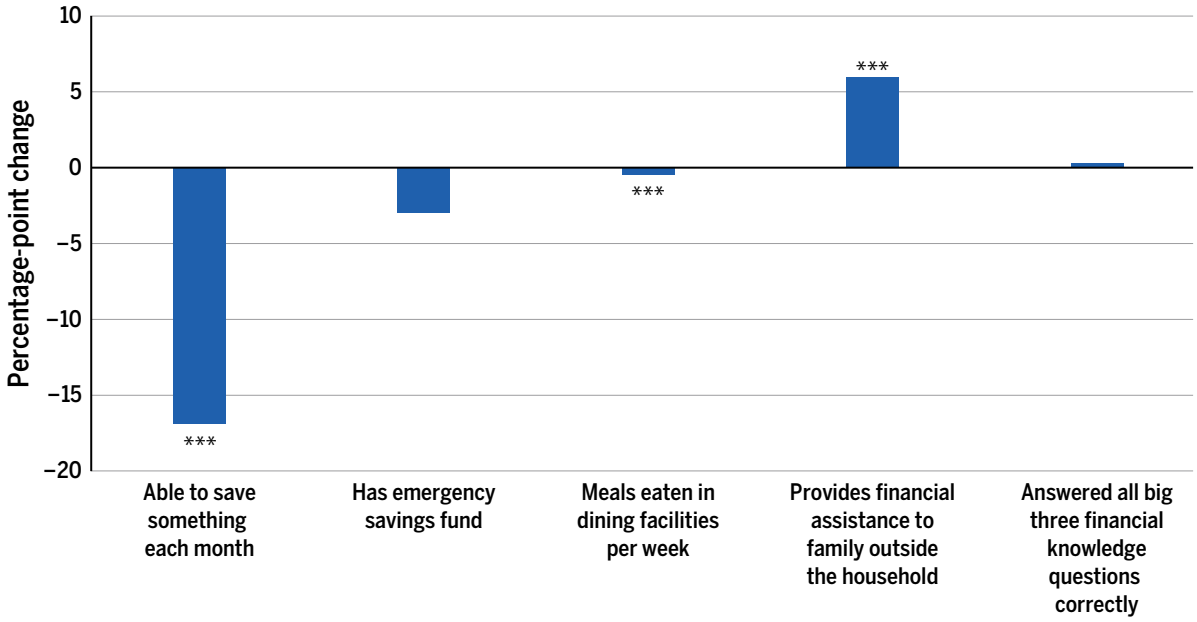
insecurity among survey respondents—a statistically significant estimate. Decreasing variability by 30 percent leads to a 7.7–percentage point reduction in the likelihood of food insecurity. Accounting for greater financial knowledge, financial management, and occupation along with reduced pay variability translates to a 4.5 to 5–percentage point decline in the likelihood of being food insecure.

Financial Management and Knowledge

Among the financial metrics examined, the ability to save something each month had the strongest relationship with food insecurity—an estimated 17–percentage point reduction in the likelihood of being food insecure (Figure 6.3). In contrast, survey respondents who reported providing financial assistance to family members outside of the household were 6 percentage points more likely to be food insecure. Having an emergency fund did not have a statistically significant relationship with food insecurity, likely because it is so highly correlated with being able to save each month. Eating in dining facilities has a small but significant effect on reducing food insecurity by 0.4 percentage points. The relationship is even stronger for E-1 to E-4s: Each additional meal eaten in the dining facilities per week reduced the likelihood of food insecurity by 0.6 percentage points.

Although there is evidence of a relationship between financial management and food insecurity, the same cannot be said for financial knowledge—as measured by three questions commonly

FIGURE 6.3 Estimated Percentage-Point Change in Likelihood of Food Insecurity and Metrics of Financial Management and Knowledge



SOURCE: Produced using SOFS-A 2022 data matched to DMDC data.

NOTE: Analysis was restricted to members who had two full years of pay history. *N* = 9,135. *** denotes that the result is statistically significant at the one-percent level. Figure shows coefficients from the model with the full set of covariates (column 7 of Table 3.2 in Tong, Asch, and Rennane, in Volume III of this report).

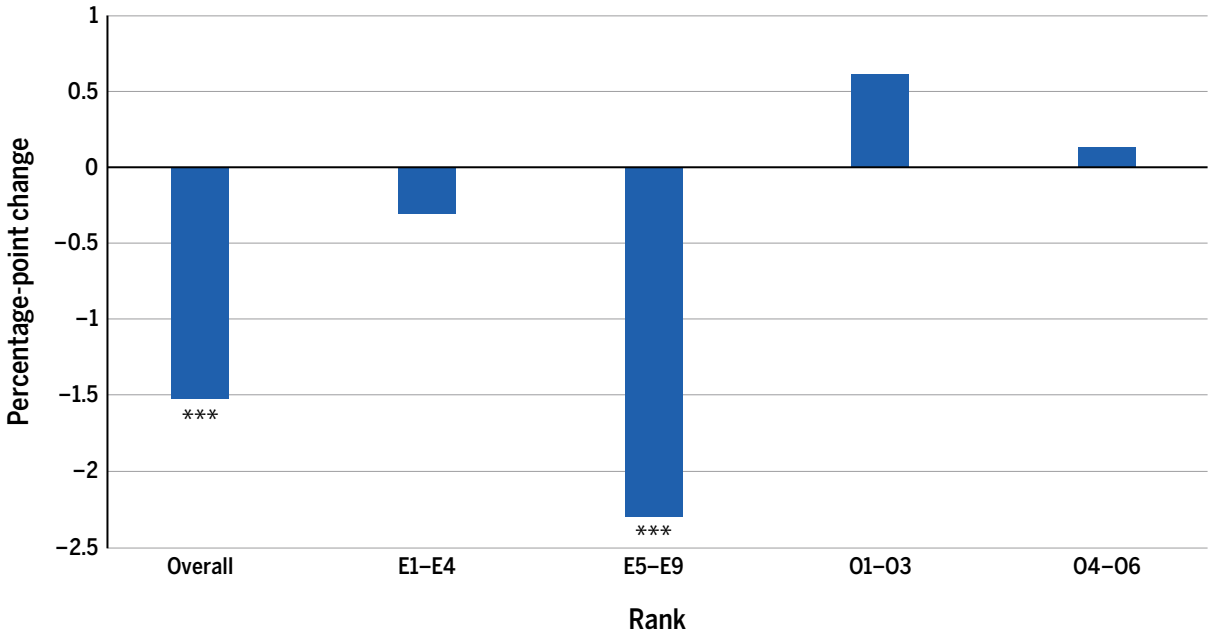
used to gauge financial literacy of survey respondents by testing people's knowledge of interest rates, inflation, and stock versus mutual fund investment.[11] The lack of a significant relationship could reflect the possibility that answers to these questions might not directly translate into the day-to-day financial skills needed to manage money and budget appropriately in ways that would affect food insecurity. Or it could reflect a close correlation to measures of behaviors used in the analysis that reflect financial knowledge to some degree (such as savings).

Differences in Food Insecurity by Grade

The relationship between various factors and food insecurity discussed so far reflect the full sample of survey respondents—all grades and all stages of career, including midcareer and senior grade personnel. Looking at these same factors for subgroups of pay grades that reflect differences in career seniority and pay levels provides insights into how the relationship between food insecurity and pay varies for junior members compared with more senior members.

As Figure 6.4 shows, a 15–percent increase in cash compensation reduces the likelihood of food insecurity by 1.5 percentage points overall (accounting for all demographic, Service, and financial

FIGURE 6.4 Estimated Percentage-Point Change in Likelihood of Food Insecurity Associated with a 15-Percent Increase in Cash Compensation for Subsamples Defined by Grade Grouping, 2022



SOURCES: Produced using SOFS-A 2022 matched to DMDC data.

NOTE: Analysis was restricted to members who had two full years of pay history. *N* = 9,135. *** denotes that result is statistically significant at the 1-percent level. Results shown for each group are the coefficient estimate on the logarithm of monthly cash compensation where the sample was restricted to each grade range. Coefficients are from the version of the model with the full set of controls.

[11] Annamaria Lusardi and Olivia S. Mitchell, "The Importance of Financial Literacy: Opening a New Field," *Journal of Economic Perspectives*, Vol. 37, No. 4, 2023.

characteristics). But there is no statistically significant relationship between a pay increase and food insecurity for three of the four subgroups examined: E-1 to E-4, O-1 to O-3, and O-4 to O-6. The only group for which there is a small but statistically significant association is for more senior enlisted members in grades E-5 to E-9 for which a 15-percent pay increase is associated with just over a 2–percentage point decline in the likelihood of food security.

Interestingly, these associations were not consistent when evaluating results from multiple surveys. The results of the 2018 and 2020 SOFS-As showed no robust relationship between compensation and food insecurity for any specific subgroup of grades, including junior enlisted personnel. Career enlisted personnel in grades E-5 to E-9 showed the strongest relationship, with food insecurity falling after an increase in compensation for two of the three survey years (2018 and 2022). These surveys were fielded at points in time with very different economic circumstances, so variation in results is not surprising. But there is no evidence that the high rate of food insecurity reported among junior enlisted members would be lower if compensation were higher.

Despite the lack of relationship between food insecurity and higher compensation, it is reasonable to ask how much food insecurity would decline if Congress increased cash compensation for junior enlisted members by 15 percent and how much it would cost. The number of E-1 to E-4 Service members across all Services in 2023 was 554,445.[12] On the basis of data from the 2022 SOFS-A, a 15-percent pay raise would reduce the number of food insecure junior enlisted members by an estimated 1,685, at a cost of $3.71 billion, or $2.2 million per member ($3.71 billion/1,685). On the basis of the 2020 SOFS-A, food-insecure members would decline by an estimated 6,201 members at a cost of $597,100 per member. The implication is that even if the relationship between food insecurity and higher compensation had been robust, using a pay increase to address food insecurity among junior enlisted members would be disproportionately expensive.

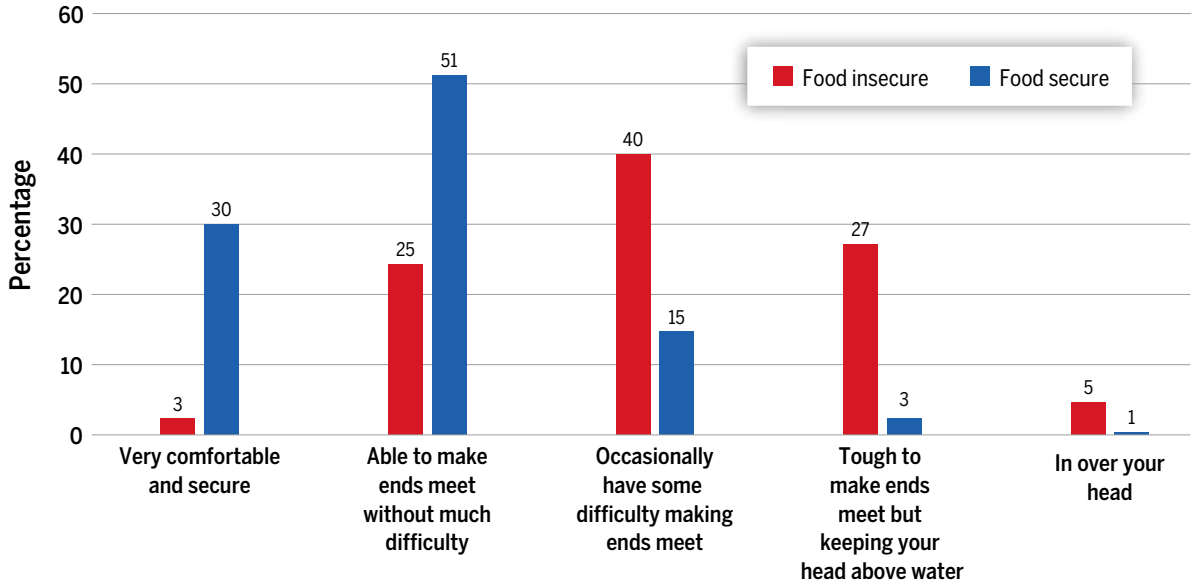
Financial Circumstances of Food-Insecure Service Members

According to answers to three questions in the SOFS-A that measure the financial condition of Service members, large shares of food-insecure members reported good financial condition, saving and investing, and having an emergency savings fund. Three percent of food-insecure members in 2022 reported having a very comfortable and secure financial condition and 25 percent reported being able to make ends meet without much difficulty—a total of 28 percent of food-insecure members who reported being in good financial condition (Figure 6.5). As expected, a larger share of food-secure members, 81 percent, reported good financial condition, and higher shares of food-insecure members reported poor financial condition (72 percent).

More than half of food-insecure members reported saving or investing (Figure 6.6). Twenty-five percent reported saving or investing what was left at the end of the month with no regular plan

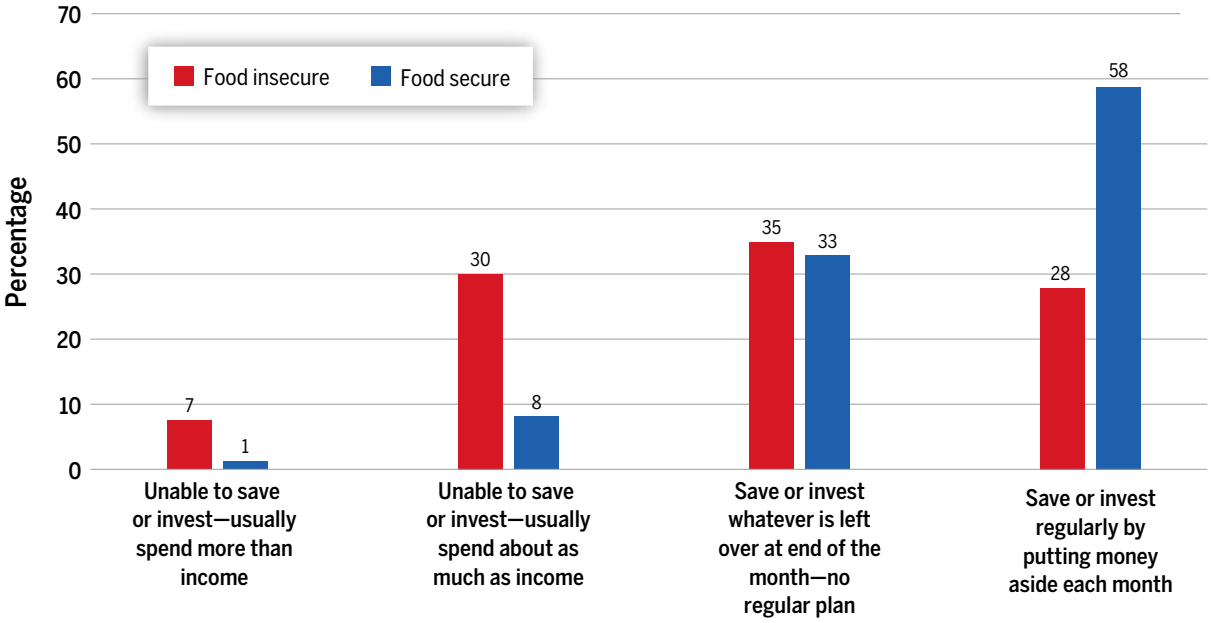
[12] The number of E-1 to E-4s are those with at most ten years of service.

FIGURE 6.5 Respondent-Reported Descriptions of Financial Condition, by Food Insecurity Status, 2022 SOFS-A Respondents



SOURCE: Produced using SOFS-A 2022 data.
NOTE: Tabulations were weighted. Military rates were estimated using SOFS-A.

FIGURE 6.6 Respondent-Reported Descriptions of Saving and Investment Habits, by Food Insecurity Status, 2022 SOFS-A Respondents



SOURCE: Produced using SOFS-A 2022 data.
NOTE: Tabulations were weighted. Military rates were estimated using SOFS-A.

for saving and investing, and 28 percent regularly put aside money each month into savings or investments.[13] Over 80 percent of food-insecure members had emergency savings, and 53 percent had an emergency savings fund that could cover at least one month of expenses. Only a minority of these respondents also reported an improvement in financial circumstances during the year prior to the survey.

These results suggest a disconnect between reported food insecurity and financial circumstances or behavior as reported in the SOFS-A. It is unclear how members could be food insecure while also reporting that they were able to make ends meet without difficulty, save, or maintain an emergency savings fund. It is further unclear how this is possible with a sizeable share also reporting an improvement in financial circumstances. One possible explanation is that some of the members who were considered food insecure experienced a temporary period of food insecurity at some point in the prior 12 months—for example, because of delays in receiving certain pays—but were no longer insecure. Another possibility is that the questions used in the survey do not accurately capture food insecurity of military members and may be overestimating food insecurity, the financial questions might not be measured accurately, or both.

Comparing Military and Civilian Food Insecurity Rates

Many differences between military and civilian populations could explain the variance in food insecurity rates observed for the two populations. Furthermore, how food insecurity is measured in the SOFS-A and the CPS, which differs in some ways, could also play a role in explaining the disparity between military and civilian food insecurity rates. The QRMC investigated each of these topics to understand why food insecurity rates between military and civilian populations are so different.

Demographic Differences

Three recent studies have investigated whether demographic differences can explain the difference in civilian and military food insecurity rates and found that even when considering demographic differences, the military food insecurity rate is higher than for demographically similar civilians.[14] The QRMC built on this literature and used SOFS-A data to compare the military and civilian food insecurity rates for different sets of attributes, including age, gender, education, presence of children, marital status, spouse unemployment status, and household income. Taking these

[13] Service members are auto-enrolled into the Thrift Savings Plan (TSP) and might view contributions to their TSP accounts as saving and investing. Although SOFS-A shows that over 80 percent of food insecure members who reported saving and investing also reported contributing to a retirement account (e.g., TSP), a 1arge share (over 70 percent) of food-insecure members who did not report saving and investing also reported that they contribute to a retirement account.

[14] Asch et al., 2023; Jennifer A. Heissel and Diane W. Schanzenbach, *Risk of Food Insecurity in the U.S. Military: Definitions, Distributions, and Solutions*, Naval Postgraduate School, NPS-DDM-23-006, 2023; Matthew P. Rabbitt and Matthew R. Beymer, *Comparing Food Insecurity Among the U.S. Military and Civilian Adult Populations*, U.S. Department of Agriculture Economic Research Service, April 2024.

characteristics into account when comparing military and civilian food insecurity is important because military respondents to the SOFS-A are more likely than civilians to be younger, have a high school diploma, be unmarried men, or have children, as Table 6.1 indicates.

Examples of the comparison of civilian and active duty respondents with similar characteristics showed the following

- Food insecurity rates for unmarried active duty men without children stratified by age groups and educational attainment were at least 3.5 times the rates for civilians in the same demographic groups.
- Food insecurity rates for unmarried active duty women without children, ages 18 to 29, and high school graduates were more than twice the civilian rate for this demographic group.
- Food insecurity rates for active duty married couples with children and a spouse who was not unemployed and stratified by age groups and educational attainment were between three and five times higher than civilians in the same demographic groups.
- Food insecurity rates for active duty married couples without children and a spouse who was not unemployed and stratified by age groups and educational attainment ranged from 2.7 to 4.3 times higher than similar civilians.

Similar results were observed for other demographic characteristics including whether household income was above or below 185 percent of the poverty line. Thus, the QRMC concludes that

TABLE 6.1 Comparison of Civilian Characteristics in CPS and Military Respondent Characteristics in SOFS-A, 2022

Characteristic	CPS	SOFS-A
Married, spouse unemployed	2%	3%
Unmarried male	21%	40%
Unmarried female	22%	10%
Age 18–29	11%	61%
Age 30–50	35%	38%
Age 50+	53%	1%
Less than a high school degree	8%	3%
High school degree	25%	61%
More than a high school degree	67%	34%
Yes children	25%	39%
Above 185% of federal poverty line	76%	68%

SOURCE: Produced using SOFS-A 2022 data matched to DMDC data.

NOTE: Tabulations were weighted. The 2022 CPS tabulations excluded active duty members. Percentages may not add up to 100 percent due to rounding. In SOFS-A, the indicator for being above 185 percent of the federal poverty line is imputed based on household income, marital status, and number of dependents reported by survey respondents.

controlling for these demographic characteristics does not explain why military food insecurity rates are so much higher than civilian food insecurity rates, a finding consistent with the three earlier studies.

This analysis was limited to characteristics observable in the CPS and SOFS-A data, and it is possible that unobservable characteristics explain the differences in food insecurity rates. For example, the Pew Research Center reported that 44 percent of adults aged 18 to 34 who have a living parent say they received financial help from their parents in the past 12 months; 68 percent of adults younger than 25 received financial help from their parents.[15] Fifty-two percent of adults aged 18 to 24 reported getting help with household expenses, such as groceries or utilities.[16] If civilian young adults are more likely to receive assistance from family and friends compared with young adults in the military, this difference could in part explain why food insecurity rates differ so much between the two populations. Other potential differences between the two populations that cannot be observed in the existing survey data are financial literacy, financial management skills, and the extent to which civilians and military populations provide financial assistance to others.

Differences in How Food Insecurity Is Measured

Military and civilian food insecurity rates might also differ because of differences in how food insecurity is measured between the two surveys. Both surveys use USDA food security questionnaires, but the questions, screening process, and method of data collection are not the same. The CPS uses ten questions to determine food insecurity, with eight additional questions asked of households with children. Households are deemed food insecure if they responded to at least three questions that indicate food insecurity.[17]

In contrast, SOFS-A uses six questions that are a subset of the ten used in the CPS. A respondent is deemed food insecure if they respond to at least two questions that indicate food insecurity. In addition, the CPS has a screener that allows survey respondents to skip the food security questionnaire if they meet certain criteria. The QRMC recalculated the CPS food insecurity rate using the six questions in the SOFS-A and recalculated the SOFS-A food insecurity rates by applying an approximation of the CPS screening process. Neither of these assessments—accounting for differences in the questions used to derive food security status or the presence of the food security questionnaire screener in the civilian survey—led to results that would explain the large difference between the active duty respondent and civilian food insecurity rates.

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15 Richael Minkin, Kim Parker, Juliana Menasce Horowitz, and Carolina Aragão, *Parents, Young Adult Children and the Transition to Adulthood*, Pew Research Center, January 2024.

16 Minkin et al., 2024.

17 USDA, "Food Insecurity in the U.S. Measurement," webpage, October 25, 2023.

Policy Considerations: Addressing Food Insecurity in the Military

The relationship between compensation and food insecurity is complex. Financial knowledge, well-being, and skills have an important role in explaining the relationship between compensation and food insecurity in the military. However, there is no evidence from this assessment that raising cash compensation would significantly reduce the high rate of food insecurity reported among junior enlisted survey respondents, although it might have some positive impact for career enlisted respondents. More importantly, even if the relationship between compensation and food insecurity were robust and statistically significant, using a pay increase to address food insecurity among junior enlisted members would be disproportionately expensive because the estimated relationship is so small. These results call into question policies that focus exclusively on raising junior enlisted pay to address food insecurity in the military.

Furthermore, the higher rate of food insecurity among military respondents compared with civilians is not explained by differences in observable characteristics or differences in how people are screened in the different surveys. Instead, the different food insecurity rates could reflect differences in unobservable characteristics between military and civilian populations. Military and civilian populations could also differ in how they interpret questions in the food security questionnaires or have fundamentally different lifestyles that cause the military population to appear more food insecure.

Other possible explanations are a difference in survey methodology and response rates or the time horizon over which food insecurity is measured. Asking about food insecurity over the previous 12 months might not be the best way to measure food insecurity in military populations because a focus on 12 months could overestimate food insecurity that was short-lived and temporary. Future data collection efforts on food insecurity in the military should consider the inclusion of questions that better capture (1) why some members who report a good financial condition and who save or invest are also food insecure and (2) temporary or short-lived incidents of food insecurity and the possible reasons for why these incidents occur.

PART

Entitlements for Deployed Members and Critical Specialties

CHAPTER 7

Entitlements for Deployed Forces

At the request of the U.S. Special Operations Command and the Chairman, Joint Chiefs of Staff, the Secretary of Defense directed the 14th QRMC to conduct a review of entitlements for deployed members. The issue of interest was whether entitlements for deployed members should be based on the risk or danger associated with an assignment or whether they should be aligned with priorities in the National Defense Strategy. The research also contributes to a broader conversation of how to appropriately compensate Service members for the risk they face when deployed to combat conditions and make the best use of these entitlements.[1]

Compensating for Combat and Related Risks

Military personnel are eligible for various special pays, allowances, and tax advantages that are designed to compensate them for combat and related risks. Three types of compensation most directly related to combat risks are Hostile Fire Pay (HFP), Imminent Danger Pay (IDP), and Combat Zone Tax Exclusion (CZTE). A fourth program, the Savings Deposit Program (SDP), is available to Service members stationed in essentially the same countries or regions that qualify for the CZTE.

- **Hostile Fire Pay and Imminent Danger Pay** are monthly payments designed to compensate a member who

  (A) was subject to hostile fire or explosion of hostile mines;

  (B) was on duty in an area in which the member was in imminent danger of being exposed to hostile fire or explosion of hostile mines and in which, during the period the member was on duty in the area, other members of the uniformed services were subject to hostile fire or explosion of hostile mines;

[1] The discussion in this chapter is drawn from the following supporting research paper contained in Volume II of this report: Nancy M. Huff, Ben J. Christensen, Matthew S. Goldberg, Stanley A. Horowitz, Jacklyn R. Kambic, Mikhail Smirnov, Kelsey R. Stanley, and Zachary N. Szlendak, *Review of Entitlements for Deployed Members*, Institute for Defense Analyses.

(C) was killed, injured, or wounded by hostile fire, explosion of a hostile mine, or any other hostile action; or

(D) was on duty in a foreign area in which the member was subject to the threat of physical harm or imminent danger on the basis of civil insurrection, civil war, terrorism, or wartime conditions.[2]

Paragraphs (A) through (C) are *event-based* and qualify the member for HFP when exposed to hostile fire. Paragraph (D) is *location-based* and qualifies the member for IDP when serving in a foreign area subject to the risks detailed in that paragraph.[3] Members may not receive both HFP and IDP in the same month; either pays at a rate of $225 per month and there is no duplication. HFP is paid for the entire month if at any time during the month a member is exposed to the conditions described in statute; IDP is prorated to the daily amount for time served in a qualifying location.

- **Combat Zone Tax Exclusion** allows both enlisted members and warrant officers to exclude from federal income tax all military compensation earned while serving any part of a month in an area covered by the CZTE. Compensation for this purpose includes bonuses and special pays but not pensions or retired pay. For commissioned officers, the monthly amount of compensation excluded is capped at the sum of
  - the highest rate of basic pay payable for such month to any enlisted member of the armed forces of the United States at the highest pay grade applicable to enlisted members plus
  - the monthly amount of HFP/IDP.

  As of January 1, 2024, top enlisted basic pay is $10,295 per month. When added to $225 per month for HFP/IDP, the cap on tax exclusion for commissioned officers equals $10,520 per month (an annual equivalent of $126,240). The value of the CZTE to a Service member depends on the member's tax bracket. The CZTE is not a type of pay or allowance in that DoD does not make any outlays.[4]
- The **DoD Savings Deposit Program** "was established to provide members of the uniformed services an opportunity to invest in their financial savings while serving in a designated combat zone; or while receiving hostile fire/imminent danger pay as they serve in a Qualified Hazardous Duty Area (QHDA) or in a designated direct support area of a combat zone."[5] Balances (past deposits plus accrued interest) under this program that total up to $10,000 earn interest at an annual rate of 10 percent, compounded quarterly. Additional balances in excess of $10,000 do not earn interest.[6]

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2 U.S. Code, Title 37, Section 310, Special Pay: Duty Subject to Hostile Fire or Imminent Danger. The letter-indexed paragraphs here correspond to subparagraphs under 37 U.S.C. §310(a)(2).

3 The taxonomy of *event-based* and *location-based* qualifications is adopted from Beth J. Asch, James V. Marrone, and Michael G. Mattock, *An Examination of the Methodology for Awarding Imminent Danger Pay and Hostile Fire Pay*, RAND Corporation, RR-3231-OSD, 2019.

4 The legislative authority for the CZTE is in U.S. Code, Title 26, Section 112, Certain Combat Zone Compensation of Members of the Armed Forces.

5 Defense Finance and Accounting Service, "DoD Savings Deposit Program," webpage, August 9, 2021.

6 Legislative authority for the SDP is in U.S. Code, Title 10, Section 1035, Deposits of Savings.

The two largest deployment entitlements—the CZTE and HFP/IDP—are intended to compensate Service members for combat risk. The processes for designating combat zones, QHDAs, and countries eligible for IDP are all different.[7] Hostile casualties are among the factors explicitly considered during an IDP determination. Current and prospective casualties are also at least implicitly considered in the Presidential declarations that establish combat zones, and in the Congressional deliberations that accompany legislation establishing QHDAs. Examples include

- President William J. Clinton's declaration of the Kosovo Area Combat Zone (Executive Order No. 13119, designated March 24, 1999, as commencement of combat activities)
- Legislation that designated Bosnia and Herzegovina, Croatia, and Macedonia ("Balkans") as forming a QHDA (Public Law 104–117, enacted March 20, 1996)
- Legislation that designated the Federal Republic of Yugoslavia (Serbia/Montenegro) and certain other areas as forming a QHDA (Public Law 106–21, enacted April 19, 1999).[8]

In general, combat risks have been declining over time. Between October 2019 and January 2024, U.S. military casualties occurred in only five foreign countries: Afghanistan, Iraq, Jordan, Kenya, and Syria. The combat risks during the recent Operation Freedom's Sentinel (OFS) in Afghanistan (concluded on August 31, 2021) were lower than during the postsurge period in Operation Enduring Freedom (OEF) (Table 7.1). The hostile death rate during OFS was, while significant, only 45 percent as large as the postsurge rate in OEF, and the wounded-in-action rate was only 21 percent as large.

When comparing current operations in Iraq and Syria (Operation Inherent Resolve, OIR) with the postsurge period in Operation Iraqi Freedom (OIF), the findings are mixed. The hostile death rate during OIR has been only 68 percent as large as the postsurge rate from OIF. However, the wounded-in-action rate during OIR has been 4.8 times as large as the postsurge OIF rate.

If compensation for combat risk were based solely on looking back at military casualties, the resulting set of countries at any point in time could be very narrow. During interviews conducted for the QRMC, senior military officers at several Combatant Commands largely agreed that eligibility for the CZTE benefit should be based on the risk to Service members rather than on national defense priorities (with one exception from a representative of U.S. Space Command, who did support using the National Defense Strategy priorities to define eligibility). Several of the officers at Combatant Commands recommended that the consideration of risk-based eligibility

7 Huff et al., in Volume II of this report, describe these processes in detail.

8 William J. Clinton, Designation of Federal Republic of Yugoslavia (Serbia/Montenegro), Albania, the Airspace Above, and Adjacent Waters as a Combat Zone, Executive Order 13119, Executive Office of the President, April 13, 1999; Public Law 104-117, An Act to Provide That Members of the Armed Forces Performing Services for the Peacekeeping Effort in the Republic of Bosnia and Herzegovina Shall Be Entitled to Certain Tax Benefits in the Same Manner as if Such Services Were Performed in a Combat Zone, March 20, 1996; Public Law 106-21, An Act to Extend the Tax Benefits Available with Respect to Services Performed in a Combat Zone to Services Performed in the Federal Republic of Yugoslavia (Serbia/Montenegro) and Certain Other Areas, and for Other Purposes, April 19, 1999.

TABLE 7.1 Comparison Between Past and Recent U.S. Military Casualty Rates in Afghanistan and in Iraq and Syria

		Hostile Deaths		Wounded in Action	
Operation	**Troop Years**	**Number**	**Rate per 10,000**	**Number**	**Rate per 10,000**
Afghanistan					
Operation Enduring Freedom postsurge, July 1, 2011–December 31, 2014	250,918	544	21.68	7,516	299.54
Operation Freedom's Sentinel, October 1, 2019–August 31, 2021	19,662	19	9.66	121	61.54
Iraq/Syria					
Operation Iraqi Freedom postsurge, August 1, 2008–August 31, 2010	320,376	129	4.03	1,436	44.82
Operation Inherent Resolve, October 1, 2019–January 31, 2024	14,642	4	2.73	316	215.00

SOURCE: Matthew S. Goldberg, 2016.

should include many sources of information beyond just hostile casualties, including both classified and unclassified sources, to identify other regions in which the current conditions pose various dangers to U.S. military personnel. Examples of other data sources, apart from casualty rates, that should be considered, include the following:

- Centers for Disease Control and Prevention Travel Health Notices
- Defense Intelligence Agency Terrorism Threat Levels
- Defense Intelligence Agency and Combatant Command databases of "significant incidents"
- DoD Combatant Commands' Force Protection Condition levels
- Department of State list of high-risk diplomatic posts
- Department of State Security Environment Threat Levels
- Department of State Travel Advisory Levels
- Federal Aviation Administration Notice to Air Missions.

Turning Benefits On and Off

Historically, Service members begin to receive CZTE and IDP benefits relatively quickly after a region becomes dangerous due to combat or other hostile activities that threaten physical harm. However, once designated, benefits persist in countries or regions for a very long time—sometimes decades—with little appetite to remove them (Table 7.2). For example, the Afghanistan Area (established September 19, 2001) and the Arabian Peninsula Area

TABLE 7.2 Countries That Currently Qualify for the Combat Zone Tax Exclusion

Country	Combat Zone/ QHDA Established	In Direct Support Established	Imminent Danger Pay Established	Original Named Operation	Current Named Operation
Afghanistan	September 2001		November 1988	OEF	OFS
Bahrain	January 1991			OEF/OIF	OIR
Djibouti		July 2002	July 2002	OEF	
Egypt (Sinai Peninsula)	June 2015		January 1997	OEF	
Iraq	January 1991		September 1990	OIF	OIR
Israel		March 2023	January 2002		OIR
Jordan		September 2001	January 1997	OEF/OIF	OIR
Kenya		September 2023	July 2002	OEF	
Kosovo Area[a]	March 1999		Removed May 2014	OAF	
Kuwait	January 1991			OEF/OIF	OIR
Lebanon		February 2015	October 1983		OIR
Oman	January 1991			OEF	OIR
Pakistan		September 2001	November 1996	OEF	
Qatar	January 1991			OEF/OIF	OIR
Saudi Arabia	January 1991		September 2019	OEF	OIR
Somalia		January 2004	September 1992	OEF	
Syria		January 2004	July 2003	OEF	OIR
Turkey		September 2016	January 1997	OEF	OIR
United Arab Emirates	January 1991			OEF/OIF	OIR
Yemen		April 2002	May 1999	OEF	OPG

SOURCES: Defense Finance and Accounting Service, updated November 28, 2023; Defense Finance and Accounting Service, 2023.

NOTE: OEF = Operation Enduring Freedom, OFS = Operation Freedom's Sentinel, OIF = Operation Iraqi Freedom, OIR = Operation Inherent Resolve, OAF = Operation Allied Force, OPG = Operation Prosperity Garden, QHDA = Qualified Hazardous Duty Area.

[a] The Kosovo Area (which includes Kosovo as well as the neighboring countries of Albania, Montenegro, and Serbia) remains eligible for the CZTE, despite the removal of IDP for the neighboring countries, because they all combine to form a combat zone under Executive Order No. 13119.

(established January 17, 1991) remain combat zones and eligible for the CZTE. After a President establishes a combat zone via Executive Order, a second Executive Order from a President is required to terminate a combat zone.

These benefits may persist in part because they accomplish goals other than compensating for risk. For example, the benefits may be used to encourage Service members to accept deployments to less favorable locations or to enhance the value of reenlistment bonuses. However, the long

persistence of the CZTE and IDP has created inconsistency in the levels of risk faced by Service members currently serving in CZTE- and IDP-eligible regions. Service members in some regions with lower levels of risk remain eligible for these combat entitlements; Service members in other, risker locations outside of designated CZTE or IDP regions are not eligible for the same benefits.

DoD has several levers to remove the CZTE benefit, such as terminating the IDP designation for a country in a QHDA or for a country in direct support to either a QHDA or a combat zone. The Assistant Secretary of Defense for Manpower and Reserve Affairs can terminate an IDP designation based on the results of a periodic review or based on recommendation of the Combatant Commander responsible for an area or the Director, Joint Staff.

The most recent review, completed in June 2020, began two years earlier, in 2018. The previous major review that ran from 2012 to 2014 also took about two years to complete. The June 2020 review recertified 38 then-extant IDP designations among the 41 total designations now in place (Table 7.3). Since then, Burkina Faso was added on February 1, 2022, and Burma (Myanmar) on June 22, 2022. The most recent addition was Ukraine, which was added July 13, 2023, retroactive to April 24, 2022.[9]

DoD officials indicated that an IDP action for a single country can be completed in a matter of months. A comprehensive review takes about two years because proposed actions must be

TABLE 7.3 Locations for Imminent Danger Pay

Afghanistan	Haiti	Pakistan
Algeria	Indonesia (portion)	Philippines (portion)
Azerbaijan	Iran	Saudi Arabia
Burkina Faso	Iraq	Somalia
Burma (Myanmar)	Israel	Somalia Basin
Burundi	Jordan	South Sudan
Cameroon (portion)	Kenya	Sudan
Chad	Kosovo	Syria
Colombia	Lebanon	Tunisia
Cuba	Libya	Turkey (portion)
Democratic Republic of Congo	Malaysia (portion)	Uganda
Djibouti	Mali	Ukraine
Egypt	Mediterranean Sea (portion)	Yemen
Ethiopia	Niger	

SOURCE: Defense Finance and Accounting Service, 2023.

9 Rachel S. Cohen, "US Troops in Ukraine Can Now Earn Hazard Pay," *Air Force Times*, July 27, 2023.

coordinated among several offices within the Military Departments and OSD. Commencing those reviews as frequently as every two years would sequence them essentially "heel-to-toe" with no time in-between. An interval of four to six years between the start of consecutive reviews seems more reasonable. In between reviews, individual countries can and sometimes are considered situationally, when conditions arise.

Even with periodic review, the potential consequences of removing deployment entitlements and the fact that the CZTE incurs no cost for the Department incentivizes the continuation of this benefit, including in areas of relatively low risk. Given that leadership faces far fewer challenges establishing or extending benefits than in withdrawing them, it may be helpful to establish these benefits with a defined "sunset date" on which the benefits in a given region terminate unless action is taken to renew them. Adding a default time limit to these entitlements may help overcome the challenges of "removing entitlements" because the decision to end the benefits at a given date would have been made at the time the entitlements were established. In regions where the risk level remained high, leaders would be able to continue (or reestablish) risk-based entitlements as they do today.

Cost and Retention Effects

The persistence of the CZTE and IDP designations for many decades, despite changing levels of risk faced by members serving in eligible regions, leads to inconsistencies in the value of these benefits across Service members. Furthermore, the monetary benefit of the CZTE is not evenly distributed across Service members depending on rank, marital status, and number of dependents regardless of the level of risk they face. The QRMC explored these issues along with the cost and retention effects of modifying eligibility for these benefits.

Cost of Deployment Entitlements

The QRMC estimated that the CZTE and IDP cost the federal government $348 million in 2023.[10] For the 103,000 Service members who were eligible for the CZTE in 2023, the average reduction in household taxes was $3,024 for a total cost to the federal government of $313.5 million. In 2023, 46,957 Service members qualified for IDP and received a total of $34.5 million in compensation, or an average of $730 a year for qualified members. The combined total of $348 million represents an upper bound on the potential savings from sunsetting these benefits in less risky regions. For example, if eligibility for the CZTE were reduced by half, then the federal government could save as much as $157 million per year.

The effect of changing eligibility for the CZTE depends not only on the number of regions that are affected but also the number of Service members who are deployed to those regions. The number

[10] Data used in the analysis in this section were reported for 2023 for all Services except the Army, which were reported for 2022.

of Service members eligible for the CZTE in 2023 is lower than it has been over the past couple of decades.[11] The Internal Revenue Service estimated that whereas 147,263 taxpayers claimed this benefit in 2017, the number decreased to 111,463 in 2021.[12] According to DMDC data, 103,660 Service members were eligible for the CZTE in 2023. A higher or lower number of deployments in future years could increase or decrease the total cost of realigning CZTE eligibility to better match the risk to Service members.

Value of the Benefit to Service Members

It is also the case that the monetary benefit of the CZTE is not evenly distributed across Service members. The size of the reduction in household taxes for the CZTE depends on the income and household composition of Service members rather than the level of risk they face in a deployment.

Higher-paid households benefit more from the CZTE. In some cases, junior enlisted may receive zero benefit while higher-paid Service members can receive tens of thousands of dollars per year in benefit. For example, for married Service members with under $27,700 in basic pay and no other household income, the CZTE provides no benefit because the standard deduction is greater than the member's pay—so they would pay no income taxes with or without the CZTE. Higher-income Service members and members with higher-earning spouses benefit more—up to an estimated $40,000.

The value of the CZTE also increases by rank, which also weakens the tie between compensation and risk. Figure 7.1 shows that the benefit of the CZTE to senior enlisted and officers far exceeds the benefit junior enlisted members received in 2023, on average. For eligible Service members, the benefit of the CZTE can be ten times more for senior officers than junior enlisted. Paying a higher benefit to higher-paid employees (who also have higher-paying outside options) is consistent in theory with how the private sector would compensate individuals for risk exposure, but the increase in the private sector between higher- and lower-paid employees would be at most three times more. Furthermore, higher-ranked Service members also tend to have lower casualty risk.[13] Given the difference in actual risk faced, junior enlisted are undercompensated compared with others in terms of the benefit of full eligibility for the CZTE.

Overall, the value of the CZTE to Service members depends on various factors including household income, the number of dependents, marital status, spousal income, and whether a Service members' deployment to a CZTE-eligible region is split across years. On average, married Service members receive over 50 percent more benefit from the CZTE ($3,267) than nonmarried Service

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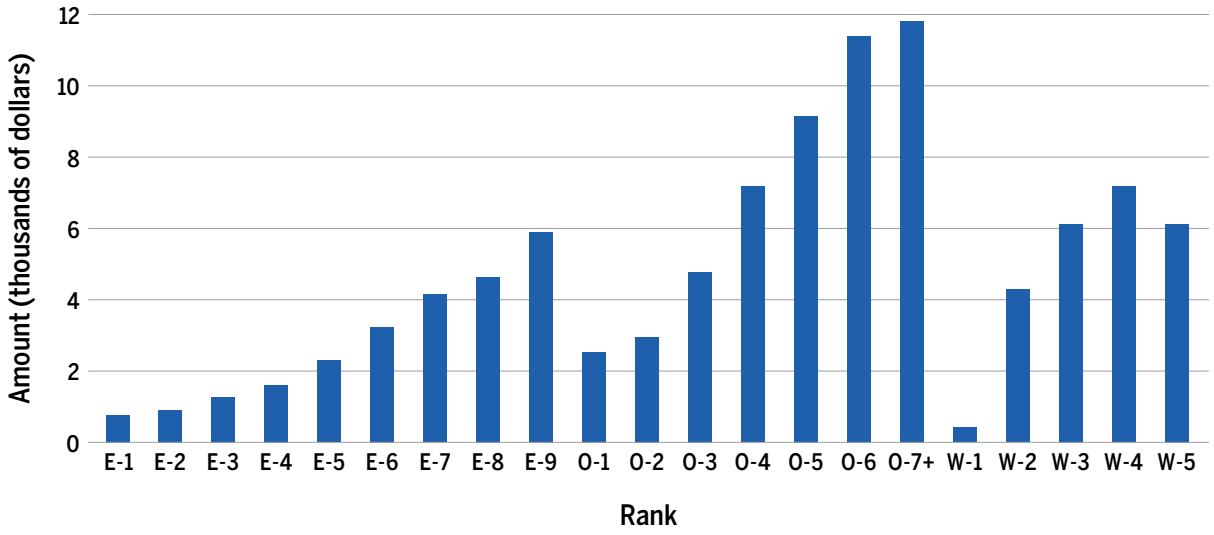
11 Internal Revenue Service, "SOI Tax Stats—Individual Income Tax Returns Complete Report (Publication 1304)," webpage, December 12, 2024.

12 Internal Revenue Service, *Statistics of Income—2021 Individual Income Tax Returns*, Publication 1304 (Rev. 4—2024), undated, p. 337.

13 Saul Pleeter, Alexander O. Gallo, Brandon R. Gould, Maggie X. Li, Shirley H. Liu, Curtis J. Simon, Carl F. Witschonke, and Stanley A. Horowitz, *Risk and Combat Compensation*, Institute for Defense Analyses, IDA Paper P-4747, 2011.

FIGURE 7.1 Average Value of the CZTE to Eligible Service Members in 2023, by Rank



NOTE: O-7s, O-8s, O-9s, and O-10s are all included in O-7+.

members ($2,092). Married Service members with high-earning spouses benefit even more. The complexities of the U.S. tax system make it so that marital status greatly affects the benefit of the CZTE such that, generally, the more a spouse makes the more benefit a Service member receives from the CZTE. This occurs even though married and unmarried Service members have a similar rate of eligibility for the CZTE and, conditional on being eligible, are estimated to have a similar percentage of their income subject to the tax exclusion.

Like marital status, the number of dependents significantly affects the benefit of the CZTE. Despite having similar rates of CZTE eligibility and a similar percentage of their income subject to the CZTE, Service members with more dependents receive more benefit. Those eligible for the CZTE with two or more dependents, for example, receive a benefit more than twice that of those with no dependents ($4,340 and $2,092, respectively). This occurs partly because some Service members are able to qualify for the earned income tax credit, but the difference also reflects the fact that Service members with dependents are more likely to be married and gain the tax benefits associated with marriage. As with household income and rank, neither marital status nor dependents relate to the level of risk faced by Service members on deployment.

As these examples illustrate, the inequities in how much Service members benefit from the CZTE stem primarily from increasing marginal tax rates (so higher earners benefit more) and the complexities of the U.S. tax system. The bottom line is that under the current system Service members deployed to the same location, facing equivalent levels of risk, are not entitled to the same amount of benefit for the risk that they face. Replacing the CZTE with a tax credit, of equal total cost to the government, would reduce these inequities. Using 2023 data, a refundable tax credit of $680 for each month a Service member is in a combat zone would impose the same cost on the U.S. tax system as the current CZTE.

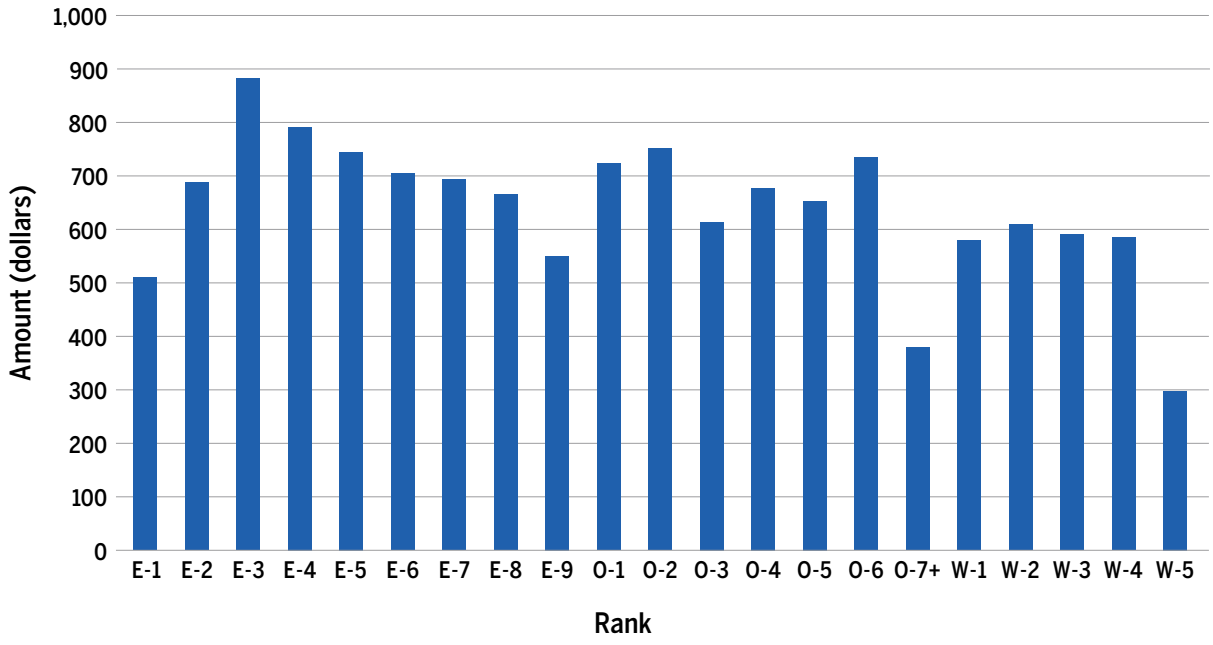
In contrast to the CZTE, IDP compensation is directly proportional to how long a Service member is in an IDP-designated region, so there is less variance in risk associated with IDP compensation than with the CZTE. Figure 7.2 shows the average IDP benefit for Service members who received at least some IDP during the year. In this case there is no pattern of higher-paid ranks receiving more benefit as there is with the CZTE. Also, the magnitude of the average benefit is much smaller compared with the CZTE. The limited variance in compensation by rank more closely aligns with past risk.

Retention Effects of Deployment Entitlements

The CZTE and IDP are among the benefits and S&I pays that Service members factor into their decisions about whether to stay in the Service or to leave. To understand the potential retention impact, the QRMC estimated the retention effect using scenarios in which eligibility for the CZTE or IDP was reduced for all Service members who were considering reenlisting. The results indicated that the estimated retention effect of reducing CZTE and IDP eligibility is relatively small because of the small share of members who are eligible for these benefits. In the most extreme case, removing all CZTE and IDP has an estimated retention impact on the order of less than 1 percent across the total force. More-targeted sunsets of CZTE and IDP eligibility that are limited to low-risk regions are likely to have an even smaller effect on retention.

If DoD reduced CZTE and IDP eligibility to better align with risk, the cost savings from reducing CZTE eligibility could be reapplied to increases in other deployment entitlements such as Assignment Incentive Pay or the Family Separation Allowance to encourage Service members to continue to

FIGURE 7.2 Average Imminent Danger Pay Compensation to Eligible Service Members by Rank



NOTE: O-7s, O-8s, O-9s, and O-10s are all included in O-7+.

volunteer for less favorable deployments. This reallocation would further mitigate any retention impacts of a realignment of the CZTE and IDP to compensate Service members serving in the most dangerous regions.

Policy Considerations: Realigning Entitlements for Deployed Forces

If the purpose of deployment entitlements is to compensate for risk, the current combat entitlements need to be realigned with risk and that relationship needs to be maintained into the future. As a starting point, additions, renewals, and termination of CZTE and IDP eligibility need to be based on risk measures that include U.S. military casualty statistics and other quantitative and qualitative risk measures as outlined in DoD instruction.[14] In addition, regular reviews are needed to maintain alignment between risk and combat entitlements, which becomes disconnected when eligible areas have widely varying risk. Other changes that could help prevent areas from remaining eligible over long periods would be to incorporate termination dates when a new region becomes eligible or to give DoD authority to remove countries or areas from a QHDA (thereby turning off the CZTE benefit in those locations) while maintaining their IDP designation. At the same time, the need to rapidly add eligible regions for urgent situations will remain. A more forward-leaning consideration would be to initiate refundable tax credits to replace the CZTE and reduce the variability in the level of benefits that does not pertain to risk—consistent with recommendations from the Eleventh Quadrennial Review of Military Compensation.

[14] DoDI 1340.09, 2024.

CHAPTER 8

Adjusting Basic Pay for Critical Skills

The President directed the QRMC to "review military compensation relative to anticipated future requirements in technology and other fields that are critical to the Department of Defense." Currently, members in these fields receive the same basic pay as members in noncritical specialties, but often receive special, incentive, or bonus pay in addition to basic pay to enhance enlistment and retention of these members.

The QRMC studied whether the current system of using special, incentive, or bonus pay was the most efficient way to compensate these members or whether structural changes to the basic pay table would be more efficient. Legislative language in the FY 2023 NDAA motivated the policy questions the QRMC addressed in its analysis of compensation for critical specialties. Section 643 of H.R. 7900 requires a study of basic pay that includes

> (2) An assessment of whether to modify current basic pay tables to consider higher rates of pay for specialties the Secretary determines are in critical need of personnel, or whether employing the system of supplementing basic pay with bonuses and other special and incentive pays adequately addresses the need for "wage differentials" among such specialties. The assessment shall specifically consider the degree to which the need for higher rates of pay for critical occupational specialties occurs broadly across the Force.

Three policy questions spring from the legislative language:

1. Does the need for higher pay in critical skills occur broadly across the force?
2. Does the current system of supplementing basic pay with bonuses and special pays adequately address the need for wage differentials for these specialties?
3. Should the pay table be modified to provide wage differentials for critical specialties?[1]

[1] The research findings reported in this chapter are drawn from Beth J. Asch, Michael G. Mattock, Jason M. Ward, Samuel Absher, Patricia K. Tong, and Anton Shenk, *A Review of the Military Basic Pay Table: Analysis in Support of the Fourteenth Quadrennial Review of Military Compensation*, Chapter 7 and Appendix G, RAND Corporation, a supporting research paper included in Volume II of this report. In additional to further detail on the findings, the paper contains details on the methodology used in all calculations.

To help answer these policy questions, the QRMC considered three related research questions and took a data-driven approach informed by discussions with subject-matter experts and a literature review. The research questions were:

1. What is the prevalence of critical specialties and how much higher is cash compensation owing to receipt of S&I pays?
2. Does the evidence indicate that the current S&I pay system is adequate for providing wage differentials?
3. What might a pay table approach to offering wage differentials for critical skills look like and what are the advantages and disadvantages of a pay table approach?

The QRMC's investigation into critical skills compensation began by having subject-matter experts from the Services and OSD identify critical skill areas. The occupations that experts identified as critical, as listed in the first column of Table 7.1, tend to show a high prevalence of receipt of special pays or bonuses. That said, not every occupation in these critical skill areas necessarily requires a wage differential. The infantryman occupation, for example, is essential to the operation of the Army. Sometimes this occupation requires a Selective Reenlistment Bonus (SRB) that is high enough to sustain retention of enlisted members with select skills. Further, high SRBs might also be needed for Service members assigned to specific locations. In other cases, only a smaller SRB might be required or no SRB at all. These differences are reflected in Table 8.1, which shows that only 27 percent of Army infantrymen received special pay or a bonus, as opposed to 98 percent for Amy Special Operations. The table also gives some insight into how these occupations differ in criticality across the Services.

TABLE 8.1 Prevalence of Special and Incentive Pays in Critical Occupations, Enlisted Members, 2021

Occupation	Army	Navy	Department of the Air Force	Marines
Aviation	46% (15T)	95% (AWF)	95% (1A2)	52% (627)
Cybersecurity operations	41% (17C)	9% (CTN)	96% (1B4)	28% (171)
Explosive ordnance disposal	80% (89D)	99% (EOD)	81% (3E8)	31% (230)
Foreign language interpreter	22% (35P)	14% (CTI)	71% (1A8)	9% (264)
Infantryman	27% (11B)	—	23% (3P0)	12% (031)
Intelligence	34% (35Z)	28% (IS)	97% (1N7)	12% (021)
Medical	22% (68W)	18% (HM)	15% (4N0)	—
Nuclear	23% (74D)	77% (ETN)	76% (2W2)	6% (571)
Recruiting	95% (79R)	62% (NC)	84% (8R0)	0% (841)
Skilled repair	46% (15T)	54% (MR)	66% (2M0)	6% (217)
Special Operations Forces	98% (18F)	95% (SO)	10% (2A2)	74% (037)

SOURCE: Calculations based on DMDC pay data for enlisted members in 2021.

NOTE: The number and letter sequences in parentheses indicate the occupation designation associated with the prevalence statistic.

Cash Compensation and Critical Skills

Overall, only a small share of occupations in the Army has a high incidence of S&I pays: In the top 20 percent of occupations, 25 percent or more of members receive special pays or bonuses; in the top 10 percent of occupations, that figure is 50 percent, and in the top 5 percent, it is 83 percent or more.[2] Thus, the incidence of S&I pays in the enlisted Army is highly skewed and targets only a select group of occupations. The incidence of special pay and bonuses among Army commissioned officers is similarly concentrated in a select group of occupations.

In addition to incidence of special pay and bonuses, the amount of the special pays and bonuses is also important. The QRMC found that less than 4 percent of Army enlisted occupations are associated with special pays or bonuses that account for 10 percent or more of total compensation. For officers, less than 5 percent of Army officer occupations have special pays or bonuses that account for 10 percent or more of total compensation. These findings are conservative in that the calculations included all special pays and bonuses, even those not directly associated with occupations, such as IDP, which is determined by location. Thus, these figures overstate to some extent the share of compensation associated with an occupation, which further indicates how concentrated the use of special pays and bonuses is.[3]

How do these special pays and bonuses affect pay in critical specialties? Cash compensation is higher in critical occupations across all Services. Special pays are higher in critical occupations than in noncritical occupations in all Services except the Navy (likely due to the receipt of sea pay). Also, bonuses are higher in critical occupations than in noncritical occupations across all Services.

In addition, the sum of bonuses and special pays is greater for those in critical specialties in all Services and for both officers and enlisted members. Enlisted members in critical occupations earned about $1,000 to $4,000 more annually in 2021 dollars (Figure 8.1). Officers in critical occupations earned about $4,000 to $40,000 more annually than their peers in noncritical occupations (Figure 8.2).

It is important to recognize that the sum of these bonuses and special pays include both pays that are contingent on commitment to an additional service obligation—which are important for retention and overall personnel readiness—and pays that are unconditional in that they are paid by virtue of the nature of the assignment or occupation, not a service commitment. In other words, the wage differential between critical and noncritical occupations consists of both conditional (typically bonuses) and unconditional (typically special pays) pays. That is, some portion of the recipients is being paid in exchange for the Service member giving up the option to freely

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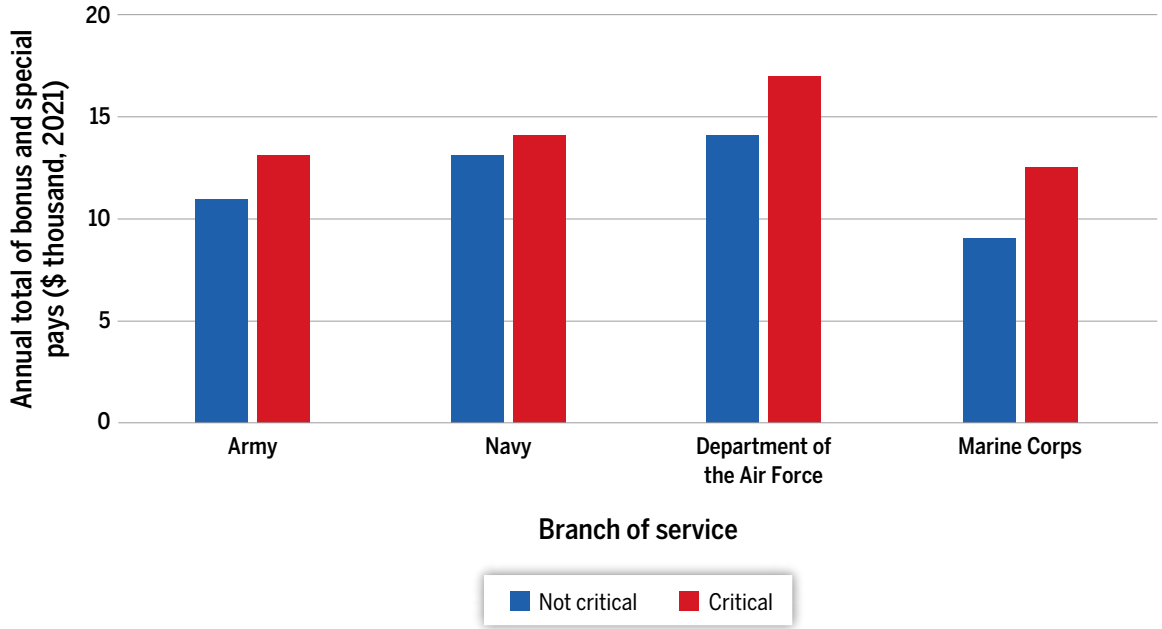
2 As with other chapters, results are shown using Army data. Data for other Services reach similar conclusions and are presented in Asch et al., Appendix G, in Volume II of this report.

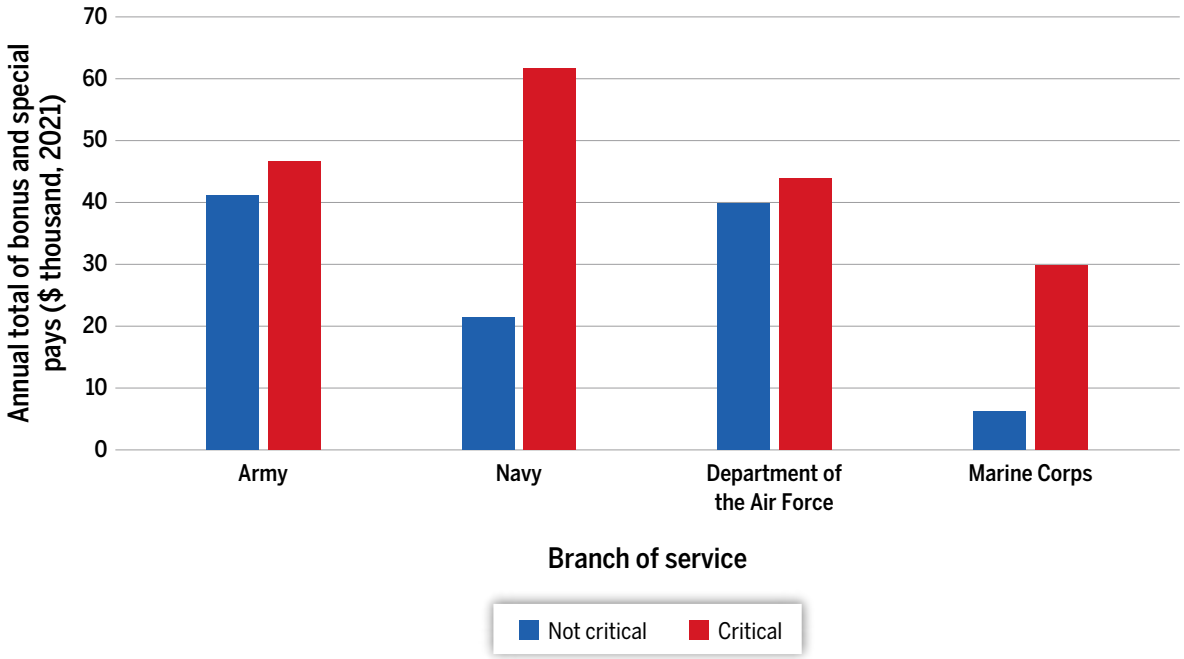
3 On the other hand, the tabulations may also understate the extent of use of S&I pays since the DMDC data on which the tabulations are based do not appear to capture all S&I pays received by Service members, as discussed in Asch et al., in Volume II of this report.

FIGURE 8.1 Average Annual Total of Bonus and Special and Incentive Pays for Each Enlisted Member, by Critical and Noncritical Occupations



SOURCE: Calculations based on DMDC pay data for individual members from 2016 to 2021.
NOTE: Averages are conditional on receipt of bonus and S&I pays, controlling for years of service and grade.

FIGURE 8.2 Average Annual Total of Bonus and Special and Incentive Pays for Each Officer Member, by Critical and Noncritical Occupations



SOURCE: Calculations based on DMDC pay data for individual members from 2016 to 2021.
NOTE: Averages are conditional on receipt of bonus and S&I pays, controlling for years of service and grade.

leave the service (conditional), and another portion receives these pays as a matter of course (unconditional). Because of this distinction, it is not necessarily desirable to implement a wage differential as a single unconditional pay based on the total difference in pays, shown in Figures 8.1 and 8.2.

Bonuses and Special Pays as a Wage Differential

Previous research has demonstrated the utility of bonuses and special pays in providing wage differentials for critical occupations.[4] Bonuses are positively related to accession and retention, and pays associated with multiyear contracts are cost-effective.[5] S&I pays can provide wage differentials and are more efficient when compensation is conditional on a multiyear retention commitment.[6] In addition, all else being equal, inflation reduces the real value of special pays, thereby reducing their retention effect over time.[7] The QRMC did not identify research on whether bonuses and special pays are inefficiently set too high or too broadly applied. When bonuses and special pays are set too low, retention goals will not be met, but it is more difficult to detect the effect of pays that are overly generous. Although most research has examined the relationship between special pays and retention, research has shown the effectiveness of combat compensation, Assignment Incentive Pay, and the Navy's auction system.[8]

Subject-matter experts generally favor the use of S&I pays rather than basic pay to raise pay for Service members in critical skill occupations and support the current system because it is transparent, predictable, and effective. There are, however, areas where the current system can be improved. One is that more pay differentiation for critical skills would be desirable. By this view, the current system results in paying many Service members in noncritical skill occupations more than is required to retain an adequate quality and quantity of personnel. Other experts said that

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4 James Hosek, Michael G. Mattock, and Beth J. Asch, *A Wage Differential Approach to Managing Special and Incentive Pay*, RAND Corporation, RR-2101-OSD, 2019.

5 See: Beth J. Asch, Paul Heaton, James Hosek, Paco Martorell, Curtis Simon, and John T. Warner, *Cash Incentives and Military Enlistment, Attrition, and Reenlistment*, RAND Corporation, MG-950-OSD, 2010; Matthew S. Goldberg, "A Survey of Enlisted Retention: Models and Findings," in DoD, Office of the Under Secretary of Defense for Personnel and Readiness, *Report of the Ninth Quadrennial Review of Military Compensation*: Vol. III, *Creating Differentials in Military Pay: Special and Incentive Pays*, chapter 2, 2002; David Knapp, Bruce R. Orvis, Christopher E. Maerzluft, and Tiffany Berglund, *Resources Required to Meet the U.S. Army's Enlisted Recruiting Requirements Under Alternative Recruiting Goals, Conditions, and Eligibility Policies*, RAND Corporation, RR-2364-A, 2018; Beth J. Asch, Michael G. Mattock, Patricia K. Tong, and Jason M. Ward, *Increasing Efficiency and Incentives for Performance in the Army's Selective Reenlistment Bonus (SRB) Program*, RAND Corporation, RR-A803-1, 2021; Michael G. Mattock, Beth J. Asch, James Hosek, and Michael Boito, *The Relative Cost-Effectiveness of Retaining Versus Accessing Air Force Pilots*, RAND Corporation, RR-2415-AF, 2019.

6 Hosek, Mattock, and Asch, 2019.

7 Avery Calkins, Michael G. Mattock, Beth J. Asch, Ryan A. Schwankhart, and Tara L Terry, *Army Aviation Special and Incentive Pay Policies to Promote Performance, Manage Talent, and Sustain Retention*, RAND Corporation, RR-A2234-1, 2023.

8 For work on combat compensation see: Pleeter et al., 2011; Curtis J. Simon, Shirley H. Liu, Saul Pleeter, and Stanley A. Horowitz, *Combat Risk and Pay: Theory and Some Evidence*, Institute for Defense Analyses, 2011. For research on Assignment Incentive Pay and the Navy's auction system, see Heidi L. W. Golding and Gerald E. Cox, *Design and Implementation of AIP*, CNA Corporation, CAB D 7827, July 2003; Peggy Golfin, Diana S. Lien, and David Gregory, *Evaluation of the Assignment Incentive Pay (AIP) System*, CNA Corporation, CAB D 10240, 2004.

pays for Service members who are eligible for multiple pays could be better coordinated. Experts also felt that the rationale for the current dollar amounts of the various pays needs to be clearer. S&I pays are adjusted infrequently and are not automatically adjusted for inflation, which means that the value of some S&I pays can decay over time. That is not to say that special pays should be adjusted for inflation but that the pays should be reviewed and adjusted as frequently as needed to ensure they retain their functionality.

A Pay Table Approach for Creating Wage Differentials

One question that is periodically asked about the use of bonuses and special pays is whether the pay table could be modified to provide wage differentials for critical specialties instead of the current system. The QRMC sought the opinion of experts on the use of different basic pay tables to create wage differentials for critical skills. Perspectives on this topic were mixed. Some experts were concerned that the administrative burden would be prohibitive. A few thought that multiple pay tables for select specialties (e.g., doctors, dentists, pilots, and highly technical areas and elite skills for enlisted members) warranted serious consideration, in part because it might help eliminate the need to "artificially" promote people solely for compensation purposes. Another idea raised by some experts was to develop a coefficient multiplier that would be applied to the standard pay table for Service members in critical skills—with the multiplier tailored to different skill categories.

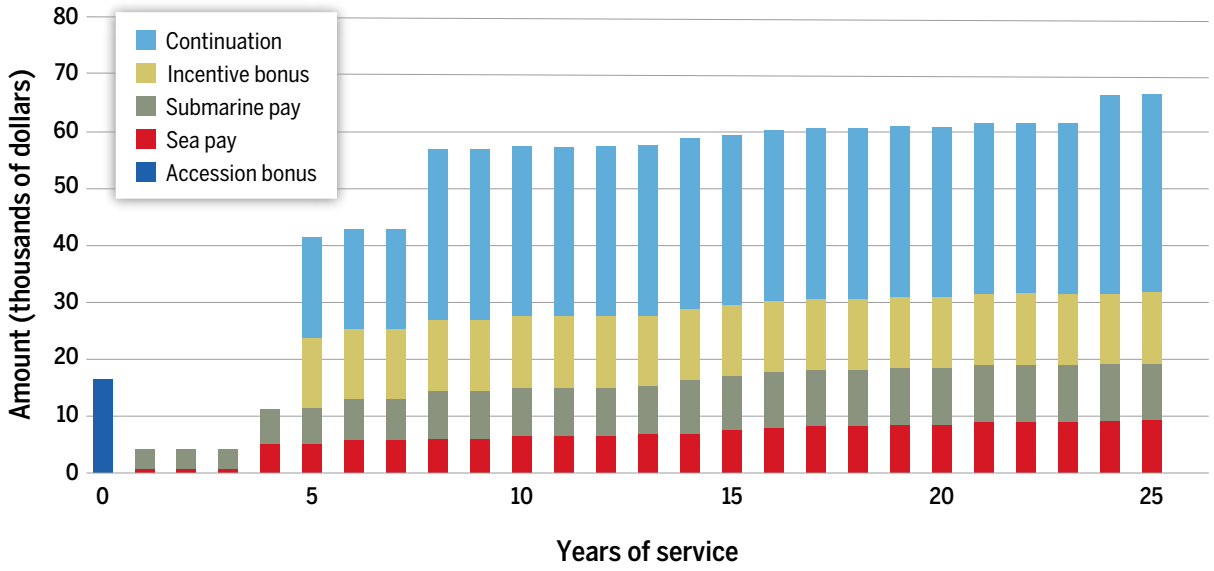
To further explore this concept, the QRMC evaluated two approaches that would add a wage differential to the baseline basic pay table: an *additive approach*, in which a fixed amount is added to basic pay based on grade and years of service, and a *multiplicative (or coefficient) approach*, in which a simple linear function (a multiplier plus a constant) is applied to the baseline basic pay table. The rationale for these two approaches is that they both provide a simple formula by which to adjust a baseline basic pay table to create a wage differential without having to create and manage entirely new pay tables.

The Additive Approach

The additive approach could be implemented by creating a wage differential that would equal the sum of S&I pays that are stable over time, scheduled to a particular point in a career, not involving an incentive to select a longer obligation and not conditional on the realization of certain military circumstances. Thus, the initial values of the wage differential would be created by summing the values of existing S&I pays, as illustrated in Figures 8.3 and 8.4, using a notional Navy nuclear-qualified submarine officer as an example.

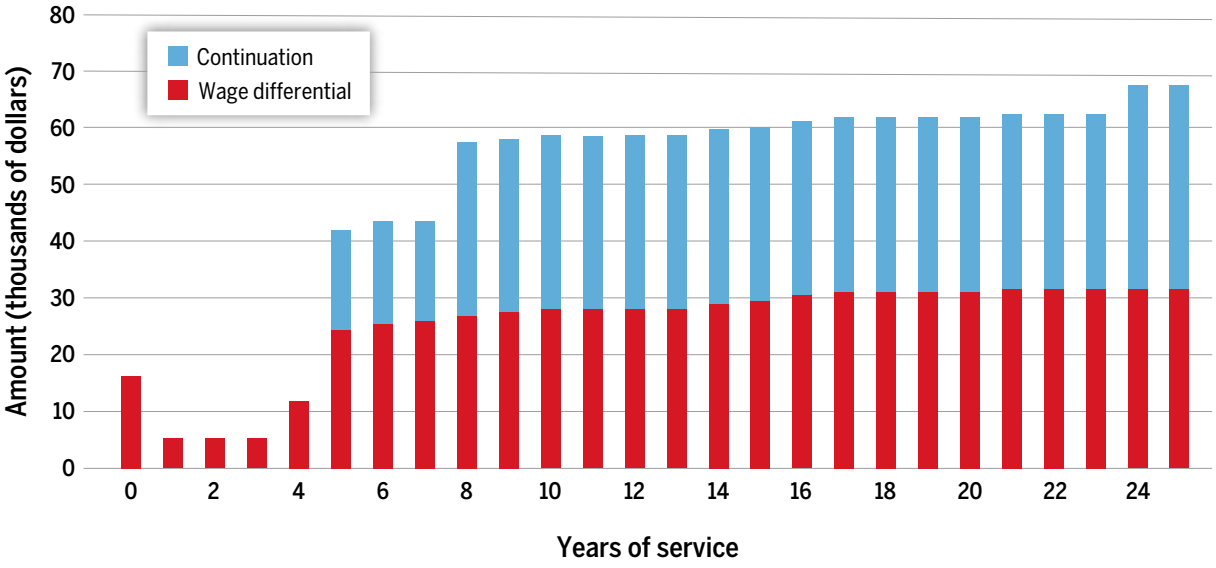
Figure 8.3 shows the S&I pays this officer might receive, including incentive bonus, submarine pay, sea pay, an accession bonus, and a pay that is contingent on a multiyear obligation (the Nuclear Officer Continuation Bonus). In Figure 8.4, all pays except the continuation bonus are consolidated into a wage differential that is added to basic pay. The wage differential meets the previously described

FIGURE 8.3 Notional Example of Nuclear-Qualified Submarine Officer Special and Incentive Pay



SOURCE: Reproduced from Hosek, Mattock, and Asch, 2019.

FIGURE 8.4 Notional Example of Nuclear-Qualified Submarine Officer Special and Incentive Pay Under an Additive Approach to a Wage Differential



SOURCE: Reproduced from Hosek, Mattock, and Asch, 2019.

criteria: It is stable over time, is scheduled to a particular point in a career, is not tied to a longer service obligation, and so forth.

To the extent that S&I pays for an occupation can be directly mapped to grade and years of service, the additive approach could come close to replicating the existing wage differential, as the notional example illustrates. This approach could be implemented for selected occupations using current

S&I pays as a guide. However, the factors used for the additive approach would need to be adjusted over time. Because this differential is not linked to the pay table, it would need to be adjusted through a process much like the one through which current S&I pays are set and, thus, could potentially be as administratively burdensome as the existing S&I pay structure.

One disadvantage of an occupation-specific pay-table approach is that it is less flexible than the current system of S&I pays because it would not be able to target incentives as effectively. In the example shown, officers would receive the same pay whether they were at sea or on shore. Thus, the incentive for sea duty provided by the receipt of sea pay—when you are actually at sea—would be lost.

On the other hand, an occupation-specific approach would help to address stovepiping of pay management such that individual S&I pays are managed by different communities that may be unaware of developments outside of their community, leading to unintended consequences when Service members receive multiple S&I pays simultaneously.

The Multiplicative (or Coefficient) Approach

Under the multiplicative approach, the wage differential would equal a constant dollar value plus some multiple of basic pay. The value of the coefficients could initially be calibrated by approximating the sum of the existing unconditional S&I pays. The multiplicative approach would not be able to come as close to replicating the existing wage differential as the additive approach unless the coefficients were allowed to vary by each grade and year-of-service cell, which would be administratively burdensome.

This approach is illustrated in Figures 8.5 and 8.6. This notional pilot receives Aviation Incentive Pay (AvIP), which is paid unconditionally and an Aviation Bonus (AvB), which is conditional on a longer service obligation. The blue line in Figure 8.5 is a linear approximation of AvIP, which is represented by multiplying each cell in the pay table by 0.0315 to which the constant value of $317.00 is added.

The multiplicative approach is appealing in its apparent simplicity, but the example considered here shows some of the limitations if this approach is confined solely to simple linear functions of the baseline basic pay table. For example, the linear approximation of AvIP deviates substantially from the actual AvIP in the early part of a career. A potential advantage of the multiplicative approach is that the coefficient times pay table cell part of the wage differential would adjust automatically as the baseline basic pay table is adjusted. That automatic adjustment could also be a disadvantage because there is no guarantee that the factor used to adjust basic pay as a whole is also the correct adjustment for the wage differential for critical skills.

Discussion

Both approaches to using the pay table to create wage differentials for S&I pay for critical skills could be adjusted in the normal course of updating the baseline basic pay table. The additive

FIGURE 8.5 Notional Example of Department of the Air Force Pilot Special and Incentive Pay

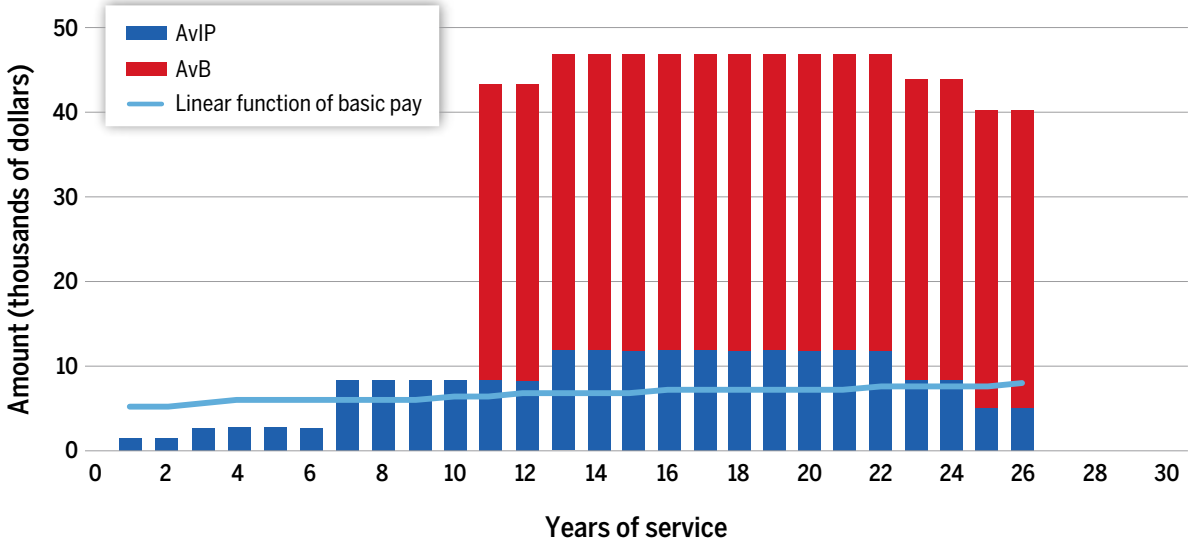
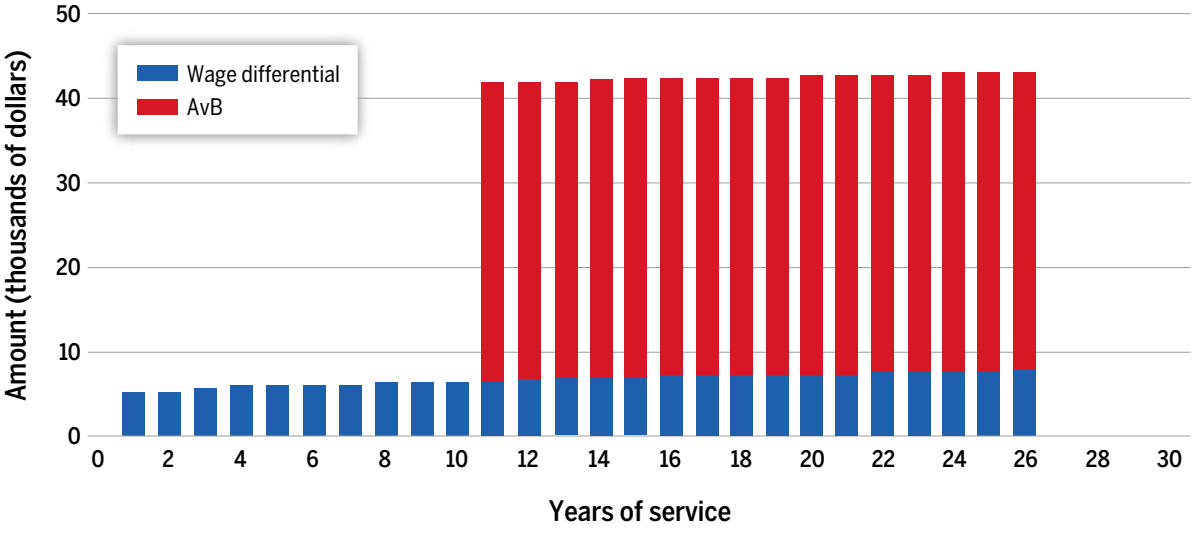


FIGURE 8.6 Notional Example of Department of the Air Force Pilot Special and Incentive Pay Under a Multiplicative Approach to a Wage Differential



wage differential could be raised or lowered, as circumstances require. The coefficients in the multiplicative approach could also be adjusted; if they were not adjusted, the first term of the linear expression would increase by the same percentage as the basic pay table, while the constant term would remain the same, resulting in a net percentage increase somewhat less than that applied to the basic pay table.

Furthermore, it would be inefficient to incorporate all S&I pays into a pay table approach. S&I pays, such as AvB in the multiplicative example and continuation pay in the additive example, require

a service obligation, which would be eliminated if the pay were instead incorporated into the pay table. If that happened, pay would have to be increased to achieve the same retention effect; but the cost of unconditional pays to achieve the same retention effect could be considerably higher and, therefore, less efficient. The same inefficiency applies to risk associated with uncertain military circumstances where it is less efficient to compensate ex ante than it is to compensate ex post when uncertain events are realized.

Both approaches would change the basic pay table for selected occupations, which would also change all forms of compensation linked to the basic pay table, such as the defined benefit component of the military retirement system, disability retirement, and disability severance pay. Finally, a few experts noted that these approaches could give the false impression that the wage differential is the only or primary means that Service members are recognized for the unusual conditions of military service rather than acknowledging that the entire compensation package has a role; a common explanation for average RMC exceeding average civilian pay is to acknowledge the unusual conditions of military service.

Policy Considerations: Compensation for Critical Skills

Tables 8.2 and 8.3 summarize the QRMC's key findings corresponding to each research question and policy implications corresponding to each policy question, respectively. In brief, S&I pays are highly targeted, and relatively few occupations receive large amounts of these pays. Thus, the need for higher pay in critical skills does not occur broadly across the force. Cash compensation is uniformly higher in critical skills. Subject-matter experts generally favor the current S&I approach for setting wage differentials, and research shows that these pays improve readiness and are cost-effective. Experts have identified areas where S&I pays might be improved, though more analysis is needed before specific recommendations can be made.

TABLE 8.2 Summary of Findings

Research Questions	Key Findings
1. What is the prevalence of critical specialties, and how much is cash compensation higher owing to receipt of S&I pays?	• S&I pays are highly targeted; a small share of occupations show a high incidence of S&I pays. • Few occupations receive large amounts of S&I pays.
2. Does the evidence indicate that the current S&I pay system is adequate for providing wage differentials?	• Cash compensation is uniformly higher in critical skills. • Research shows that S&I pays are effective as accession and retention incentives, and they are cost-effective, but the research has key gaps. • Subject-matter experts generally favor the current S&I pay approach for setting wage differentials.
3. What might a pay table approach to offering wage differentials for critical skills look like, and what are the advantages and disadvantages of a pay table approach?	• Both the additive and multiplicative approaches have advantages. • Consolidating S&I pays that currently require a service obligation would be inefficient.

TABLE 8.3 Policy Implications

Policy Questions	Findings and Implications from the Analysis
1. Does the need for higher pay in critical skills occur broadly across the force?	• No. S&I pays are highly targeted, and relatively few occupations receive large amounts in S&I pays.
2. Does the current system of supplementing basic pay with bonuses and special pays adequately address the need for wage differentials for these specialties?	• Yes. Subject-matter experts generally favor the current S&I pay approach for setting wage differentials, and research shows that these pays improve readiness and are cost-effective. Even so, subject-matter experts and the literature review identified areas where S&I pays might be improved, though more analysis is needed for specific recommendations.
3. Should the pay table be modified to provide wage differentials for critical specialties?	• Not at this time. While some S&I pays might be consolidated into a wage differential, pays that depend on a service obligation are more efficient than those that are not, and these pays should not be consolidated into a wage differential.

Using a pay table approach to establish wage differentials has advantages and disadvantages. While some S&I pays might be consolidated into a wage differential, consolidating pays that depend on a service obligation into a wage differential would be less efficient and is not recommended. The current system of supplementing basic pay with bonuses and special pays adequately addresses the need for wage differentials for these specialties, and, at this time, the pay table should not be modified to provide wage differentials for critical specialties.

PART

IV

New Realities of Military Service

CHAPTER 9

Dual-Income Military Households

When Service members are deciding whether to stay in the military or to leave, the pay and benefits that the military provides are a key factor in their decisions. However, military retention decisions depend on household finances, and for dual-income families the Service member's military pay is only part of the equation. Married Service members typically consider how their decisions affect their spouses' careers and earnings potential. A majority of military spouses are in the labor force, but challenges associated with military life, such as deployments and frequent moves, reduce their ability to contribute to household income. Compared with spouses of civilians, military spouses are less likely to be employed, they are less likely to have a job that matches their qualifications, and they earn less when they do work. In some cases, a spouse's inability to work puts significant financial pressure on military families.

Service members understand and consider the effect of military life on their spouses' careers and life satisfaction. In general, Service members may view the cost to their spouses' careers and on their household income as one part of a larger sacrifice associated with a military career—a sacrifice that can keep them away from their families, disrupt their home life, and interfere with their life goals. When making retention decisions, Service members weigh these costs against the compensation, benefits, and fulfillment that a military career provides.

Considering these realities, the QRMC explored how military-specific challenges affect the careers of Service members' civilian spouses and how these challenges influence Service members' retention decisions. This analysis was used to evaluate whether a change in the military compensation benchmark is needed in the context of the dual-career decisions faced by a growing number of military households.[1]

[1] The analyses discussed in this chapter are drawn from two reports prepared by researchers at the Institute for Defense Analyses, which are contained in Volume IV of this report. Jacklyn R. Kambic, Juliana Esposito, Emily A. Fedele, Jared M. Huff, Anusuya Sivaram, Mikhail Smirnov, *Retain the Family: What It Takes to Keep Dual-Income Military Households, Volume I*; Jacklyn R. Kambic, Jared M. Huff, Mikhail Smirnov, Anusuya Sivaram, Erin Eifert, *Retain the Family: Redefining the Military Compensation Benchmark, Volume II.* Volume I provides qualitative analysis of how military households make retention decisions, focusing on how military spouses' careers and the unique challenges military spouses face in the labor market influence the decision about

Military-Specific Challenges Affecting Careers of Military Spouses

Service members recognize the costs that their military career imposes on their spouse's civilian career. The inflexibility and stress that come with a military career require the military spouse to be flexible, but flexibility is often incompatible with a demanding job. Other challenges associated with military life can also be detrimental to spouses' careers. Some duty stations, particularly overseas locations, make it especially difficult for spouses to find employment because of language barriers, wage differences, and local regulations surrounding the employability of military spouses. Deployment schedules can force a military spouse into the role of a single parent. But the two primary challenges affecting the careers of military spouses are PCS moves and the affordability and availability of childcare.

Permanent Change of Station Moves

Service members and their spouses move frequently, disrupting the careers of working military spouses. The literature shows that military spouses earn less following a PCS move and that this loss of income persists for several years. Military spouses who suffer income losses also have a reduced ability to save for future goals, including retirement. In addition to lost income, military spouses are frequently unable to gain the necessary experience to progress in their career fields. As one focus group participant put it, "There are jobs and there are careers. [It is] much harder for a military spouse to have a career."

Even the prospect of PCS moves presents a challenge. Some military spouses are unable to find work because employers do not want to hire someone who is likely to leave in a couple of years. This loss of work experience accumulates over time. After years of intermittent work or being out of the labor force, military spouses do not have the same job opportunities as otherwise similar civilians. As a result, the damage to a military spouse's career may persist even after the Service member leaves the military.

Affordability and Availability of Childcare

Navigating childcare responsibilities and military life presents a significant challenge to military spouses' careers. The problems of availability and affordability of childcare are not unique to military families but appear to be exacerbated by other aspects of military life. PCS moves disrupt military families' access to childcare, requiring them to seek out new childcare solutions each time they move. Furthermore, when Service members are deployed or on assignment away from their primary duty station, the spouse effectively acts as a single parent.

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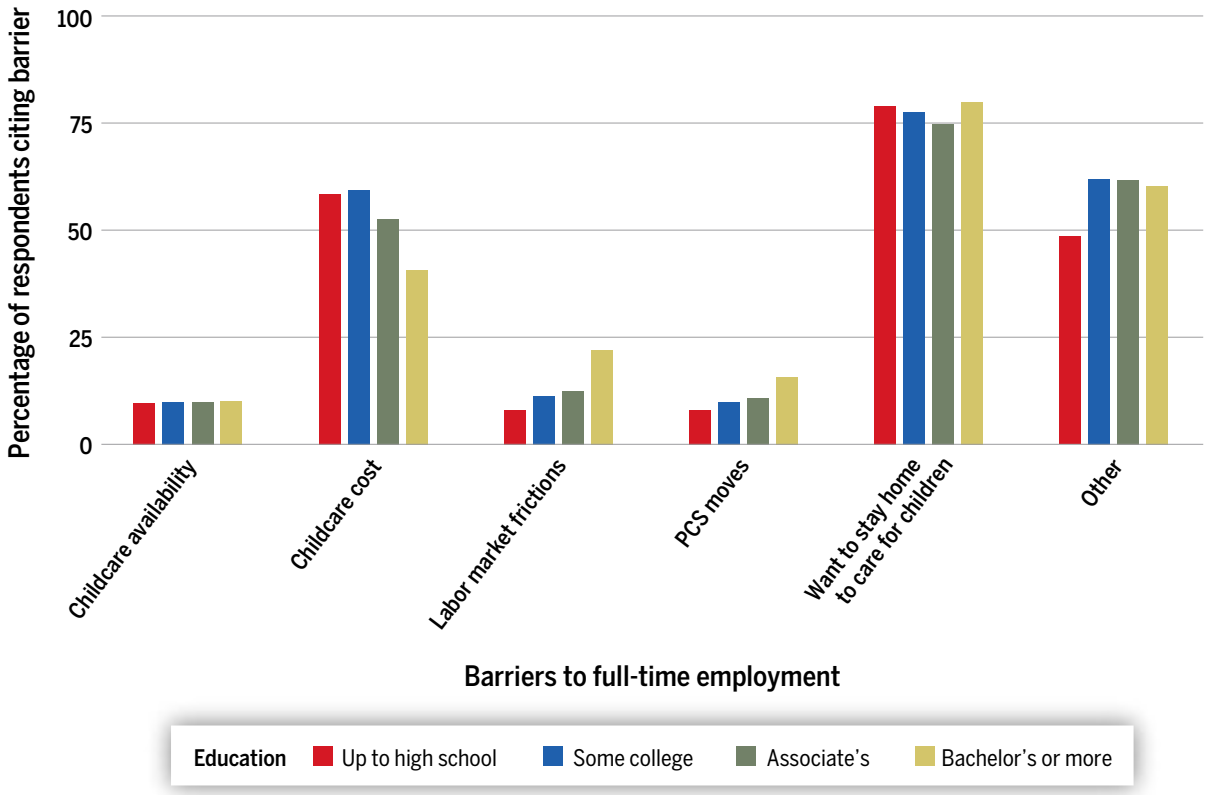
whether a Service member will remain in the military. Volume II applies the results of the qualitative analysis to quantitatively evaluate how potential changes to military compensation and personnel policies affect retention and recommends updates to the military compensation benchmark.

Military jobs often have long work hours or shifts that do not align well with standard hours when childcare services are available. In addition, unpredictable schedules and a lack of flexibility often constrain Service members' ability to perform childcare responsibilities such as day-care drop-off and pick-up or caring for children who are sick and need to stay home from school. Collectively, these characteristics of military life often leave the military spouse with primary responsibility for household and childcare duties, even if the spouse also works. Consequently, military spouses often have no choice but to work in jobs that provide them with sufficient flexibility to handle childcare demands.

These difficulties are compounded by long wait lists and high costs associated with purchasing childcare both on base and off base. Data from the Military Cohort Family Study supports these focus group findings, as illustrated in Figure 9.1, which shows that childcare cost and availability are among the top reasons that military spouses with children cite when asked why they do not work full time. Over half of those who cited that they wanted to stay home to care for children also indicated that "childcare would cost more than what I expect to earn"—pointing again to childcare costs as a potential barrier to employment for many spouses. It is therefore unsurprising that many military spouses feel that they must choose between having a career and having a family.

FIGURE 9.1 Barriers to Working Full Time Among Military Spouses with Children



Retention Decisions for Dual-Income Households

Military spouses' employment outcomes are correlated with their support for the Service member to remain on active duty, which, in turn, is predictive of the Service member's retention behavior. Understanding this dynamic is imperative to analysis of how military compensation, the Service member's potential civilian earnings, and their spouse's career affect the retention decisions that military households make.

During focus group discussions conducted for the QRMC, participants made it clear that when Service members make the decision to stay in the military or leave, the Service member's military career is the priority for the family. Military spouses are, in general, expected to shape their career decisions to meet the demands of their partner's military career. Military spouses follow the Service member from duty station to duty station and take into consideration the Service member's military career and constraints when making their own career decisions. Military families that would prefer to prioritize the spouse's civilian career may have little choice but to leave military service.

A version of this scenario seems to hold for dual-military couples as well. In many cases, one member plans to leave early to enable the other to reach retirement. Even when both members plan to remain in service, the couple prioritizes one career over the other. Many focus group participants said that leaving active duty service would allow them to better support their spouse's career since they would be able to take on more household responsibilities.

When making a retention decision, Service members weigh the costs associated with a military career against the pay and benefits that the military provides. Household income and financial security are driving factors in many Service members' retention decisions. Although military pay and benefits exceed the current civilian compensation benchmark, many Service members believe that they would be able to earn a similar income in a civilian job with better work-life balance. Other Service members, particularly those with families and those who do not see a clear path to a higher paying civilian career, view leaving the military as a risk they are unwilling to take because the military provides a stable job with valuable benefits. Household finances, including military compensation and benefits, military spouses' earnings, and household expenses such as childcare, health care, and housing, are central to Service members' retention decisions.

Service members also consider their own and their family's life satisfaction and ability to manage the demands of military life. Service members may choose to stay in the military out of a sense of duty and loyalty or because the job is a good fit for them. Specific factors such as a family's need to put down roots and the Service member's desire to spend more time with family were brought up in almost every focus group. Service members must also contend with a stressful and inflexible work environment, time away from their families, missing major life milestones, and the unpredictability of military assignments.

The Military Compensation Benchmark and Spouse Income

In Chapter 2 of this report, the QRMC evaluated the 70th percentile benchmark currently used to compare RMC with individual income for civilians with comparable education and experience and found that RMC for both enlisted members and officers have exceeded this benchmark for some time. However, RMC is not total military compensation, and Service members' civilian earnings potential varies significantly depending on their skills and occupation. Questions have been raised about whether bonuses and S&I pays should be included in the military-civilian pay comparison and whether there should be a different benchmark for married and single Service members. In addition, the increasing share of dual-income families introduces the question of whether the military-civilian pay comparison should consider the loss in household income associated with the impact of a military career on military spouses' earnings, which can range between $9,500 and $27,000 per year for spouses of enlisted Service members and officers, respectively. These are questions the QRMC explored.

Military-specific challenges, their impact on spouses' earnings, and the effect on retention decisions vary significantly across military occupational communities. This analysis examines ten enlisted and four officer occupational communities that reflect a wide range of military careers and a variety of challenges that Service members and their spouses experience in the military; these results are used to draw conclusions for the military force overall. Service retention rates from 2014 to 2022 serve as the baseline against which potential changes in military compensation and in nonmonetary policies are evaluated.

Adequacy of the Military Compensation Benchmark

Military pay has been above the current benchmark for many years, but this outcome is no longer sufficient to determine whether pay is adequate to achieve the necessary levels of retention. The effect of lowering military compensation to the 70th percentile of individual income for comparable civilians would reduce discretionary income of enlisted households by more than $25,000 per year on average across an individual's career. Reducing military compensation to the 70th percentile benchmark would result in a large pay cut for the entire force and would reduce retention of enlisted Service members by 24 to 47 percent, depending on occupational community. In some communities, retention of early and midcareer enlisted Service members would drop to less than half of the baseline level. The impact on Service members late in their careers would be lower, but the retention behavior of junior and midcareer enlisted Service members would drastically change. Thus, pay set *at* the current benchmark would not sustain the force and, as such, the 70th percentile benchmark does not provide an informative measure of the adequacy of military compensation relative to civilian pay.

What Should Be Included in the Benchmark? To better represent the financial considerations that are part of Service members' retention decisions, the military-civilian pay comparison should use total pretax current year military compensation (including allowances, S&I pays, and bonuses) and community-specific civilian income distributions. This creates a direct comparison of what a

Service member with specific skills in a given community earns in the military versus what they could expect to earn if they entered the civilian labor market. The military tax advantage should remain part of the calculation, as should BAH and other allowances that are components of RMC currently used in the pay comparison. But RMC alone, which accounts for between 77 percent and 98 percent of cash compensation to Service members, underestimates total military pay and omits the variability in pay related to Service members' skills and experience, such as retention bonuses and special pays. These excluded components are relevant in determining potential civilian earnings because highly compensated Service members are also likely to have high-paying job opportunities when they leave miliary service.

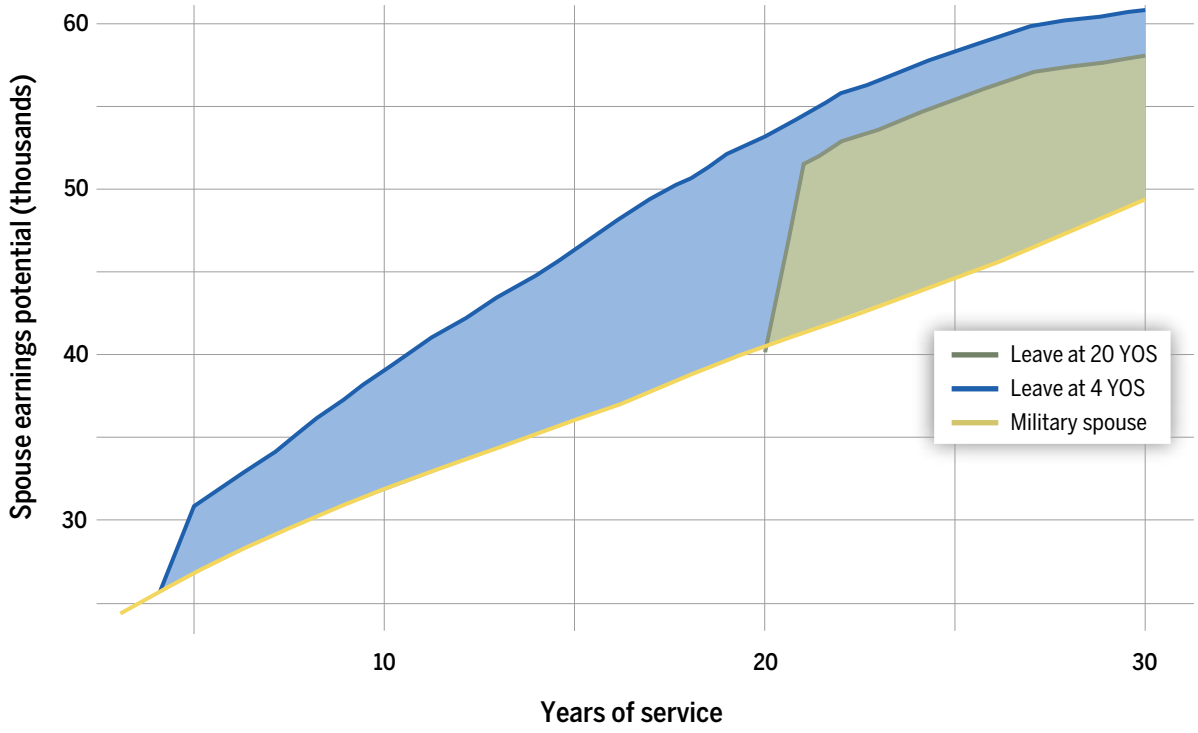
On the civilian side, military pay is compared with pay of civilians with comparable education and experience. This representation of potential civilian earnings fails to account for specialized skills and additional education that is attained while in the military. In addition to their technical skills, veterans' military experience, leadership and management skills, and security clearances may also provide access to different and better job opportunities in the civilian labor market than the general population has. Military occupations are strongly correlated with Service members' earnings potential in the civilian labor market. Although not all veterans will work in civilian occupations that are similar to their military occupations, the skills and experience they gain can lead to high-paying civilian job opportunities. Thus, occupation-specific comparisons, which are used in this analysis, can account for the variation in civilian earnings potential that different job experience and skills earned in the military afford.

Another question often asked is whether the comparison between military and civilian compensation should be based on household income rather than individual income, as is currently the case. The QRMC's analysis suggests that household income is no more effective than individual income as a measure of compensation and would require a significant restructuring of military compensation across the career. For example, setting military pay to the 70th percentile of household income would result in significantly lower discretionary income for members with less than 15 years of service and higher discretionary income for members with more than 15 years of service. Given that financial concerns are concentrated among more-junior Service members who are more responsive to changes in compensation, the evidence does not support using household income as the measure of military compensation.

Furthermore, setting military pay based on a Service member's marital status would not provide a more effective military-civilian pay comparison. Incorporating marital status would increase the discrepancy in compensation between married and unmarried Service members, raising concerns of fairness and exacerbating the role of financial incentives in Service members' decisions about whether and when to marry.

Does Military Pay Offset the Loss in Spouses' Earnings? As an example of the impact of military service on spouses' earnings, Figure 9.2 compares the estimated earnings potential for spouses of soldiers in the Air Defense Artillery occupational community with their expected earnings if

FIGURE 9.2 Comparison of Predicted Earnings of Military Spouses with Those of Veteran Spouses for Enlisted Soldiers in Air Defense Artillery



NOTES: Results are conditional on the spouse being in the labor force. YOS = years of service.

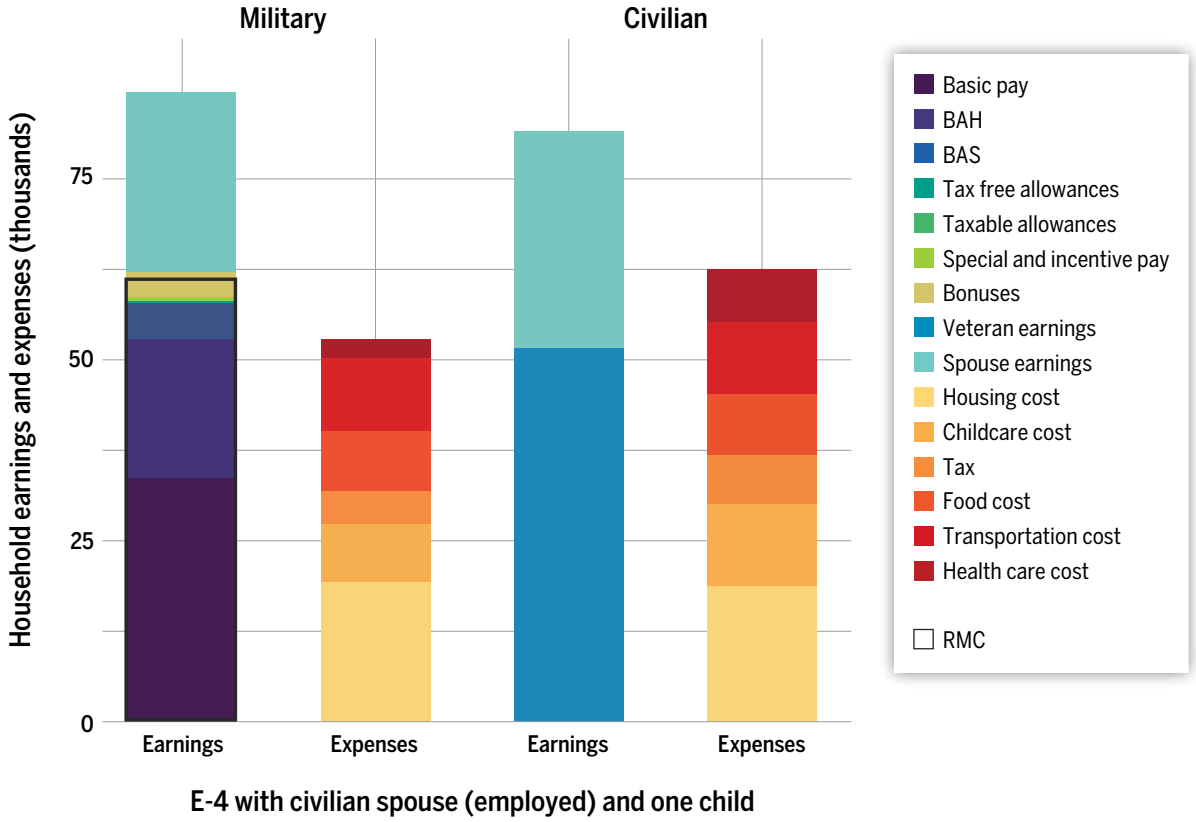
the member were to leave the service at four years of service and at 20 years of service. The difference reflects the military-specific challenges identified in the qualitative analysis that lead to higher unemployment, greater underemployment, and slower earnings growth for military spouses compared with similar civilians.

For a Service member at four years of service who is considering whether to leave the military or stay in, the shaded blue area represents the loss in their spouse's cumulative earnings potential. The shaded green area represents the loss if the member remained in the military from 20 to 30 years of service. It is noteworthy that the green line never reaches the blue line; even after the member leaves, military spouses' earnings never reach the level that they would have been had the Service member left earlier. The damage to earnings potential is permanent.

Yet, military compensation and benefits are high enough that most military households are financially better off by staying in the military, despite the loss in spouses' earning potential. At the current level of military pay, household discretionary income is, in general, higher for military households than for comparable civilian households, indicating that military pay has already adjusted to offset the loss in spouses' earnings potential and other challenges of military life, as illustrated in Figure 9.3.

The figure shows how household discretionary income—the difference between the earnings column and the expenses column—compares for similar households in the military with

FIGURE 9.3 Discretionary Income Comparison for an E-4 in Air Defense Artillery with One Child and a Spouse Who Is Employed

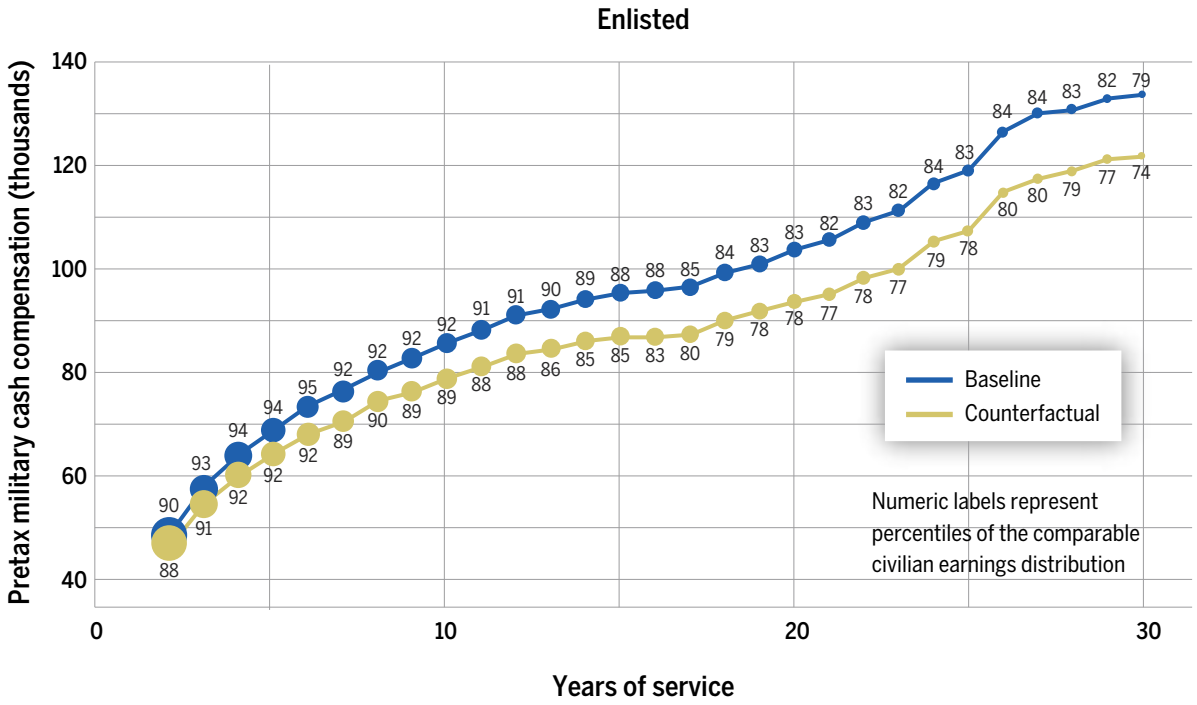


NOTE: S&I pay and bonuses appear to be part of RMC because, in this example, the value of the tax free allowances exactly offsets the value of S&I pay and bonuses.

discretionary income if they left the military. This example is an E-4 in Air Defense Artillery with one child and a spouse who is employed in a civilian job. Discretionary income is notably higher in the military than it would be if the member left the military because of lower overall earnings and higher expenses. While the spouse is predicted to earn more if the Service member were to leave the military, this increase in earnings would not fully offset the lower pay the Service member would expect in the civilian economy or the increase in basic household expenses. The same comparison between military and civilian earnings and expenses for other enlisted and officer occupational communities that were examined resulted in similar outcomes for most career fields—that most households are better off staying in the military despite the loss in spouses' income. A benchmark that represents the current level of military compensation would provide the DoD with a better way to gauge the financial considerations that drive retention and would be a more effective tool to assess military compensation.

Military Household Retention Decisions. Even if military spouses' earnings were not affected by challenges of military life, military compensation would need to be well above the 70th percentile of individual income to keep retention at current levels. Figure 9.4 illustrates the level of military

FIGURE 9.4 Military Compensation Needed to Maintain Current Retention Across Selected Enlisted Communities, If Military Spouses Earned as Much as Similar Civilians



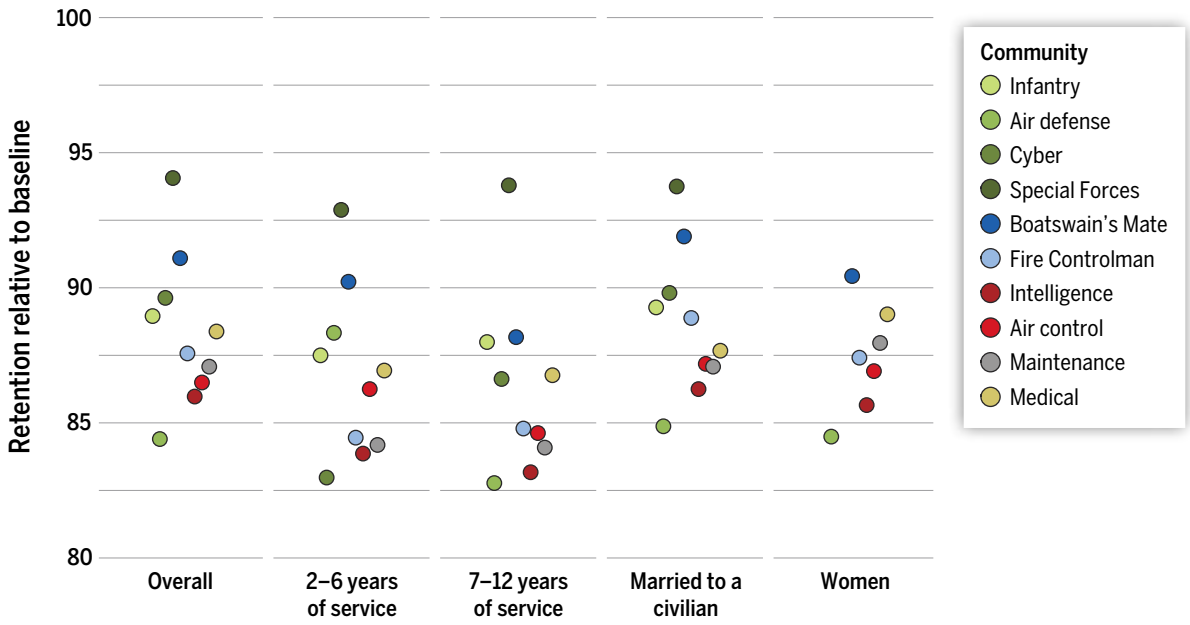
NOTE: The size of each point represents the number of Service members in the analytical sample at that year of service.

compensation that would be required to maintain retention if military spouses' earnings matched those of similar civilians (green line). Compensating for the loss of spouses' earnings is one reason why military compensation has to compare favorably with civilian compensation, but it is not the only one. As mentioned, Service members have important technical skills and experiences, are asked to perform dangerous jobs, are sometimes sent to undesirable locations, and otherwise sacrifice flexibility in their professional and personal lives.

Currently, military pay implicitly compensates Service members for the loss of their spouses' income. The difference between the two lines in Figure 9.4 represents the amount of military pay that is needed to make up for the loss of spouses' earnings, taking into account the share of members at each year of service who are married to civilians.[2] If military pay did not implicitly compensate for the reduction in spouses' earnings, retention would fall across the selected enlisted communities studied, as Figure 9.5 illustrates. Setting military pay to a lower level that does not compensate for the loss of spouses' income would have resulted in a 6 percent to 16 percent decrease in retention rates overall between 2014 and 2022 in enlisted occupations. The retention impact is greater in communities where more members are married to a civilian spouse

[2] For example, if 50 percent of members at a given year of service are married to civilians and if spouses of members at that year of service are estimated to earn $10,000 less than comparable civilians, then the average earnings gap for households at that year of service is $5,000.

FIGURE 9.5 Retention Impact of Setting Military Pay to a Level That Excludes the Implicit Compensation for Military Spouses' Lost Earnings



and when military spouses tend to be more educated. The retention impact also increases with years of service: In midcareer more members are married to civilian spouses, and the gap between the earnings of military spouses and civilian earnings grows. This retention reduction is not as large as what would occur if military pay were set to the current benchmark (that is, set to equal the 70th percentile of civilian earnings), as discussed earlier, but it would still present challenges for the Services in meeting their retention goals.

Mitigating the Effects of Military-Specific Challenges on Military Spouses' Earnings

If military life did not have an impact on military spouses' earnings, military pay would not need to be as high to meet retention needs. Nonmonetary policies that support military spouses' careers, if effective, could increase spouses' earnings potential, leading to higher household discretionary incomes for Service members' families while in service, as well as higher retention. As discussed in the first part of this chapter, the cost and availability of childcare and frequent PCS moves were identified as the challenges that have the most impact on military spouses' careers. The QRMC explored the potential gains in retention that could result from policies addressing these challenges.

The first policy considered would ensure that all military families have access to free childcare. This policy would increase military families' household income by removing childcare costs from household expenses, increasing the number of military spouses who work outside the home, and increasing the earnings of those who do work. Ensuring all military families have free access to childcare would increase retention by 5 percent to 14 percent for enlisted Service members in the

communities studied. For members who have between approximately four and 19 years of service, free childcare has the largest annual impact on household discretionary income, since military families in this range are the most likely to have young children. The retention impact of free childcare at midcareer is roughly equivalent to an average pay increase of $10,000 per year per Service member.

The second policy examined would decrease the frequency of PCS moves to at least six years apart, which would reduce unemployment and underemployment among military spouses and, by reducing the disruptions in employment, increase their earnings potential both in the short run and over the course of a career. Decreasing the frequency of PCS moves would increase retention by 4 percent to 8 percent through the increase in spouse income alone. At midcareer, the retention impact of reducing PCS moves is roughly equivalent to a direct increase of military compensation of $4,500 per year for every Service member. Such a policy also has potential, according to focus groups with Service members, of increasing retention by reducing disruption in military families' lives and increasing satisfaction with military life, though the QRMC did not quantify these effects.

If military spouses earn the same as spouses of similar civilians—that is, if there were no impact of military life on spouses' careers—retention would increase by 7 percent to 12 percent across the studied communities. This suggests that policies that help support spouses' careers have the potential to improve retention and could enable DoD to increase retention at a lower per-person cost than a comparable increase in military compensation for all Service members.

Policy Considerations: Dual-Income Military Households

After accounting for household income, basic expenses, and benefits, most military households have higher discretionary annual income while in the military. Thus, current military pay implicitly compensates for the loss of spouses' earnings associated with the unique challenges of military life. Force-wide increases in compensation are not needed at this time, but the benchmark should be set to reflect the current level of military compensation, which recognizes that military spouses' lost earnings potential and other difficulties of military life necessitate a high level of compensation relative to civilians.

In the context of this analysis, the military compensation benchmark should be redefined to include Service members' total pretax cash compensation (including bonuses and S&I pays, in addition to RMC) on the military side and account for earning potential based on occupation on the civilian side. These changes more accurately capture the financial trade-offs that Service members make when considering whether to stay in the military or pursue civilian opportunities.

An occupation-specific comparison of total pretax military compensation with civilian earnings adjusted for education and occupation would provide DoD with better information about how military pay measures up against what Service members could expect to earn in a civilian job and, in turn, for judging the adequacy of military pay to meet retention goals. A single percentile as is

used today does not capture such variation in pay across a military career or between occupation communities.

In addition to considerations for updating the benchmark for military compensation, continued pursuit of DoD policies that have the potential to improve military spouses' ability to have a career and contribute to household finances—particulary by increasing access to childcare and/or reducing the frequency of PCS moves—have the potential to improve military retention and quality of life without the need for broad increases in military compensation.

PART

Conclusion

CHAPTER 10

Core Findings and Recommendations of the Fourteenth Quadrennial Review of Military Compensation

The 14th QRMC formulated its recommendations based on the body of research conducted for the Department as a whole because of the interconnected nature of the topics related to basic pay. Many streams of research connect to basic pay, including analyzing the military compensation benchmark, examining the structure of the basic pay table or the index used in making annual pay adjustments, considering a wage differential to the basic pay table to compensate for critical specialties, rewarding deployed members for the arduous nature of duty, examining allowance calculations, and even exploring whether the loss of spousal earnings as a consequence of military life should be accounted for in the compensation benchmark.

This body of work did not point to adopting significant changes in basic pay as might have been expected. The QRMC specifically analyzed Congressional and other proposals for junior enlisted pay raises and ultimately concluded that the costs outweighed the potential benefits, particularly when considering the effects of pay compression. This conclusion does not diminish the importance of recent years of recruiting difficulty or concerns over food insecurity, particularly among junior-enlisted personnel—prominent topics on the mind of Congress and the Department's leaders. DoD has other tools that it can and has been using to address these concerns in ways that are more efficient than a large basic pay raise.

Yet there is always room for improvement, and the QRMC makes several significant recommendations that will benefit the force and support the Department's goal of maintaining an effective military compensation system. These recommendations aim to reduce pay volatility, improve data collection, update methodologies, and communicate that the Department's leaders know what is on the mind of its troops, among other actions. The eight recommendations proposed by the 14th QRMC are nested within three core findings, as follows.

Core Finding: Our military compensation package is strongly competitive with the civilian labor market, but the QRMC identified small improvements that could be made.

Each QRMC examines adequacy of military pay. Pay must be set high enough to attract quality recruits away from civilian jobs they may be qualified for given their education, skills, and ability.

Similarly, pay must be sufficient to retain the quality and quantity of personnel that DoD needs to achieve its military goals. The adequacy of miliary pay is measured by RMC, which the QRMC found to be strong. For most recipients, BAH is higher than median spending on rent and utilities by comparable civilians—ranging between 17 percent to 60 percent higher than average civilian housing expenditures for Service members with dependents. And, over time, BAS has risen above the cost of the USDA liberal food plan for males 19–50 years old. That said, the QRMC found that some adjustments would be appropriate to maintain responsiveness to recruiting and retention dynamics.

Recommendation #1. Update the RMC benchmark to the 75th percentile.

In 2002, the 9th QRMC established the 70th percentile benchmark and determined that pay at or above that level was necessary to recruit and retain a quality force. Each QRMC since 2002 determined that pay was well above this benchmark. Today, it is at the 83rd percentile for enlisted personnel and the 76th percentile for officers. Returning pay to the 70th percentile would reduce retention by 24 percent to 47 percent, depending on occupational specialty. Updating the benchmark to the 75th percentile does not necessitate a pay raise now. But doing so would help ensure the benchmark is at an appropriate level to hedge against future labor competition. It is worth noting that officer RMC, presently at the 76th percentile, would be very close to the new benchmark and would need to be closely monitored in the intervening years before the next QRMC, such that it does not fall below the 75th percentile.

Recommendation #2. Improve communication with Service members.

While the QRMC found overall strength in the total compensation package, this does not seem to translate to Service member satisfaction with military pay. A communications campaign initiated from QRMC results could inform Service members about how total compensation compares with that of civilian options. This campaign would focus on key points of a military career, such as recruitment or retention decisions. It would also clarify key concepts, such as RMC. Finally, building on the work of some QRMC studies, the campaign could be targeted at an individual level to include education on certain special or incentive pays.

Recommendation #3. Expand constructive credit for lateral entrants to allow entry at both higher grade and higher years of service.

Current law allows DoD to recruit members with needed skills and to bring them in at an intermediate grade rather than starting at the bottom. However, these members are initially paid at the level paid to members with fewer than two years of service. This proposal would allow DoD to also credit members with years of service for the purpose of pay (but not retirement). For example, an O-4 lateral entrant could be credited with ten years of service for the member to be paid at a rate equal to the rate paid to an O-4 who had been promoted through the ranks. This change could make lateral entry more attractive and could also allow DoD to bring in lateral entrants at a lower

pay grade while paying them at the rate applicable to a member in a higher grade with less than two years' service. Congress previously authorized this improvement for the uniformed corps of the U.S. Public Health Service.

Core Finding: Reducing pay volatility and variability and improving data quality will benefit Service members and the Department.

Generally, the QRMC found that entitlements for deployed members and those in critical subspecialties were robust and allow the Department and Military Services to appropriately respond to operational realities and civilian market dynamics. Where challenges exist, they appear to be largely a consequence of pay volatility and variability in allowances intended to respond to geographic conditions both in CONUS and overseas. To reduce volatility and improve data, the QRMC recommends process improvements in three areas: BAH, the CONUS COLA and OCOLA, and deployed entitlements.

Recommendation #4. Update BAH methodology to reduce volatility.

The QRMC determined that BAH was working well. It neither outpaced nor lagged HUD's 50th percentile growth from 2006 to 2023; however, BAH is more volatile than HUD fair market rent estimates. Adjustments to the data methodology could reduce volatility and improve accuracy. The QRMC recommends a three-step process:

1. Reduce BAH rate volatility by expanded application of the existing BAH regression smoothing model. This model addresses data sample anomalies by dampening the effects of outlier data. As a result, it produces BAH rates that are more reliable, more accurate, and less volatile over time. The model is already used in problem MHAs and was incorporated in the 2025 rate-setting process.
2. Implement an additional quality control solution by using available census data for MHAs where the current methodology may result in data anomalies. This step establishes a floor rate beneath which BAH estimates will not fall. Implementation should begin in 2026.
3. Switch the housing profile method to a more flexible "number of bedrooms" approach and update the BAH interpolation table to accommodate this profile. BAH profiles based on "number of bedrooms" adds flexibility to more accurately estimate housing costs in remote or challenging markets with unique housing distributions. Adoption of this step is contingent on enhancements to prevent introduction of statistical bias. Implementation should begin in 2027 for 2028 BAH rates and will require significant changes to the current BAH program.

Recommendation #5. Improve CONUS COLA and OCOLA methodology.

The current CONUS COLA process is perceived as highly detailed and opaque. The LPS plays a large role in calculating the COLA both in CONUS and overseas but is conducted only every three years. In overseas locales, neighboring bases in the same country may receive very different

OCOLA rates, which are attributed to LPS differences. To reduce volatility and improve accuracy, the LPS should be taken annually, and it should be augmented with additional data such as data currently available from the commissary or exchange.

Recommendation #6. Establish a regular review of deployed entitlements to ensure they are aligned with risk.

The QRMC's research on entitlements for deployed members was initiated to determine whether members deployed in support of the National Defense Strategy should receive the benefits afforded to members serving in a combat zone. This analysis likely was requested because some combat zones, QHDAs, or direct support areas have existed for decades and currently present little risk. However, after discussion with Combatant Command staffs, it was generally agreed these deployed entitlements should remain linked to risk.

DoD should continue to align deployed entitlements with risk and should take the following steps to better align these benefits:

- Justify additions, renewals, and termination of CZTE eligibility using quantitative and qualitative risk measures from recent years as outlined in DoDI 1340.09, "Hazardous Pay Program," similar to how IDP is determined.
- Implement a fixed schedule to review IDP designations and CTZE eligibility every five years.

Core Finding: Targeted noncash compensation may offer better returns on investment.

For at least two decades, the majority of U.S. households have had two income earners, and there are many characteristics that distinguish them from single-income households. For the first time, a QRMC has evaluated the RMC benchmark against the realities of dual-income military households. In general, the QRMC found that military-unique challenges reduce spouses' current and future earnings potential and that RMC is set high enough to offset the loss.

Recommendation #7. Expand targeted noncash compensation for military spouses.

The QRMC determined that in dual-income military households, retention decisions are joint decisions. It also determined that the unique challenges of military life (frequent PCS moves and access to childcare) hindered a spouse's ability to obtain suitable employment and had a significant, permanent adverse effect on the spouse's earning capacity. The QRMC determined that the competitive military compensation package paid to the member offsets the effect on the spouse's earning capacity. However, frequent moves can prevent military spouses from accumulating savings for retirement programs due to vesting requirements. Congress partially corrected this in 2022 in the Secure Act 2.0 when it extended tax credits to small employers who provide immediate vesting to military spouses. The QRMC recommends pursuing legislation to allow immediate vesting for military spouses who are employed by large or governmental

employers. The QRMC also recommends continuing to pursue two noncash related improvements to assist military spouses. DoD should do the following:

- Continue efforts in childcare assistance and spouse employment initiatives.
- Continue investigating the impact of PCS moves on spousal employment.
- Explore the feasibility, including legislation, of expanding military spouse retirement benefits (such as a 401(k) or similar) to enhance accumulation of wealth, despite frequent job changes.

Recommendation #8. Conduct a periodic quality-of-life review.

Given the current strength of RMC, further across-the-board increases in salary or allowances may not be efficient options to address certain concerns of Service members. However, a periodic quality-of-life review could inform the Department of trends in the quality of noncash compensation and benefits to assist in targeting investments. Accordingly, DoD should establish a periodic review of quality-of-life (or "quality-of-service") activities. This review would need to be scoped appropriately but could include housing, dining, and other installation facilities, health care access, morale, welfare and recreation facilities and programs, childcare, and spouse employment. The frequency of administrating the review should be set to allow for a strategic review of issues but not so infrequently that accountability for tangible results is lost. The appropriate frequency could be determined after the first review is administered.

In Conclusion

As noted, the QRMC does not recommend significant changes to military pay based on any one study because the pay table is sound, recruiting has significantly improved, and retention is strong. Although concerns have been expressed regarding recruiting and food insecurity, the QRMC determined that these issues were better addressed by tools other than an across-the-board pay raise. Instead, the QRMC made core findings informed by multiple studies. In part, this was possible due to the participation of a broad range of individuals, particularly senior enlisted personnel, who brought different perspectives to the discussions of the QRMC's progress and preliminary findings.

This holistic approach made possible findings aimed at improving and updating the way the Department and its members think about compensation. Raising the benchmark to the 75th percentile is consistent with current compensation levels and provides an opportunity to show that basic pay is strong when compared with civilian compensation. Initiating a quality-of-life review will help ensure that noncash elements of compensation are as effective as the cash elements of compensation. Recommended changes to the way the Department accesses lateral entrants will enable it to bring on individuals at lower and more appropriate ranks but with similar pay levels to those previously provided. Conducting regular reviews of entitlements for deployed

members will help ensure that members who are facing similar risk levels receive similar benefits. The findings related to BAH and CONUS and overseas COLAs will simplify calculation, reduce pay volatility, and make it easier for members to understand these allowances.

The groundbreaking study on dual-income military households determined that military service affects the ability of a spouse to pursue a career, which, in turn, factors into the family's decision on whether to remain in the military. Although the QRMC concluded it would not be appropriate to modify the pay table for dual-income military households, the QRMC does demonstrate its support for these families by recommending that the Department continue to find ways to make childcare more available, continue to support spouse employment initiatives, and continue to study the effect of PCS moves on spousal employment and ways to moderate that effect. The recommendation to remove vesting requirements from pension plans for military spouses would be one way to moderate the loss of income experienced by military spouses by affording spouses greater opportunities to accumulate savings for retirement.

While no one finding or recommendation of the QRMC would be viewed as revolutionary, taken as a whole, the findings and recommendations of the 14th QRMC should provide lasting value in helping Service members and their families understand that the Department recognizes their contributions and sacrifices and is making pay policy decisions to compensate them appropriately.

APPENDIX A

Section 643 and Section 644 of H.R. 7900 of the National Defense Authorization Act for Fiscal Year 2023

This appendix replicates text from Section 643 and Section 644 of H.R. 7900 of the FY 2023 NDAA, which directs the Department to conduct studies on basic pay and on the accuracy of the basic allowance for housing, respectively.[1]

SEC. 643. STUDY ON BASIC PAY.

(a) In General.—The Secretary of Defense shall seek to enter into an agreement with a nonprofit entity or a federally funded research and development center to conduct research and analysis on the value of basic pay for members of the Armed Forces. The Secretary may include such research and analysis in the next quadrennial review of military compensation.

(b) Elements.—The research and analysis conducted under subsection (a) shall include the following:

(1) An assessment of the model used to determine the basic pay in the current basic pay tables, including—

(A) an analysis of whether to update the current model to meet the needs of the 2023 employment market;

(B) a historical understanding of when the current model was established and how frequently it has been during the last 10 years;

(C) an understanding of the assumptions on which the model is based and how such assumptions are validated;

(D) an analysis of time-in-grade requirements and how they may affect retention and promotion; and

(E) an assessment of how recruiting and retention information is used to adjust the model.

(2) An assessment of whether to modify current basic pay tables to consider higher rates of pay for specialties the Secretary determines are in critical need of personnel.

1 H.R. 7900, 2021–2022.

(3) An analysis of—

(A) how basic pay has compared with civilian pay since the 70th percentile benchmark for basic pay was established; and

(B) whether to change the 70th percentile benchmark.

(4) An assessment of whether—

(A) to adjust the annual increase in basic pay, currently guided by changes in the Employment Cost Index as a measure of the growth in private-sector employment costs; or

(B) to use a different index, such as the Defense Employment Cost Index.

(5) Legislative and policy recommendations regarding basic pay table based on analyses and assessments under paragraphs (1) through (4).

SEC. 644. REPORT on ACCURACY OF BASIC ALLOWANCE FOR HOUSING.

(a) Report; Elements.—Not later than one year after the date of the enactment of this Act, the Secretary of Defense, in consultation with the Secretary of the department in which the Coast Guard is operating, shall prepare and submit to the appropriate congressional committees a report on BAH. Such report shall contain the following elements.

(1) The evaluation of the Secretary—

(A) of the efficiency and accuracy of the current system used to calculate BAH;

(B) the appropriateness of using mean and median housing costs in such calculation;

(C) of existing MHAs, in relation to choices in, and availability of, housing to servicemembers;

(D) of the suitability of the six standard housing profiles in relation to the average family sizes of servicemembers, disaggregated by uniformed service, rank, and MHA;

(E) of the flexibility of BAH to respond to changes in real estate markets; and

(F) of residential real estate processes to determine rental rates.

(2) The recommendation of the Secretary—

(A) regarding the feasibility of including information, furnished by Federal entities, regarding school districts, in calculating BAH;

(B) whether to calculate BAH more frequently, including in response to a sudden change in the housing market;

(C) whether to enter into an agreement with a covered entity, to compile data and develop an enterprise grade, objective, data-driven algorithm to calculate BAH;

(D) whether to publish the methods used by the Secretary to calculate BAH on a publicly assessable website of the Department of Defense; and

(E) whether BAH calculations appropriately account for increased housing costs associated with Coast Guard facilities.

(b) Definitions.—In this section:

(1) The term "appropriate congressional committees" means the following—

(A) The Committee on Armed Services of the House of Representatives.

(B) The Committee on Armed Services of the Senate.

(C) The Committee on Transportation and Infrastructure of the House of Representatives.

(D) The Committee on Commerce, Science, and Transportation of the Senate.

(2) The term "BAH" means the basic allowance for housing for members of the uniformed services under section 403 of title 37, United States Code.

(3) The term "covered entity" means a nationally recognized entity in the field of commercial real estate markets across the United States.

(4) The term "MHA" means military housing area.

(5) The term "servicemember" has the meaning given such term in section 101 of the Servicemembers Civil Relief Act (50 U.S.C. 3911).

APPENDIX B

BAH Hybrid Regression Data Smoothing Model

The BAH hybrid regression model addresses data sample anomalies by dampening the effects of outlier data and low sample sizes. As a result, it produces BAH rates that are more reliable, more accurate, more efficiently calculated, and less volatile over time.

The model is designed to reduce volatility and protect BAH rates against any potential sampling error. Statistical samples are estimates of the population parameter being studied—in the case of BAH, median total housing costs—and all statistical samples have some margin of error. Some of this error can be a result of data anomalies associated with small sample sizes. The goal is to limit the margin of error in a statistical sample so that it reflects the actual population parameter as closely as possible. For BAH, this is the true median housing cost of all rental homes in a housing area.[1] BAH rates are determined on the basis of annual collection of 1,794 distinct statistical samples of rental housing costs nationwide (six housing types in 299 MHAs).

The BAH sample in each MHA, like any statistical sample, has an associated margin of error. The Department incorporates BAH data smoothing to reduce the effect of potential sampling errors and obtain the most accurate housing cost estimates possible. Data smoothing is a well-established statistical technique that is applied by almost all reputable government and commercial housing sources, including HUD and industry leaders such as Zillow, to produce reliable cost estimates.

The BAH hybrid regression model reduces year-to-year volatility in BAH rates and volatility between housing types (also referred to as "anchor points") within the same MHA. It also addresses data anomalies by applying greater weight to anchor points with larger sample sizes—thereby trusting good data and adjusting the weaker data. By dampening the effects of outlier data and applying greater weight to data sets with larger sample sizes, the model can produce BAH rates that are more reliable, more accurate, and less volatile over time.

1 Total housing cost is equal to the median rental cost estimate for each of the six BAH housing profiles plus average utilities that are calculated using data from the Census Bureau's American Community Survey.

DoD successfully piloted the model to smooth the BAH total housing costs raw data in approximately 10 percent of MHAs—such as those with chronically low samples sizes—as part of setting 2024 BAH rates. In addition, in parallel with the manual data smoothing process, DoD has been running simulations with the hybrid regression model using raw BAH data that go back to 2014. These simulations demonstrate that if the model had been in place, it would have reduced volatility in BAH rates by 31 percent compared with the manual data smoothing process. Use of the model will be expanded to all 299 MHAs in setting the 2025 BAH rates.

Expanded use of the BAH hybrid regression model is expected to result in only slight differences from raw data estimates of the median total housing cost for each housing profile—an estimated difference of only 1.1 percent. BAH rates in an MHA may still change, but the model itself will not result in significant changes in the data in the short term. With each new set of BAH data added to the model over time, the model's machine-learning algorithms will result in increasingly accurate BAH rates. The model's results will balance out over time, with minimal impacts to Service budgets solely from use of the model.

There is capability to intervene and override the model's results when unusual market events require doing so, such as when significant spikes in rental housing cost occur in a specific MHA, as was experienced in the aftermath of the pandemic or in the case of disruptions in housing markets due to natural disasters.

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Abbreviations

7th QRMC	Seventh Quadrennial Review of Military Compensation
9th QRMC	Ninth Quadrennial Review of Military Compensation
10th QRMC	Tenth Quadrennial Review of Military Compensation
13th QRMC	Thirteenth Quadrennial Review of Military Compensation
14th QRMC	Fourteenth Quadrennial Review of Military Compensation
ASEC	Annual Social and Economic Supplement
AvB	Aviation Bonus
AVF	all-volunteer force
AvIP	Aviation Incentive Pay
BAH	Basic Allowance for Housing
BAS	Basic Allowance for Subsistence
BLS	Bureau of Labor Statistics
BNA	Basic Needs Allowance
BPI	basic pay index
CBO	Congressional Budget Office
COLA	Cost-of-Living Allowance
CONUS	continental United States
COVID-19	coronavirus 2019
CPI	Consumer Price Index
CPS	Current Population Survey
CZTE	Combat Zone Tax Exclusion
DECI	Defense Employment Cost Index
DMDC	Defense Manpower Data Center
DoD	U.S. Department of Defense
DWC	Deputy's Workforce Council
ECI	Employment Cost Index

ES	Executive Schedule
FFRDC	federally funded research and development center
FRED	Federal Reserve Bank of St. Louis Economic Data
FY	fiscal year
HAC	House Appropriations Committee
HFP	Hostile Fire Pay
HUD	Department of Housing and Urban Development
IDP	Imminent Danger Pay
IRS	Internal Revenue Service
LPS	Living Pattern Survey
MHA	military housing area
NDAA	National Defense Authorization Act
OAD	Operation Allied Force
OCOLA	overseas Cost-of-Living Allowance
OCONUS	outside the continental United States
OEF	Operation Enduring Freedom
OFS	Operation Freedom's Sentinel
OIF	Operation Iraqi Freedom
OIR	Operation Inherent Resolve
OPA	Office of People Analytics
OPG	Operation Prosperity Garden
OSD	Office of the Secretary of Defense
OUSD (P&R)	Office of the Under Secretary of Defense for Personnel and Readiness
PCS	permanent change of station
QHDA	Qualified Hazardous Duty Area
QRMC	Quadrennial Review of Military Compensation
RMC	Regular Military Compensation
S&I	Special and Incentive
SDP	Savings Deposit Program
SOFS	Status of Forces Survey
SOFS-A	Status of Forces Survey of Active Duty Members
SRB	Selective Reenlistment Bonus
TSP	Thrift Savings Plan
USDA	U.S. Department of Agriculture