Volume I. Main Report

December 2020

Report of

The Thirteenth Quadrennial Review of Military Compensation

Preparation of this report and its underlying studies cost the Department of Defense a total of approximately $5,680,000 in Fiscal Years 2018–2020.

Report of the Thirteenth Quadrennial Review of Military Compensation

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THE WHITE HOUSE

WASHINGTON

September 15, 2017

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: Thirteenth Quadrennial Review of Military Compensation

In addition to our support and gratitude, we owe our men and women in uniform the tools, equipment, resources, and training they need to fight and win. Our military compensation system must recognize their sacrifices and adequately and fairly reward them for their efforts and contributions. It also must encourage the next generation of men and women to answer the call to serve their fellow citizens as members of our uniformed services. Although the world and the threats to our Nation have changed over time, the structure of our military compensation system, with the exception of recent changes to military retirement, has remained largely the same.

Pursuant to the authority vested in me by the Constitution and the laws of the United States, including section 1008(b) of title 37, United States Code, I hereby determine that you shall be my Executive Agent for the Thirteenth Quadrennial Review of Military Compensation, conducting the review required by section 1008(b). As directed by statute, the review should assess the principles and concepts of the compensation system for members of the uniformed services.

At a minimum, the review should:

1. assess the adequacy of military compensation and each of its underlying components;

2. determine whether the structure of the current military compensation system, as a system of basic pay, housing, and subsistence allowances, remains appropriate, or whether an alternate compensation structure, such as a salary system, would enhance readiness and better enable the Department of Defense to recruit and retain tomorrow's military force; and

3. survey the usage of Supplemental Nutrition Assistance Program benefits, as well as any other supplemental sources of income or support you deem significant, by military members on active service and their families, and consider the results of the review in assessing the adequacy of overall military compensation.

As Executive Agent, you shall ensure representatives of other executive departments and agencies participate in this review, as appropriate.

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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] The First Quadrennial Review of Military Compensation (QRMC) was convened in 1965. In January 2015, President Barack Obama determined that the Military Compensation and Retirement Modernization Commission, "chartered to conduct a review of the military compensation and retirement system and make recommendations to modernize these systems,"[2] served in lieu of the Twelfth Quadrennial Review of Military Compensation, which was canceled. Its efforts led to the Blended Retirement System, implemented by the Department of Defense (DoD) in January 2018.

In September 2017, President Donald J. Trump instructed the Secretary of Defense to conduct the Thirteenth Quadrennial Review of Military Compensation (13th QRMC). In his charge to the secretary, the President stated:

> In addition to our support and gratitude, we owe our men and women in uniform the tools, equipment, resources, and training they need to fight and win. Our military compensation system must recognize their sacrifices and adequately and fairly reward them for their efforts and contributions. It also must encourage the next generation of men and women to answer the call to serve their fellow citizens as members of our uniformed services. Although the world and the threats to our Nation have changed over time, the structure of our military compensation system, with the exception of recent changes to military retirement, has remained largely the same.[3]

Thus, this 13th QRMC examined several structural changes to the military compensation system—a single-salary system and a time-in-grade basic pay table—in addition to topics concerning the adequacy of military pay. These structural changes have been proposed and studied by previous QRMCs and other groups on numerous occasions in the past. Cognizant of this body of research, the goal of the 13th QRMC was to conduct the definitive study of each subject.

The assessment of the single-salary system conducted by the 13th QRMC not only evaluated the implications of such a system on service member compensation and on recruiting, retention, and readiness in the military services but also explored more than two dozen policies and programs that would be affected by a single-salary system because of their connection to regular military compensation (RMC).

1. Code, Section 1008b, Title 37.

2. The White House, "Twelfth Quadrennial Review of Military Compensation," memorandum for the Secretary of Defense, January 9, 2015.

3. The White House, "Thirteenth Quadrennial Review of Military Compensation," memorandum for the Secretary of Defense, September 15, 2017.

In addition, the QRMC wanted to understand service member perspectives on a potential move by the Department to a single-salary system and sought out the views of more than 700 service members across the United States and through the DoD annual Status of Forces survey.

The 13th QRMC took an equally expansive approach to evaluating a time-in-grade basic pay table, which built on the pay table developed by the 10th QRMC. But the 13th QRMC went beyond assessments of how a time-in-grade table would improve the pay of top performers or lateral entrants to include analyses of retention, cost, and performance effects of a time-in-grade pay table—topics not investigated in prior studies. It then examined whether other policies, such as a new form of constructive credit, could achieve benefits similar to a time-in-grade pay table.

These assessments of the single-salary system and the time-in-grade pay table are perhaps the most expansive assessments of these topics conducted to date and provide a solid foundation on which to determine whether such systemic changes are needed for the military compensation system to maintain currency.

The 9th QRMC in 2002 determined that RMC at around the 70th percentile of comparably educated civilians is necessary to enable the military to recruit and retain the quantity and quality of personnel it requires. Since then, DoD has undertaken several benchmarking studies to determine whether RMC was at, above, or below this benchmark. The 13th QRMC reexamined the adequacy of military pay against the 70th-percentile benchmark and explored the implications of pay on recruiting—in particular the ability of the military services to obtain high-quality recruits. It also examined geographic differences in military and civilian pay and the potential implications for recruiting.

The assessment of use of the Supplemental Nutrition Assistance Program (SNAP) by service members and their families analyzed 2019 data of actual SNAP usage by service members from 33 states in May and from 34 states in August. It enabled the QRMC to more precisely estimate the number of service members who receive SNAP benefits and to examine whether factors such as rank, duty location, and family size played a role in SNAP usage. The data also allowed the QRMC to extrapolate SNAP usage for states that do not provide this information to the Defense Manpower Data Center, giving this QRMC the best picture of SNAP usage by service members and their families to date.

The analyses and recommendations included in this report result from the substantial efforts of many talented individuals, all of whom participated with a spirit of collaboration and dedication. The rigorous analysis of complex compensation issues conducted by the 13th QRMC should be of lasting value in assessing the adequacy of the military compensation system.

Acknowledgments

I extend my thanks to all those who contributed their time and talents to the 13th QRMC.

I had been away from the Office of the Secretary of Defense (OSD) in another federal agency for about 16 years when I returned to serve as the director, 13th QRMC. I owe Mr. Don Svendsen, deputy director, OSD Compensation, special thanks. He helped me to get my feet on the ground by obtaining office space; introducing me to budget directors, Federally Funded Research and Development Centers (FFRDC), FFRDC staff, and others; and by serving as a sounding board as I readapted to service in OSD.

This QRMC was unique in that its staff had only two full-time members—myself and my deputy, COL Brunilda E. "Brunnie" Garcia. CDR Russ Mayer, though not assigned to the QRMC, led the SNAP research, and his assistance allowed us to obtain the best data the Department has ever had on service members' use of this program, and he also oversaw the research and report writing of FFRDCs.

Under the guidance and leadership of Ms. Virginia Penrod, principal deputy assistant secretary of defense for Manpower and Reserve Affairs (PDASD [M&RA]), the QRMC built a Senior Advisory Group (SAG) consisting of PDASD (M&RA), the service assistant secretaries for Manpower and Reserve Affairs; the director, Joint Staff; the senior enlisted advisor to the chairman; the chief management officer of DoD; and a representative from the National Guard Bureau, the U.S. Coast Guard, the Office of the General Counsel, the Office of the Under Secretary of Defense for Comptroller, and the Office of Cost Assessment and Program Evaluation.

The SAG, 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 SAG informed. They were the backbone of the QRMC. SAG members showed real interest in our work and graciously took time from their hectic schedules to meet with us to discuss our findings and conclusions. Their insight and experience allowed us to develop recommendations in which all SAG members concurred.

In addition to her leadership in setting up the structure of the QRMC, Ms. Penrod formed a team consisting of herself, Mr. Lernes J. "Bear" Hebert, deputy assistant secretary of defense for military personnel policy, and Ms. Jeri Busch, OSD director of compensation, with whom 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 researchers from three FFRDCs—CNA, Institute for Defense Analyses, and RAND Corporation—to conduct our research. Though too numerous to mention here, I thank them all. (See complete participants list at the end of this volume.) No topic studied by this QRMC was unique. Consequently, my goal was for each study to become the definitive study on that subject. I think when you examine the individual studies, you will conclude that the research teams delivered on this request. Additionally, they worked collaboratively, not just with the QRMC but also with other FFRDCs. It was a true team effort.

Ms. Jacqueline Taylor, budget analyst, Washington Headquarters Service Financial Management Directorate, provided essential support for the QRMC. The QRMC primarily relies on year-end funds for its work. These funds expire at the end of the fiscal year, and FFRDCs also have annual funding caps. Ms. Taylor's professional ability and devotion to duty allowed the QRMC to fund its essential work and to complete this research on schedule.

Ms. Barbara Bicksler was the integrator of this one-volume main report, which consolidates 11 studies totaling more than a thousand pages. She has worked on three previous QRMCs, on the Defense Advisory Committee on Military Compensation, and with the Defense Science Board, and is one of the few people capable of successfully completing such a daunting task in a short time frame. And she's a terrific writer.

Finally, my deputy, COL Brunnie Garcia. Drawing from the experience gained in her 30-year Army career, COL Garcia brought outstanding management and dynamic leadership to the QRMC. She led the working group, worked with the FFRDCs, and did whatever it took to ensure the successful completion of this presidentially directed review of military compensation. Thank you, COL Garcia. You are the best officer with whom I have ever served.

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

Thomas K. Emswiler
Director, 13th QRMC

Executive Summary

Military compensation plays an important role in military personnel management. Recent interest in the Department of Defense (DoD) and in Congress in finding ways to improve talent management within the military services has led many to question whether the current structure of the military compensation system still serves the needs of the Department. The system is criticized for lack of flexibility and agility and, as a consequence, may be ill suited for today's modern information age. These concerns are reflected in the topics that the Thirteenth Quadrennial Review of Military Compensation (13th QRMC) was directed in its charter to explore:

- the adequacy of military compensation and each of its underlying components
- whether an alternate compensation system, such as a salary system, would enhance readiness, recruiting, and retention
- the use of the Supplemental Nutrition Assistance Program (SNAP) and implications on the adequacy of military compensation.

A fourth topic, on setting a time-in-grade pay table for military personnel and its effect on readiness, was later folded into the QRMC's review of potential structural changes to the compensation system after a report on this subject was requested in the Senate Armed Services Committee version of the National Defense Authorization Act of 2019.

Adequacy of Military Compensation

Military Compensation and the Quality of Recruits

Since the beginning of the all-volunteer force, compensation and benefits have been among the most critical tools in attracting and retaining military personnel. Pay must be set high enough to attract quality recruits away from other jobs they might be qualified for given their education, skills, and ability. Each QRMC examines the adequacy of military pay. The 9th QRMC measured military pay using regular military compensation (RMC) and concluded that military pay should be at the 70th percentile of the pay of comparably educated civilians to recruit and retain the quality and quantity of the force DoD needs to achieve its military goals.

Since that time, military pay increased in the early 2000s to respond to the recruiting and retention effects of the dot-com boom and increased further during the 2000s to support recruiting and retention during operations in Iraq and Afghanistan. As a result of these pay increases, researchers have found that military pay has increased substantially relative to civilian pay, exceeding the 70th percentile. The findings of the 13th QRMC are consistent with these trends: The RMC percentile for 2017 was above

the 70th percentile. For the first 20 years of service, RMC was at the 85th percentile of the civilian wage distribution for enlisted personnel and at the 77th percentile of the civilian wage distribution for officers.

The services' recruiting goals emphasize accession of high-quality recruits and recruiting benchmarks have been set to achieve those goals. For each service, 90 percent of enlisted accessions with no prior military service must be high school diploma graduates, and at least 60 percent must score at or above the average (50th percentile) on the Armed Forces Qualification Test. Given that both RMC and the RMC percentile have increased substantially since 1999, the QRMC also explored whether the quality of recruits over time increased and found that recruit quality rose in three services—the Navy, Air Force, and Marine Corps—as military pay increased relative to civilian pay. However, all the services are at or above the quality benchmarks for enlisted personnel.

The QRMC also examined geographic differences in pay and concluded that geography matters less for service members at lower levels of education and more for service members with higher levels of education. Unlike in the past when civilian wages for both highly skilled and less-skilled workers were higher in urban than less-urban areas, civilian wages are more equal across geographic areas for those with a high school degree or some college, which means that urban areas may be a new target market for military recruiting. Additional research should be conducted to further examine geographic differences in pay and the implications for recruiting and retention of military personnel.

RECOMMENDATIONS:

- Refrain from providing targeted pay raises at this time, since average RMC is more than adequate compared with civilian pay.
- Continue to periodically ensure military pay compares favorably to the 70th-percentile benchmark.
- Conduct a study that examines a more expansive view of military compensation to include RMC plus special and incentive pays targeted toward recruiting and retention.
- Determine whether the services need a measure of officer quality at accession.
- Consider conducting a study on geographic differences in RMC percentiles.

Contributing to the Thrift Savings Plan Under the Blended Retirement System

The Blended Retirement System (BRS), implemented on January 1, 2018, aims to increase service members' retirement savings by matching a service member's contributions to the Thrift Savings Plan (TSP) on the first 5 percent of basic pay and

by making automatic (1-percent) contributions to the member's account regardless of the member's contribution level. This new system applies to service members who entered uniformed service on January 1, 2018, or later and to service members with earlier entry dates and fewer than 12 years of service who opted to participate in the new system during 2018. The QRMC examined TSP contributions by active component service members to see what contribution patterns looked like one year after implementation of the new system and their implications for retirement savings.

The findings indicate that age, RMC, and pay grades (both enlisted and officer) were all correlated with retirement savings rates, which is consistent with research on civilian retirement saving. Not surprisingly, older service members and those with higher incomes save at higher levels. The assessment also indicated that savings patterns differ across the services between members who are automatically enrolled in the new system and those who opt in. Service members automatically enrolled in the system from all four services were more likely to contribute at the default rate of 3 percent; those who opted in were more likely to contribute more than the default rate. Members from the Army and Air Force were much more likely than those in the Navy or Marine Corps to make the default contribution of 3 percent of basic pay, likely reflecting service-level differences in BRS implementation.

Furthermore, some service members may be saving inefficiently by reaching the annual limit on TSP contributions prior to the end of the year and in doing so forgo some matching funds. Matching funds are contributed each pay period and are determined by the percentage of basic pay contributed that month. Therefore, the timing of TSP contributions matters as much as the amount contributed. This issue can be addressed at low cost to the services.

RECOMMENDATIONS:

- Monitor automatically enrolled participants as they near two years of service, and send targeted communications to those members contributing less than 5 percent.
- Educate members on the merits of spreading their TSP contributions over the entire year.
- Allow for dollar-amount TSP elections, not just percentage-amount election.

Structural Changes to the Military Pay System

A Salary-Based Pay System

As directed in its charter, the QRMC analyzed whether an alternate compensation system, in particular, a single-salary pay system, would "enhance readiness and

better enable DoD to recruit and retain tomorrow's military force." A single-salary system would eliminate the housing and subsistence allowances, and the income tax advantage associated with these allowances, that along with basic pay compose RMC and replace them with a single salary. Advocates of a salary system have asserted that it would improve the efficiency and fairness of the compensation system. The QRMC's examination of a single-salary pay system did not reach the same conclusion.

Service member pay decreases. Senate guidance with respect to development of a single-salary system specified that the system must incur little or no additional cost to the federal government and that individual service members must maintain current levels of pay. But QRMC analysis of four alternative single-salary systems found that the first criterion specified by Congress cannot be satisfied without reductions in military salaries.

A number of factors are at play. First, individual taxes increase when the housing and subsistence allowances are combined with basic pay. The increase in federal income tax liability is estimated to be around $9 billion. DoD could increase pay by $9 billion, which creates a budget liability for the Department. But the costs to the federal government would not increase because the cost of the pay increase would be offset by an increase in federal tax payments.

State tax obligations would also rise by about $600 million. However, this increase in cost to service members cannot be mitigated in a revenue-neutral manner since states, not the federal government, would reap the additional tax revenue. Thus, the increase in state taxes would be realized as a reduction in pay to service members.

Second, the redistribution of allowances under a salary system results in winners and losers in the distribution of pay. Amounts currently disbursed as the housing and subsistence allowances (and no more) must be reallocated both to members who currently receive the allowances and to members who do not. Among the single-salary systems examined by the QRMC, a tailored salary system—where the percentage increase in basic pay varies by pay grade and where service members are required to pay market-equivalent rent for government-owned housing—resulted in the fairest distribution scheme. But even under this system, most individual members would see pay cuts of around 6 percent.

Moreover, the QRMC's research found no conclusive evidence that a single-salary system showed improvements to readiness, recruiting, or retention that might justify the reduction in pay.

Complexity increases. Implementation of the proposed single-salary system would introduce substantial additional complexity. Research for the QRMC identified

more than two dozen pays and programs that would be affected by a single-salary system—many of which would need to be adjusted to avoid additional expense to DoD and the federal government. Among the most consequential is the impact on retirement pay and reserve pay.

Under a single-salary system, basic pay, the basis on which retired pay is calculated, would be higher, which, in turn, would substantially increase retirement pay. To maintain retirement pay at its current levels, the retired pay multiplier will need to be lower. Similarly, since reserve component members in a drilling status do not receive BAH or BAS, the redistribution of allowances into basic pay will increase both the basic pay of drilling reservists and the total cost of pay in the reserve components. Higher reserve component pay means increased costs for DoD and the federal government. As a consequence, a pay table for drilling reservists would need to be developed separate from the active duty pay table to avoid this result. Maintaining multiple pay tables adds administrative complexity to the system.

Service members are skeptical. Furthermore, service members are skeptical of the need for a major restructuring of the military compensation system. They view the current system as imperfect but "fair enough" and would rather see improvements made within the current system, such as improving access to childcare and housing allowances and other noncash benefits.

The current compensation system already incorporates a high degree of flexibility; many of the mechanisms by which a single-salary system could improve efficiency and fairness could be individually implemented without the wholesale elimination of the allowances and adoption of a salary system.

RECOMMENDATION:

DoD should retain the current compensation system.

Analysis of a Time-in-Grade Pay Table

Observers, as well as past commissions, have argued that a time-in-grade pay table would provide stronger incentives for superior performance and better facilitate the lateral entry of personnel with civilian-acquired skills, two outcomes that would align with the services and Congress's objective of improving military personnel talent management. Each cell of the current time-in-service basic pay table indicates a member's pay based on their pay grade and *years of service*, or longevity in the military. Under a time-in-grade pay table, basic pay would be based

on pay grade and *years in that grade*. The QRMC examined the advantages and disadvantages of a time-in-grade pay table and whether other pay or personnel policies could achieve similar advantages.

Faster promotion is generally viewed as the primary means by which the services financially reward superior performance. A disadvantage of a time-in-service pay table is that the financial reward to faster promotion is temporary and only lasts until the rest of the member's cohort is promoted as well. In contrast, as the findings of the QRMC support, a time-in-grade pay table would provide a permanent financial reward for early promotion, providing greater incentives for performance for both enlisted personnel and commissioned officers. In addition, the findings show that the time-in-grade pay table can yield higher performance than a time-in-service pay table and provide stronger retention incentives more efficiently. Another advantage of a time-in-grade pay table is that it provides higher basic pay to lateral entrants relative to the current time-in-service pay table and thereby increases the competitiveness of the military.

The major disadvantage of the time-in-grade pay table is that the transition would involve a cost to DoD, and it would be disruptive to a significant fraction of the force. Estimates for the QMRC indicate that just under one-third of the active force would experience a basic pay reduction in the transition to a time-in-grade pay table, with an average reduction in basic pay of 6 percent among those who would experience a pay reduction. If DoD were to adopt "save pay" to mitigate these pay reductions and hold members harmless, the first-year cost would be $1.39 billion (in 2018 dollars) in the year of the transition.

If a time-in-grade pay table is judged to be a bridge too far, *a new form of constructive credit* that advances members in terms of years of service for the purpose of pay, but not retirement, could achieve some advantages of a time-in-grade pay table—namely, the ability to offer more competitive pay to lateral entrants and a permanent reward for fast promotion. But the major advantages of increased retention and performance of the force could not be achieved to the same degree as under a time-in-grade pay table.

RECOMMENDATION:

A time-in-grade pay table and a new form of constructive credit have merit and warrant further study. The Department should undertake these studies and, as part of this effort, develop a plan and parameters for a pilot program with a service partner(s).

Use of Assistance Programs

Service Member Use of the Supplemental Nutrition Assistance Program

SNAP is a federal program that helps low-income individuals and families purchase food. The amount of the assistance depends on household size, household income, and other circumstances. Research for the QRMC evaluated the use of SNAP from two sets of data: one using data from the Defense Manpower Data Center and other aggregated data to determine how many members *might* qualify for SNAP and the second using state-level data of SNAP participation in participating states from the Public Assistance Reporting Information System (PARIS) to determine *actual use* of SNAP among service members.

Calculating SNAP usage. Results from both analyses were similar. The first study concluded that 1,921 members might be eligible for SNAP. The analysis of the PARIS data concluded that between 880 (0.08 percent) and 4,620 (0.42 percent) service members were enrolled in SNAP at any point in time. The QRMC determined that the best estimate of service members who are *currently* receiving SNAP benefits is at the lower end of this range. Both estimates are well below the 9.6 percent of adult civilians in the United States (age 18–59) who use SNAP.

The range of estimates when analyzing the PARIS data arose because of anomalies in the data. Many service members were reported as part of a SNAP household before they entered service or were part of a SNAP household in a different state than the member's duty state (likely in both cases because that SNAP household had not recertified eligibility since the member joined a service). The QRMC made certain assumptions about which members were actually using SNAP, and the remaining were excluded from the estimate.

The lower-bound estimate of 880 enrolled members, from the August sample, is based on the most restrictive sample, which required recipients to begin receiving SNAP after going on active duty and their duty station had to be in the same state from which they were receiving SNAP benefits. The upper-bound estimate, from the May sample, is based on the least restrictive sample, with the only requirement being that the recipients' duty stations had to be in any of the states included in the PARIS data.

Characteristics of SNAP users. Junior enlisted members represent the largest number of SNAP recipients, and they are the most likely to be enrolled in SNAP. Looking across pay grades and dependents, service members in pay grades E-2 to E-4 with three or more dependents are far more likely to be enrolled in SNAP than all other service members. Even so, fewer than 5 percent of these service members are actually enrolled in SNAP.

Service members with dependents who do not receive the basic allowance for housing (BAH) are more likely to qualify for SNAP relative to their peers who receive BAH (10 percent and 4 percent, respectively) because BAH counts as income but quarters in kind do not.

Service members without dependents earn too much to qualify for SNAP. The Army has the least restrictions on accessions with dependents and has accessed far more members with several dependents in the past few years than the other services. Consequently, its junior enlisted service members are the most likely to be enrolled in SNAP. Junior enlisted service members advance rather quickly, however, so it is likely that most of these members are receiving SNAP benefits for a relatively short period.

Implications for adequacy of pay. Overall military compensation is adequate as it pertains to SNAP usage, which tends to be concentrated in junior enlisted members with large families. Accordingly, the small number of service members eligible for SNAP does not warrant a change in policy. Additional study of the characteristics of SNAP users could provide insight into opportunities to further reduce enrollment among military members.

RECOMMENDATION:

Continue to monitor SNAP usage among service members, subject to appropriate agreements.

Final Thoughts

The 13th QRMC examined topics that have been studied many times in the past. But the research that forms the basis of this report explored these topics in greater depth than had been done previously and included numerous new subtopics in the investigations. We believe the assessments of the single-salary system and the time-in-grade pay table are the definitive studies on these topics.

The recommendations of the 13th QRMC offer numerous opportunities for the Department to improve the execution of the compensation system, enhance service member knowledge about aspects of the compensation system, and further engage with the research community. These are among the most notable conclusions:

- The services continue to pay their members at or above the 70th-percentile benchmark and are meeting their quality objectives. Nonetheless, periodically assessing whether RMC is at, above, or below the civilian pay benchmark has

value, as does assessing the benchmark itself. Additionally, analyzing geographic differences between RMC and civilian pay may be of value in uncovering new locations to target for recruiting.

- Service member TSP contributions under the BRS suggest that members are missing out on full matching contributions for a variety of reasons—suggesting the need for targeted communications and additional education for service members.
- Regarding a time-in-grade pay table, the research for this QRMC detailed the pros and cons and possible alternatives, emphasizing its value in better aligning pay and performance, which is of interest to DoD and Congress. The only question left is whether to implement such a pay table. And this question might be best analyzed through a pilot program.
- The QRMC had access to the best data on SNAP ever available to the Department and, in turn, was able to develop the best estimate of SNAP usage by service members. The estimates showed very few members enrolled in the program. Nevertheless, DoD might target these members for additional financial management training and ensure they are aware of emergency relief funds that are currently available.

As for the single-salary system, no data showed that a single-salary system would increase readiness, recruiting, or retention. Indeed, some estimates of retention suggest that it might decline. Additionally, the move to such a system would add complexity, uncertainty, and cost, in addition to a pay cut for most service members. A single-salary system should only be adopted if there is strong and compelling evidence that the system presents clear advantages, which the QRMC's research did not uncover.

The 13th QRMC engaged in rigorous analysis of complex compensation issues that should be of lasting value to the Department of Defense.

Part
ONE
INTRODUCTION

Chapter ONE
Compensation's Role in Military Personnel Management

Over the past several years, Congress has shown increasing interest in talent management in the Department of Defense (DoD)—and, in particular, whether the systems and structures put in place decades ago continue to serve the Department's interests today. In its January 2018 hearings on the Defense Officer Personnel Management Act of 1980, the Senate Armed Services Committee asked whether "a personnel system designed for an industrial age military [can] be successful in the information age" and for a force that is considerably smaller and more diverse and that undertakes operations that are very different from those of the Cold War.[1] Congress was also concerned about criticism of the system's ability to "quickly provide the officers required to respond to unforeseen threats" and "to effectively respond to rapid changes in the defense budget."[2]

These themes continue to resonate as Congress and the Department further explore opportunities to improve management of the military's personnel—including the Department's work in response to the President's charter tasking the Thirteenth Quadrennial Review of Military Compensation (13th QRMC). As the charter states: "Although the world and the threats to our Nation have changed over time, the structure of our military compensation system, with the exception of recent changes to military retirement, has remained largely the same."[3] Thus, in addition to its traditional assessment of the adequacy of military compensation, this QRMC addresses several potential structural changes to the compensation system. These topics are motivated by interest in providing the military services with more flexibility to attract and retain military personnel and to manage the force during the course of their careers.

Specifically, in its charter, the 13th QRMC has been directed to explore three areas:

- the adequacy of military compensation and each of its underlying components
- whether an alternate compensation system, such as a salary system, would enhance readiness and recruiting
- the use of the Supplemental Nutrition Assistance Program (SNAP) and implications on the adequacy of military compensation.

1. U.S. Senate, Committee on Armed Services, Subcommittee on Personnel, *Hearing to Receive Testimony on Officer Personnel Management and the Defense Officer Personnel Management Act of 1980*, Washington, D.C., U.S. Government Printing Office, January 24, 2018.
2. U.S. Senate, Committee on Armed Services, Subcommittee on Personnel, 2018.
3. The White House, 2017.

In addition, the Senate Armed Services Committee version of the National Defense Authorization Act (NDAA) for fiscal year (FY) 2019 requested that DoD submit a report on setting a time-in-grade pay table for military personnel and conduct an assessment of its effect on readiness. This request was folded into the mandate of the QRMC, which was just getting underway at the time.

Considering structural change to DoD's vast and complex military compensation system is never an easy undertaking—and the topics addressed within this QMRC are no exception. Pressures on the defense budget, macroeconomic conditions and resulting implications on recruiting and retention, and the operations in which the military is involved around the globe are but a few of the factors that influence military personnel management and the appetite for systemic change. Only two years ago, the Department implemented a revolutionary change to its retirement system that many thought unimaginable.

Whether additional structural change is on the horizon is unknown. As this QRMC completes its mandate with the publication of this report, the world is in the midst of a global health crisis—the coronavirus pandemic—that is touching every aspect of human life and will undoubtedly have an impact on military personnel management in some way. But despite the immediate uncertainty, the analysis presented in this report has tremendous value and offers insights that will be useful to the Department in evaluating future military compensation policy alternatives.

The research conducted in support of the 13th QRMC was overseen by a Senior Advisory Group (SAG) consisting of the service assistant secretaries for Manpower and Reserve Affairs; the director, Joint Staff; the senior enlisted advisor to the chairman; the chief management officer of DoD; and a representative from the National Guard Bureau, the U.S. Coast Guard, the Office of the General Counsel, the Office of the Under Secretary of Defense for Comptroller, and the Office of Cost Assessment and Program Evaluation. The group was chaired by the principal deputy assistant secretary of defense for Military and Reserve Affairs within the Office of the Secretary of Defense (OSD). Its primary role was to help ensure OSD and the military departments reached consensus on the QRMC's findings and recommendations.

Each of the organizations represented in the SAG 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 SAG.[4] The proposed recommendations, as accepted or amended by the SAG, are presented throughout this report.

4. Membership of the QRMC SAG and working group are listed at the end of this report.

Organization of This Report

The top-line results of the QRMC are presented in the remainder of this report:

- Part II examines aspects of the adequacy of military compensation, specifically the adequacy of regular military compensation (RMC) and implications on the quality of recruits (Chapter 2) and Thrift Savings Plan (TSP) contributions under the Blended Retirement System (BRS) (Chapter 3).
- Part III explores several proposed structural changes to the compensation system—a single-salary system (Chapter 4) and a time-in-grade pay table (Chapter 5)—to determine whether these approaches would improve the Department's ability to manage its military personnel.
- Part IV delves into the use of assistance programs by military personnel, in particular SNAP, and whether use of this program signals a deficiency in compensation that DoD needs to address (Chapter 6).
- The final chapter, in Part V, contains a summary of the findings and recommendations of the 13th QRMC.

Three separate volumes of this report contain the research papers prepared in support of the QRMC—*Volume II: Adequacy of Military Compensation, Volume III: Structural Changes to the Military Pay System*, and *Volume IV: Supplemental Nutrition Assistance Program*. These papers provide considerable detail on the analyses presented in this volume. The individual reports and their authors are listed toward the end of this volume.

Part
TWO

ADEQUACY OF MILITARY COMPENSATION

Chapter TWO

Military Compensation and the Quality of Recruits

The adequacy of military compensation has been a perennial topic of QRMCs from the outset. The fundamental question is whether compensation is set at a sufficient level that the military services can attract and retain the number and quality of personnel needed. Since the 1962 Gorham Commission, the metric of military compensation used to compare with civilian compensation has been RMC.

RMC includes basic pay; the basic allowance for housing (BAH), which compensates service members for variation in housing costs across assignment locations; the basic allowance for subsistence (BAS), which is designed to offset costs for a service member's meals (not food costs for dependents or other household members); and the federal tax advantage associated with receiving the housing and subsistence allowances tax-free.[1]

The 9th QRMC marked a turning point in how military-civilian pay comparisons were made and came to two important conclusions that have influenced subsequent analyses of RMC. First it concluded that

> [p]ay at around the 70th percentile of comparably educated civilians has been necessary to enable the military to recruit and retain the quantity and quality of personnel it requires.[2]

The 9th QRMC also concluded that

> [t]oday's force is more highly educated than in the past and the current pay table may not include a high enough premium to sustain this more educated force.

The report argued that the traditional basis for evaluating the adequacy of pay was no longer valid: The high school graduate as the standard for pay comparison for most of the enlisted force and civilians with a bachelor's degree as the standard of pay for officers did not reflect the education levels attained by the force during the course of service members' careers. Instead, the 9th QRMC used a composite pay comparison that included civilians with high school diplomas, some college education, and college

1. Military compensation includes cash compensation, in-kind benefits, and deferred benefits. Cash compensation consists of basic pay, BAH, BAS, and special and incentive pays that are targeted to segments of the force or select career fields for such purposes as retention or to reward hazardous or onerous duty. In-kind benefits are noncash benefits that include medical care, schooling, family housing, commissaries, and others. Deferred benefits consist of the retirement accrual and retiree health accrual. The elements of military compensation are described in greater detail in prior QRMCs and DoD, *Military Compensation Background Papers: Compensation Elements and Related Manpower Cost Items, Their Purposes and Legislative Backgrounds*, 8th ed., Washington, D.C.: U.S. Department of Defense, 2018.

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

degrees for the enlisted force and civilians with college degrees and managers and professionals with baccalaureate or advanced degrees for officers.

Since that time, researchers have found that military pay has increased substantially relative to civilian pay, exceeding the 70th percentile. Using a similar approach as the 9th QRMC, the 11th QRMC found that military compensation in 2009 "corresponded to the 90th percentile of civilian wages for enlisted personnel and the 83rd percentile for officers."[3] The 11th QRMC also called for an updated analysis of the 70th-percentile benchmark to determine whether it still served as the relevant benchmark for military compensation. A recent analysis by the RAND Corporation reached virtually the same results as the 11th QRMC when comparing military and civilian pay in 2016.[4]

Comparing military and civilian pay against a benchmark, however, is not sufficient to determine whether military pay is adequate. Ultimately what matters is whether the supply of personnel is sufficient for the services to meet their personnel requirements. Various factors affect the supply of personnel to the military, including eligibility standards for recruiting, unemployment in the civilian economy, whether the nation is at war or at risk of entering into conflict, the likelihood of being deployed, and the general risks and rigors of military life. In this chapter, we reexamine the adequacy of military pay against the 70th-percentile benchmark and the implications of pay on recruiting—in particular, the ability of the military services to obtain high-quality recruits. We also explore geographic differences in military and civilian pay comparisons and potential implications for recruiting.[5]

Comparisons of Military and Civilian Pay

Educational Attainment

Education is an important trait for defining comparability between military and civilian personnel because civilian earnings increase with education level, and the educational level of military personnel has been increasing over time. In examining

3. Department of Defense, Office of the Under Secretary of Defense for Personnel and Readiness, *Report of the Eleventh Quadrennial Review of Military Compensation*, Main Report, Washington, D.C, June 2012, p. 31.

4. James Hosek, Beth J. Asch, Michael G. Mattock, and Troy D. Smith, *Military and Civilian Pay Levels, Trend, and Recruit Quality*, Santa Monica, Calif.: RAND Corporation, RR-2396-OSD, 2018. The RAND analysis in 2016 used different educational measures than the 11th QRMC but adjusted the 11th QRMC results to account for these differences—thus allowing for comparison between the two sets of results.

5. The research findings reported in this chapter are drawn from Troy D. Smith, Beth J. Asch, and Michael G. Mattock, *An Updated Look at Military and Civilian Pay Levels and Recruit Quality*, RAND Corporation, a supporting research paper included in Volume II of this report. This paper contains detailed discussion of the data, regression analyses, and other methodological information supporting these findings.

military and civilian earnings, it is important to compare military RMC with the pay of civilians who have comparable education. This QRMC first examined how educational attainment for military personnel has changed over time, using survey data provided by the DoD Office of People Analytics, to determine whether the basis for comparisons should be adjusted.

Education attainment of the force has continued to increase since the work conducted in 1999 by the 9th QRMC. As shown in Table 2.1, educational attainment of the enlisted force has increased between 2009 and 2017. In 1999, 18 percent of E-2s had some college or higher education; by 2009 when the 11th QRMC compared military and civilian pay, the percentage had increased to 29 percent, and by 2017 it had again increased to 33 percent. Similarly, the percentage of senior enlisted personnel in the E-9 grade who have obtained bachelor's degrees or higher has increased from 27 percent in 1999, to 44 percent in 2009, and to 55 percent in 2017.

The educational attainment of officers has similarly increased over time, as shown in Table 2.2. The percentage of O-1s with advanced degrees increased from 3 percent in 1999 to 8 percent in 2017; O-6s with advanced degrees increased from 92 to 98 percent during the same period.

Table 2.1 Enlisted Personnel with Post–High School Education, by Pay Grade, 1999, 2009, and 2017, as Percentages

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

SOURCES: U.S. Department of Defense, Office of the Under Secretary of Defense for Personnel and Readiness, *Report of the Ninth Quadrennial Review of Military Compensation*, Vol. 1, Washington, D.C.: U.S. Department of Defense, March 2002, Figure 2.4; Office of People Analytics, 2017, 2018.
NOTE: NR = not reported. There are no data for E-1s after 1999 because their education distribution was not reported in the survey. The survey responses are weighted to be representative of the force. The 9th QRMC report presents the combined percentage of enlisted with bachelor's degrees or higher; it does not present the percentage with only a bachelor's degree. For 2009 and 2017, this table adds together percentages for bachelor's degrees and master's degrees to obtain bachelor's degrees or higher.

Table 2.2 Educational Attainment of Officer Personnel, by Pay Grade, 1999, 2009, and 2017, as Percentages

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

SOURCES: U.S. Department of Defense, Office of the Under Secretary of Defense for Personnel and Readiness, 2002, Figure 2.14; Office of People Analytics, 2017, 2018.
NOTE: "College Degree" includes bachelor's and associate's degrees. "Advanced Degree" includes master's, doctoral, and professional school degrees.

Thus, the increase in educational attainment observed by the 9th QRMC has continued in subsequent years.

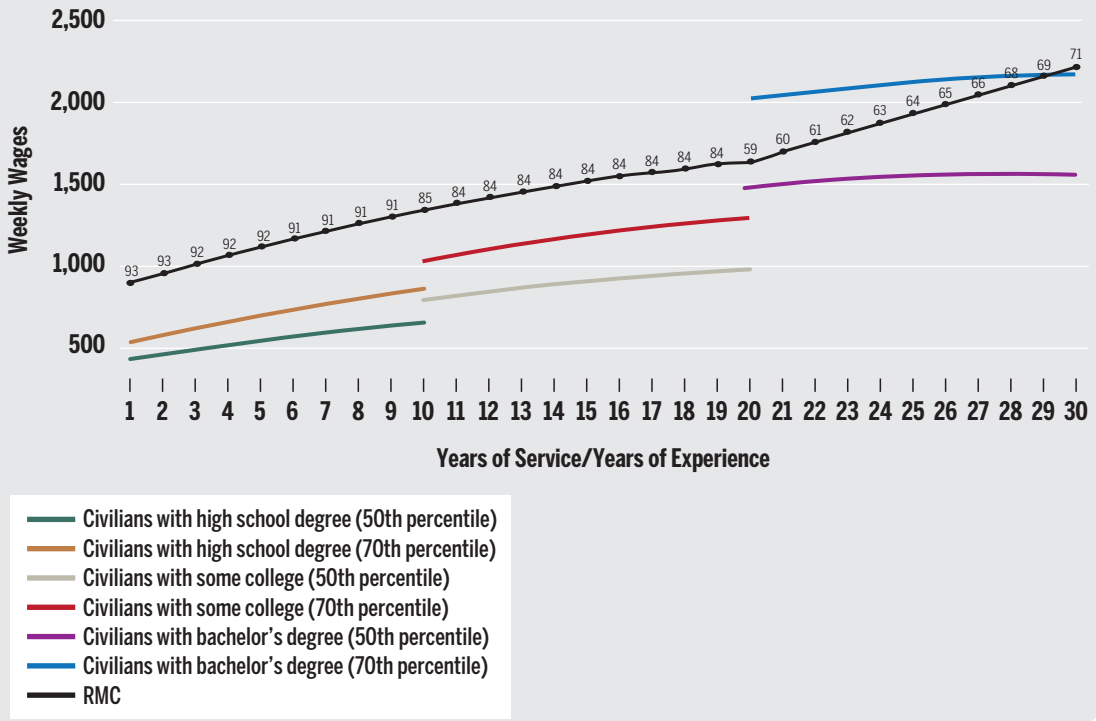
Regular Military Compensation and Civilian Pay Comparisons

Comparisons of RMC and civilian pay are based on pay earned by full-time, full-year workers. These wages are weighted based on the percentage of men and women in the military, which in 2015 was 85 percent men and 15 percent women. The wages are also adjusted for experience in the civilian labor force to allow comparison with military years of service. For enlisted personnel, RMC for senior personnel with between 20 and 30 years of service is first compared with the earnings of civilians with a bachelor's degree and then with the earnings of civilians who have an associate's degree. As shown in Table 2.1, more than half of E-8s have an associate's degree while more than half of E-9s have a bachelor's degree. The findings of these comparison are as follows:

- For enlisted members, RMC is above the 70th percentile except when compared with civilians with a bachelor's degree in years of service 20 to 30.
- For enlisted members, RMC is always above the 70th percentile when compared with civilians with an associate's degree for higher years of service.
- For officers, RMC is always above the 70th percentile.

Looking at these findings in more detail, we begin with the enlisted force. Figures 2.1 and 2.2 show the results of comparing enlisted RMC to civilian wages in 2017. In Figure 2.1, enlisted RMC is compared with wages of civilians with a bachelor's

Figure 2.1 Comparing Enlisted Regular Military Compensation to Wages of Civilians with a High School Degree, Some College, or a Bachelor's Degree, 2017

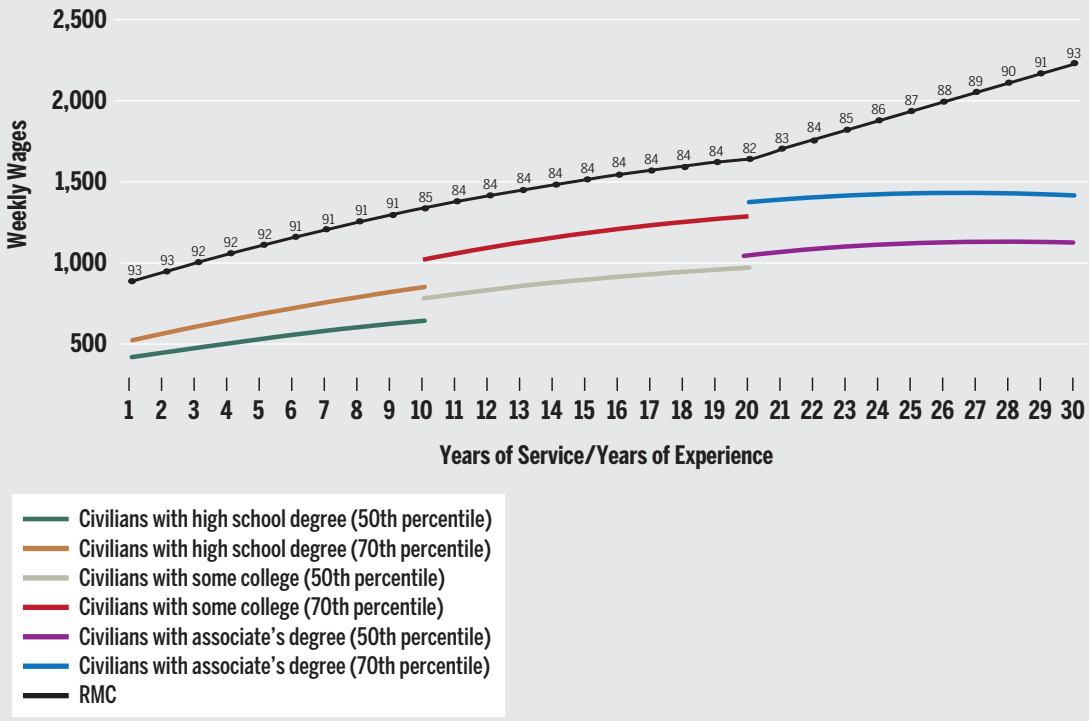


SOURCES: Directorate of Compensation, Officer of the Under Secretary of Defense for Personnel and Readiness, *Selected Military Compensation Tables*, Washington, D.C.: Department of Defense, January 1, 2017; U.S. Census Bureau, "Current Population Survey (CPS): Data," March 6, 2018.
NOTE: RMC percentile varies by years of service (1–9 = high school, 10–19 = some college, and 20–30 = a bachelor's degree). We weighted civilian-wage data by enlisted military gender mix. Colored lines are smoothed wage curves for the 50th and 70th percentiles of the given level of education. The black line is enlisted RMC, and the number above the black line is the percentile in the wage distribution for high school, some college, and bachelor's degree.

degree in years of service 20 to 30, while in Figure 2.2, enlisted RMC is compared with wages of civilians with an associate's degree in years of service 20 to 30. As indicated in the figures, for junior enlisted officers with up to 9 years of service, enlisted RMC is around the 90th percentile of wages of civilians with a high school degree. For midgrade enlisted with 10 to 20 years of service, enlisted RMC is at around the 84th percentile when compared with civilians with some college. For enlisted personnel with 20 to 30 years of service, RMC is well above the 70th percentile of civilians with an associate's degree, with RMC percentiles ranging from the 82nd at 20 years of service to the 93rd at 30 years of service (Figure 2.2). But when RMC between 20 and 30 years of service is compared with civilians with a bachelor's degree, RMC percentiles drop below the 70th percentile, until 30 years of service (Figure 2.1).

As shown in both figures, RMC rises sharply after 20 years of service. At this point in a service member's career, personnel policies become more selective. The rise

Figure 2.2 Comparing Enlisted Regular Military Compensation to Wages of Civilians with a High School Degree, Some College, or an Associate's Degree, 2017



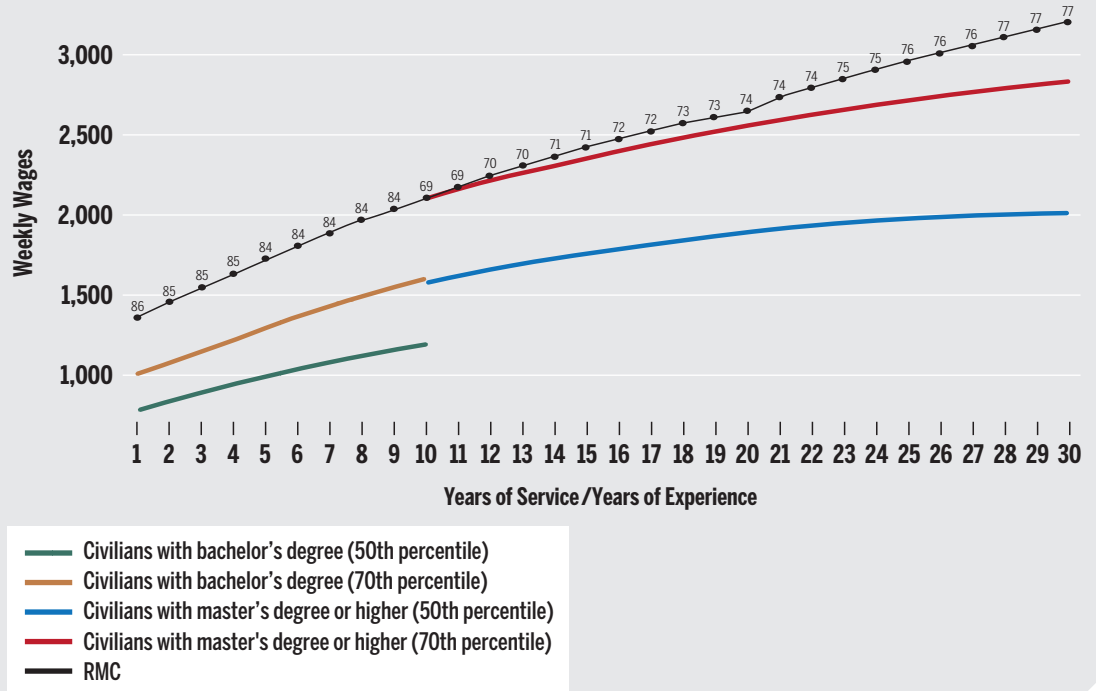
SOURCES: Directorate of Compensation, 2017; U.S. Census Bureau, 2018.
NOTE: RMC percentile varies by years of service (1–9 = high school, 10–19 = some college, and 20–30 = a associate's degree). We weighted civilian-wage data by enlisted military gender mix. Colored lines are smoothed wage curves for the 50th and 70th percentiles of the given level of education. The black line is enlisted RMC, and the number above the black line is the percentile in the wage distribution for high school, some college, and associate's degree.

in RMC reflects the higher quality and higher pay of those permitted to remain in service. Comparing RMC to civilians with a bachelor's degree results in lower RMC percentiles; when RMC is compared with civilians with an associate's degree, RMC percentiles remain relatively high. But as reported in Table 2.1, 39 percent of E-8s and 55 percent of E-9s held a bachelor's degree in 2017. Thus, the bachelor's degree comparison reflects the higher levels of education attained by the senior enlisted force.

Officer RMC is at about the 85th percentile when compared with wages of civilians with a bachelor's degree in the early career (years 1 to 9) and rises from the 69th percentile to the 77th percentile from years 10 to 30 when compared with civilians with a master's degree or higher (Figure 2.3).

In comparing RMC with civilian pay overall, the QRMC computed a weighted average of the RMC percentiles based on the education distribution by rank at each year of service and then took the weighted average across years of service. For enlisted

Figure 2.3 Comparing Officer Regular Military Compensation to Wages of Civilians with a Bachelor's Degree, a Master's Degree, or Higher, 2017



SOURCES: Directorate of Compensation, 2017; U.S. Census Bureau, 2018.
NOTE: RMC percentile varies by years of service (1–9 = bachelor's degree, 10–30 = master's degree or higher). We weighted civilian-wage data by officer gender mix. Colored lines are smoothed wage curves for the 50th and 70th percentiles of the given level of education. The black line is enlisted RMC, and the numbers above the black line are the percentile in the wage distribution for a bachelor's degree and a master's degree or higher.

personnel, RMC is estimated to be at the 85th percentile of civilian wages for 0 to 20 years of service and at the 84th percentile of civilian wages for 0 to 30 years of service (Table 2.3). This is similar to the results obtained by the 11th QRMC, adjusting for differences in methodology,[6] and well above the 70th percentile of civilian pay even when accounting for the higher educational attainment of enlisted personnel since 1999.

For officers, the overall RMC is estimated to be at the 77th percentile of civilian wages for 0 to 20 years of service and at the 76th percentile for 0 to 30 years of

6. This QRMC used additional education categories for enlisted personnel and computed civilian years of experience and the weights differently than in the methodology used by the 11th QRMC. The differences in the two approaches are explained in depth in James Hosek, Beth J. Asch, Michael G. Mattock, and Troy D. Smith, *Military and Civilian Pay Levels, Trends, and Recruit Quality*, Santa Monica, Calif.: RAND Corporation, RR-2396-OSD, 2018, pp. 10–16, 28–30.

Table 2.3 Regular Military Compensation as a Percentile of Civilian Wages, 2009 and 2017

Personnel	2009 (11th QRMC)	2009 (Adjusted)	2017
Enlisted (0–20 years of service)	90	84	85
Enlisted (0–30 years of service)	–	–	84
Officer (0–20 years of service)	83	78	77
Officer (0–30 years of service)	–	–	76

NOTE: The adjustment made in the "2009 Adjusted" column corrects for the difference in methodology used in 2017.

service. Officers start their careers around the 79th percentile and then drop to around the 70th percentile at 20 years of service before climbing back to around the 80th percentile by year 30. Again, these results are similar to the findings of the 11th QRMC and show that RMC for officers exceeds the 70th percentile.

The QRMC also examined the degree to which RMC percentiles changed over time by computing RMC percentiles from 2000 to 2017 for select groups defined by education level and age. The results, which were similar across services, show that RMC percentiles overall increased from 2000 to 2010 and then stayed roughly constant through 2017. The increase was driven by several factors, including a restructuring of the basic pay table from 2001 to 2003, higher-than-usual increases in basic pay from FY 2000 to FY 2010, increases in BAH, and a downward trend in civilian wages that leveled off around 2012.

Recruit Quality and Military and Civilian Pay

Military compensation is one of the primary tools used by the services to attract and retain the quantity and quality of personnel needed. Given that both RMC and the RMC percentiles have increased substantially since 1999, the QRMC explored whether the quality of recruits over time has increased as well. The QRMC found that there appears to be a positive association between pay and quality for most of the services.

The QRMC focused on recruit quality as the measure of readiness in this analysis because DoD has identified two indicators that signal high quality in enlisted recruits:

(1) being a high school diploma graduate[7] and (2) scoring in the upper half of the Armed Forces Qualification Test (AFQT) distribution (categories I, II, and IIIA).[8] The Department's quality benchmarks are that 90 percent of nonprior-service accessions must be high school diploma graduates, and at least 60 percent must score above the average on AFQT.[9] The QRMC examined quality trends for recruits with no prior military service between 2000 and 2018 and observed changes in the percentage of high-quality accessions during this period.

Overall recruit quality increased between 2000 and 2018 for all services except the Army. Beginning in the 2008–2009 period, all the services experienced a significant jump in quality, which then trended downward a few years later, though the percentages of high school graduates and those with above-average AFQT scores still exceeded the DoD recruit quality benchmarks. The Air Force increased its percentage of high-quality recruits (categories I–IIIA high school diploma graduates) from 71.6 to 79.8 percent between 2000 and 2018, the Navy from 52.9 to 71.1 percent, and the Marine Corps from 59.6 to 68.1 percent (Figure 2.4). These services also maintained a high percentage of accessions with high school degrees—above 90 percent in most cases (Figure 2.5).

High-quality accessions for the Army fell after 2004, bottomed out in 2007, rebounded to its 2003 levels by 2010, and have since maintained close to that level. During this same period, Army nonprior-service accessions holding a high school degree also fell, to 68.5 percent in 2007. By 2010, high school graduate accessions reached higher than 90 percent—more in line with the other services.

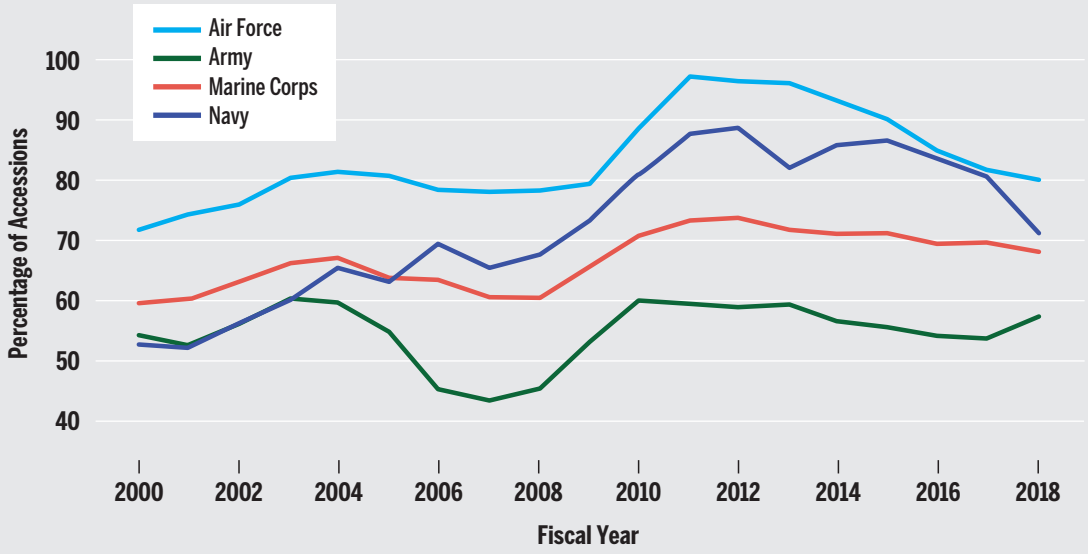
The Army's percentage of nonprior-service accessions in categories I–IIIA also declined after 2004 and have remained below 2004 levels since (Figure 2.6). Accessions in categories I–IIIA have varied considerably since 2000, though remain higher today than at that time. The Marine Corps has remained the most stable, at around 65 to 70 percent, though reaching somewhat higher levels between 2009 and 2016. The Navy percentage rose fairly steadily from a low in 2000 of 64.1 percent to a high in 2012 of 90 percent, dropping to 75.4 percent in 2018. Air Force levels were higher than the other services, reaching nearly 100 percent in 2011 and then falling to 82.8 percent in 2018.

7. A "high school diploma graduate" is someone who has at least a high school diploma and not exclusively a GED, associate's degree, professional nursing diploma, bachelor's degree, master's degree, post-master's degree, first professional degree, doctoral degree, postdoctorate work, or one semester of college completed.

8. AFQT comprises four sections from the Armed Services Vocational Aptitude Battery, which all enlisted recruits take. AFQT scores are reported in six categories: category I, 93–99; category II, 65–92; category IIIA, 50–64; category IIIB, 31–49; category IV, 16–30; and category V, 0–15.

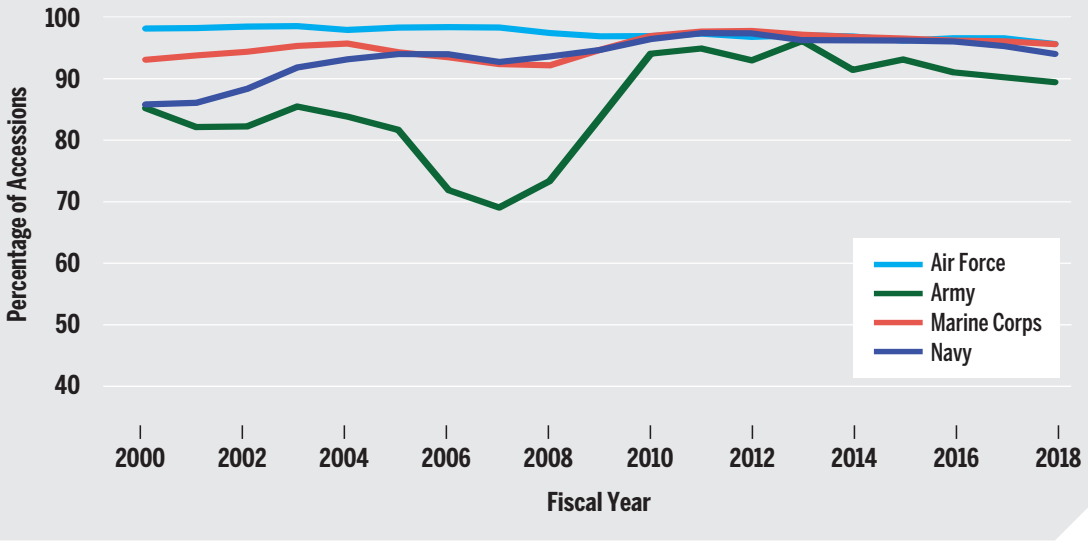
9. Congressional Research Service, "Defense Primer: Active Duty Enlisted Recruiting," Washington, D.C., updated January 16, 2020.

Figure 2.4 Percentage of Active Component Nonprior-Service Accessions Who Were Categories I–IIIA High School Diploma Graduates, by Service, Fiscal Year 2000–2018



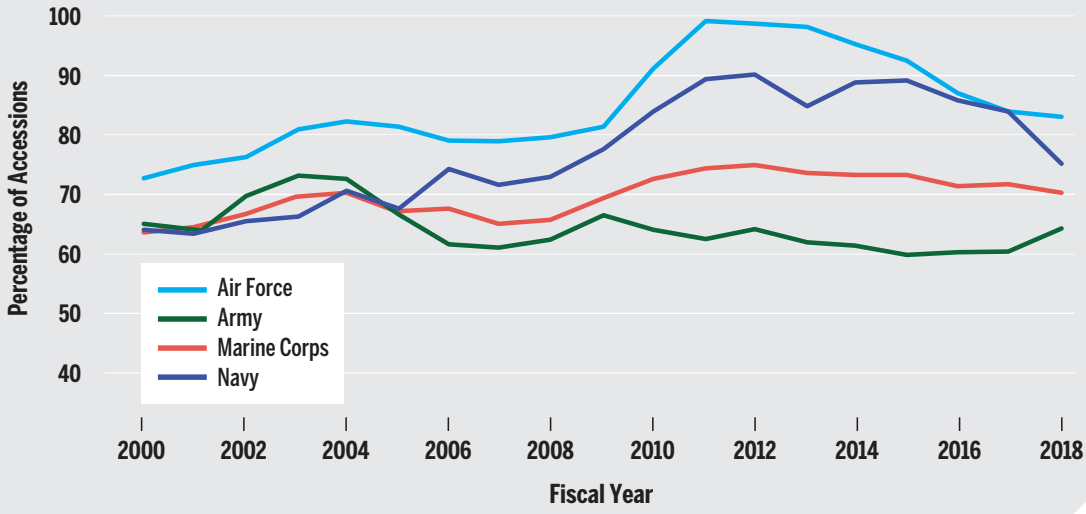
SOURCE: Office of People Analytics, undated.
NOTE: Category I-IIIA personnel are those who scored in the upper half of the AFQT score distribution.

Figure 2.5 Percentage of Active Component Nonprior-Service Accessions Who Were High School Diploma Graduates, by Service, Fiscal Year 2000–2018



SOURCE: Office of People Analytics, undated.

Figure 2.6 Percentage of Active Component Nonprior-Service Accessions Who Were Categories I–IIIA, by Service, Fiscal Year 2000–2018



SOURCE: Office of People Analytics, undated.
NOTE: Category I–IIIA personnel are those who scored in the upper half of the AFQT score distribution.

Today, all the services exceed the quality benchmarks for enlisted personnel of 90 percent or more high school diploma graduates and 60 percent or more accessions in categories I–IIIA.

These trends alone do not reflect all of the factors that are related to high-quality accessions. Many other factors are at play, including enlistment bonuses, recruiting goals, deployment, unemployment, and changes in educational benefits that occurred after 2009. The QRMC used regression analysis techniques to control for some of these other variables in order to isolate the relationship between recruit quality and relative military and civilian pay. With the exception of the Army, the results of this analysis showed a positive association between enlisted recruit quality (high school diploma graduates and AFQT scores in categories I, II, and IIIA) and increases in RMC relative to civilian wages.

Controlling for the other factors, the Navy, Marine Corps, and the Air Force increased quality over time as both wages and the recruiting rates for categories I and II increased. The Marine Corps also increased the recruiting rate for categories IIIA and IIIB. For the Army, the increase in RMC relative to civilian wages was associated with no change in the category I recruiting rate and, contrary to what one might expect, lower recruiting rates in categories II, IIIA, and IIIB. The services also took in more accessions who were not high school diploma graduates across various AFQT categories. It is important to note that these results indicate an association between pay and high-quality accessions, not a causal effect of military or civilian pay on recruiting outcomes.

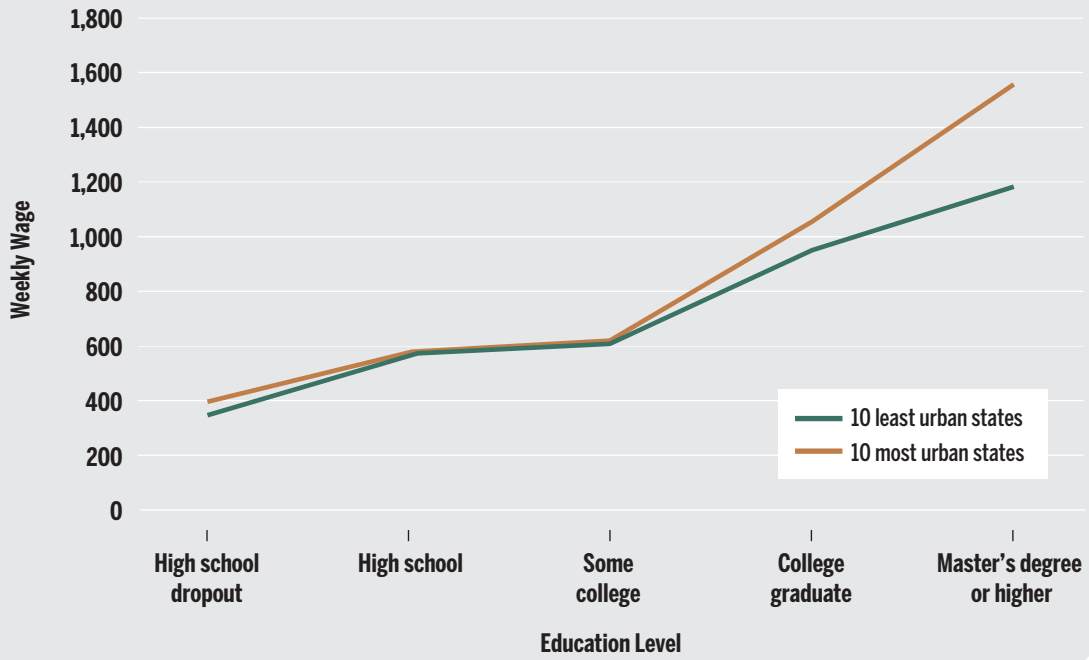
Geographic Differences in Pay

The military and civilian pay comparisons discussed previously in this chapter examined pay at the national level. RMC was compared with civilian pay across the United States, which provided a summary view of military pay relative to civilian pay. This is appropriate given that basic pay, which is the foundation of RMC, is the same for all service members regardless of the location of their assignment. But local job markets could influence recruiting decisions in that recruits are likely to consider how military pay compares to job opportunities and pay in their local area. If military and civilian pay comparisons vary by region, this information could be important to the decisions the military services make in allocating recruiting resources. That said, more information is needed to better understand the extent to which pay comparisons at the local rather than the national level influence both recruiting and retention decisions and the extent to which pay supplements, such as BAH, help to make pay competitive in different areas.

In past decades, pay in urban areas was typically higher than pay in less urban areas for all individuals, whether employed in highly skilled or less-skilled jobs. But in recent years, the structure of wages in urban and nonurban regions of the country has shifted, and this shift affects how RMC compares with civilian pay in different regions. In the last several years many relatively high-paying jobs that were previously performed by individuals with less formal education have been automated or outsourced. Workers who held those positions moved to lower-paying positions in the service sector.[10] As a result, for workers with less formal education, wages are no longer higher in urban areas compared with less urban areas—though the wage premium in urban areas for high-skilled work still exists. Figure 2.7 illustrates this trend.

10. Daron Acemoglu and David Autor, "Skills, Tasks and Technologies: Implications for Employment and Earnings," in Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Vol. 4B, Amsterdam, North Holland: Elsevier, 2011, pp. 1043–1171; Daron Acemoglu and Pascual Restrepo, *Robots and Jobs: Evidence from US Labor Markets*, National Bureau of Economic Research (NBER) Working Paper No. 23285, Cambridge, Mass., 2017; Daron Acemoglu and Pascual Restrepo, "The Race Between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment," *American Economic Review*, Vol. 108, No. 6, 2018, pp. 1488–1542; Ahmad Alabdulkareem, Morgan R. Frank, Lijun Sun, Bedoor AlShebli, César Hidalgo, and Iyad Rahwan, "Unpacking the Polarization of Workplace Skill," *Science Advances*, Vol. 4, No. 7, 2018; David Autor, "Why Are There Still So Many Jobs? The History and Future of Workplace Automation," *Journal of Economic Perspectives*, Vol. 29, No. 3, 2015, pp. 3–30; David Autor, "Work of the Past, Work of the Future," Richard T. Ely Lecture, *American Economic Association: Papers and Proceedings*, Vol. 109, No. 5, May 2019, pp. 1–32; David H. Autor and David Dorn, "The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market," *American Economic Review*, Vol. 103, No. 5, 2013, pp. 1553–1597; David H. Autor, Lawrence F. Katz, and Melissa S. Kearney, "The Polarization of the U.S. Labor Market," *American Economic Review*, Vol. 96, No. 2, 2006, pp. 189–194; David H. Autor, Frank Levy, and Richard J. Murnane, "The Skill Content of Recent Technological Change: An Empirical Exploration," *Quarterly Journal of Economics*, Vol. 188, No. 4, 2003, pp. 1279–1333.

Figure 2.7 Weekly Wages by Education Level in the Ten Most Urban States and Ten Least Urban States, 2014–2017



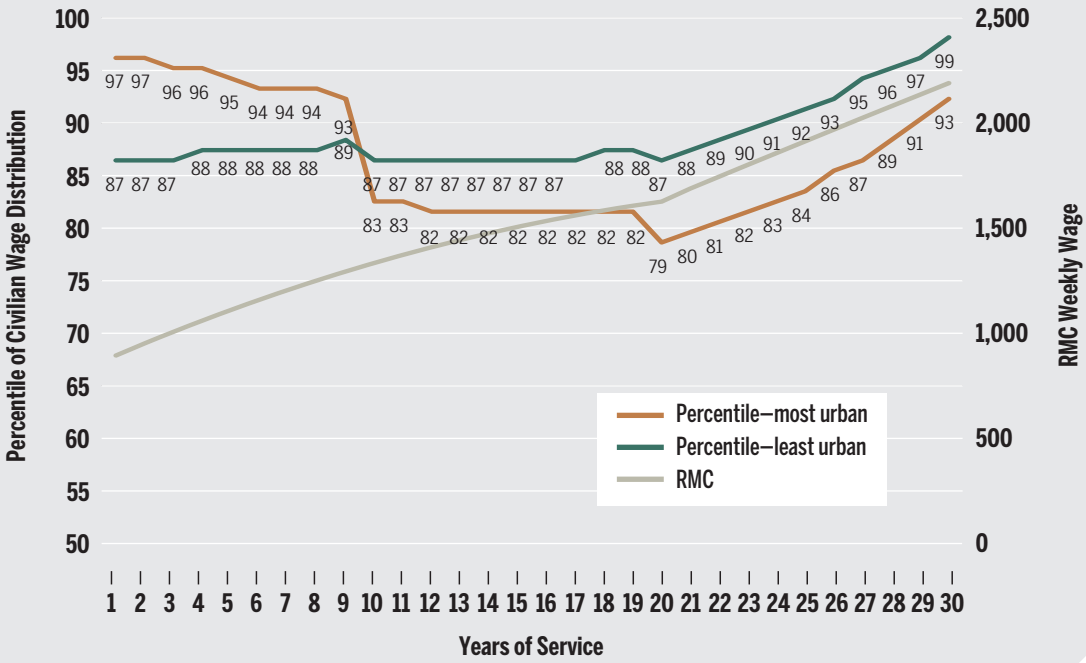
SOURCES: U.S. Census Bureau, 2010, 2018.
NOTE: Median weekly wages are in 2017 dollars.

During the period 2014–2017, median weekly wages for high school dropouts, high school graduates, and workers with some college education were nearly the same in the ten most urban states and the ten least urban states.[11] But those with higher levels of education earn higher wages in more urban areas. These trends in civilian wages can have implications for recruiting. In the past, military service was less competitive in more urban areas than less urban areas for both higher- and lower-skilled workers. But the shift in the urban labor market for lower-skilled workers suggests that military service may now be as competitive for lower-skilled workers—who are a prime market for the enlisted force—in both more urban and less urban areas. Thus, targeting cities may be a viable recruiting strategy for some services.

When comparing enlisted RMC with RMC percentiles for workers with high school diplomas, some college, and an associate's degree in 2017, RMC percentiles are higher for enlisted personnel in more urban areas than less urban areas early in their careers, from 1 to 9 years of service (Figure 2.8). But as years of service increase, this pattern reverses and RMC percentiles are higher in less urban areas—a

11. For a description of how the states were categorized see Smith, Asch, and Mattock, in Volume II of this report.

Figure 2.8 Enlisted Regular Military Compensation and Regular Military Compensation Percentiles for Full-Time, Full-Year Workers with High School Diploma, Some College, and Associate's Degree in the Most and Least Urban States, 2017



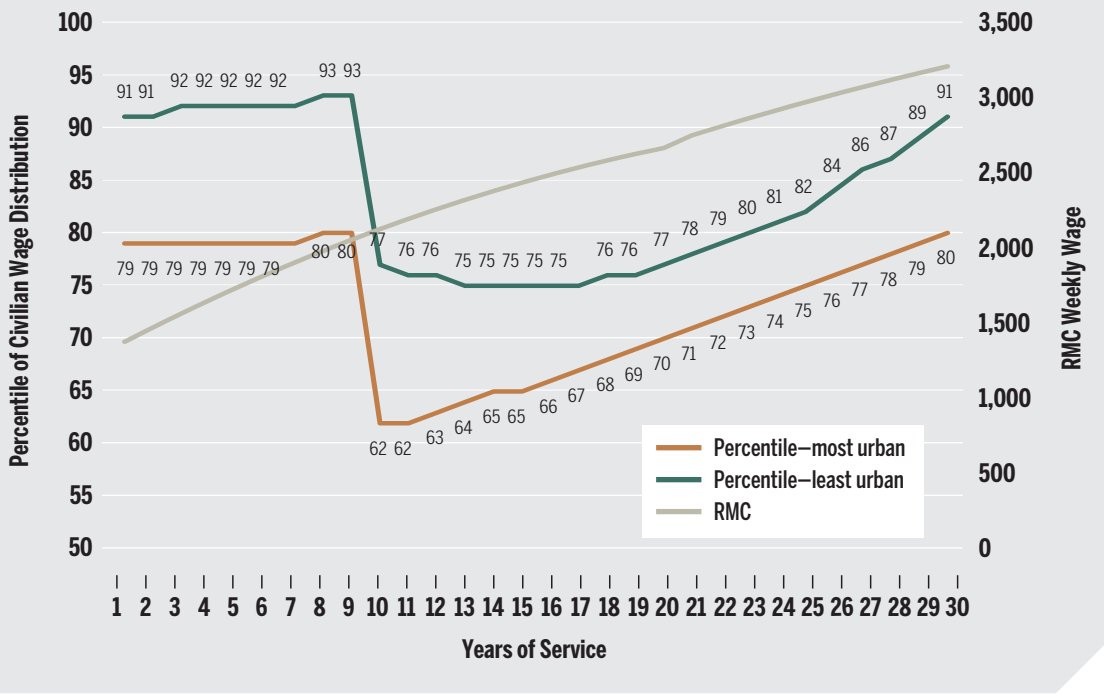
SOURCES: Directorate of Compensation, 2017; U.S. Census Bureau, 2018.
NOTE: RMC percentile varies by years of service (1–9 = high school, 10–19 = some college, and 20–30 = associate's degree). Civilian-wage data is weighted by enlisted military gender mix. The gray line is enlisted RMC. Data are smoothed.

phenomenon that occurs because RMC is being compared with civilians with more formal education. The difference between the percentiles in the least and most urban states is 5 or 6 percentiles between 12 and 18 years of service but widens to 8 percentiles by 20 years of service.

For officers RMC is compared with civilian workers with a bachelor's or master's degree or higher (Figure 2.9). The pattern of RMC percentiles in the least and most urban states is somewhat similar to that of enlisted personnel, but, for officers, RMC in the least urban areas is consistently above the percentiles in more urban areas for an entire 30-year career. This difference, which is more than 10 percentiles in most cases, occurs because of the higher wages of civilian workers in urban areas.

Traditionally wages have been lower in less urban areas, so it is not surprising that RMC would compare more favorably with wages for workers with more formal education in less urban areas. However, for less-educated workers, the pay difference between more and less urban areas is now much smaller; and for those with only a high school degree, wages may now be higher in less urban areas. As a result, enlisted members

Figure 2.9 Officer Regular Military Compensation and Regular Military Compensation Percentiles for Full-Time, Full-Year Workers with Bachelor's Degree or with Master's Degree or Higher in the Most and Least Urban States, 2017



SOURCES: Directorate of Compensation, 2017; U.S. Census Bureau, 2018.
NOTE: RMC percentile varies by years of service (1–9 = high school, 10–19 = some college, and 20–30 = associate's degree). Civilian-wage data is weighted by enlisted military gender mix. The gray line is enlisted RMC. Data are smoothed.

with a high school degree are more likely to find RMC equally competitive no matter where they live (and perhaps even more competitive in urban areas). In contrast, officers are generally going to find military pay more competitive in less urban areas. The implications of these patterns for military recruiting and retention were not explored within the scope of the 13th QRMC and will require further research.

Recommendations

- **Refrain from providing targeted pay raises at this time, since average RMC is more than adequate compared with civilian pay.**

  Research conducted by the 9th QRMC revealed that military pay lagged substantially behind civilian pay for midgrade officers and enlisted personnel. Targeted pay raises were recommended for service members in these middle grades to close these gaps. Today, however, RMC compares favorably to civilian pay across the force, which eliminates the need for similar pay adjustments. There are, of course, particular occupations, such as cyber and special operations, where military pay falls behind pay in the civilian labor market. When

this occurs, such tools as special and incentive pays can be used to ensure military pay is more competitive. Across-the-board or targeted pay increases are far too expensive a solution for occupation-specific pay disparities.

- **Continue to periodically ensure military pay compares favorably to the 70th-percentile benchmark.**

  When the 9th QRMC identified the 70th percentile as an appropriate benchmark, DoD recommended and Congress enacted targeted pay raises. DoD has periodically conducted studies to determine how RMC compared with this benchmark and determined that such reviews were of value. DoD should continue to periodically determine how RMC compares to this benchmark and should determine whether the benchmark continues to allow it to recruit and retain a quality force.

- **Conduct a study that examines a more expansive view of military compensation to include RMC plus special and incentive pays targeted toward recruiting and retention.**

  This study was limited to RMC. However, special and incentive pays provide targeted incentives for recruiting and retention. Including these additional elements of pay in a compensation study could provide a better view of the relationship between compensation and recruiting and retention.

- **Determine whether the services need a measure of officer quality at accession.**

  DoD currently has quality benchmarks for the enlisted force at accession—90 percent nonprior-service high school graduates and at least 60 percent with scores above the average on the AFQT. No comparable benchmarks exist for officers, but having such a measure would allow the services to compare officer quality over time. The QRMC recommends that the Department examine whether there is a need for officer quality metrics at accession and, if so, determine what those metrics should be.

- **Consider conducting a study on geographic differences in RMC percentiles.**

  Geographic differences in pay relative to RMC can influence individual recruiting decisions. As the structure of pay evolves—such as has recently occurred between urban and less urban areas—it could have an impact on how the military services recruit. More research is needed to better understand the extent to which pay comparisons at the local rather than the national level influence both recruiting and retention decisions and the extent to which components of RMC, such as BAH, help to make pay competitive in different areas.

Chapter THREE
Contributing to the Thrift Savings Plan Under the Blended Retirement System

In January 2018, DoD implemented the BRS—a major overhaul of the legacy retirement system. One component of the BRS was the establishment of DoD automatic and matching contributions to the TSP. With this mechanism, service members who exit prior to qualifying for a pension would still earn some retirement benefit. However, BRS participants who remain in service for a full career must proactively save for retirement, or they will receive lower pension payments on retirement than under the legacy system.

The QMRC examined the contribution patterns of BRS participants in 2018 (the first year of BRS), to determine whether contributions differ between those who are automatically enrolled and those who choose to participate and whether contributions differ based on other factors such as service or pay grade, and to assess whether the observed trends suggest any actions that the Department should take to motivate increased savings by service members and improve outcomes. The results of this analysis, which identified considerable differences in retirement savings rates among BRS participants, are reported in this chapter.[1]

In the sections that follow, findings for the Marine Corps are often reported separately due to differences in data from the Defense Manpower Data Center, which provided data for the Marine Corps, and data from the TSP Office, which provided data for the Army, Navy, and Air Force. In some areas the QRMC conducted additional analysis on Marine Corps contributions only because similar data were unavailable for the other services. Before turning to these findings, we begin with an overview of the BRS.

How the Blended Retirement System Works

Military personnel receive a compensation package that includes cash compensation, in-kind benefits, and deferred benefits. Retired pay is one of the key components of deferred compensation. For decades the U.S. military's legacy retirement system provided a defined benefit plan that was vested on 20 years of service. Growing criticism of this plan has focused on three concerns: (1) the one-

1. The discussion and research findings reported in this chapter are drawn from Dan Leeds, Josh Horvath, and Chris Gonzales, *Thrift Savings Plan Contributions Under the Blended Retirement System*, CNA, a supporting research paper in Volume II of this report. This research paper contains detailed discussion of the data and methodology supporting these findings and additional results. The analysis is based on data from the Defense Manpower Data Center pay records and the TSP Office.

size-fits all nature of the plan made it an inflexible force-shaping tool, (2) the plan was inefficient because service members, who are generally younger, place a higher value on current income over deferred income, and (3) the legacy system was inequitable because most officers and enlisted personnel do not reach the 20 years of service required to receive benefits.[2]

In FY 2013, the NDAA established the Military Compensation and Retirement Modernization Commission to review and make recommendations regarding compensation and retirement reform in the military.[3] Based on recommendations from the commission, the FY 2016 NDAA established the BRS to be implemented in January 2018.[4] The goals of the new retirement system were to maintain the current force structure, reduce personnel costs, and provide some retirement benefits to members who leave military service before 20 years.[5]

Blended Retirement System Eligibility

BRS eligibility is determined by date of entry into the military or uniformed services and years of service.[6]

- Service members entering on or after January 1, 2018, were automatically enrolled in the BRS and do not participate in the legacy system.
- Active component personnel with less than 12 years of service, who entered before January 1, 2018, and guard and reserve component personnel in a paid status who had accrued fewer than 4,320 points as of December 31, 2017 were eligible to opt in to the BRS between January 1, 2018, and December 31, 2018. Those who did not opt in remained in the legacy system.
- Those with 12 or more years of active service or more than 4,320 points for guard and reserve service were ineligible to enroll in the BRS and remained under the legacy system.

The QRMC's analysis focused on contribution patterns of participants who were automatically enrolled and participants who opted in.

2. Beth J. Asch, Michael G. Mattock, and James Hosek, *Reforming Military Retirement: Analysis in Support of the Military Compensation and Retirement Modernization Commission*, Santa Monica, Calif.: RAND Corporation, 2015.

3. Public Law 112-239, National Defense Authorization Act for Fiscal Year 2013, 2012.

4. Public Law 114-92, National Defense Authorization Act for Fiscal Year 2016, 2015.

5. Jared M. Huff, Mikhail Smirnov, Gregg Schell, and James E. Grefer, (U) *Estimating the Retention Effects of Continuation Pay*, CNA, DRM-2018-U-017177-Final, 2018; James E. Grefer, (U) *Military Retirement Reform: An Initial Look at Potential Effects on Navy and Marine Corps Personnel*, CNA, DRM-2016-U-013523-Final, 2016.

6. This is the date of initial entry to military service or the date of initial entry to the uniformed services.

Elements of the Blended Retirement System

The BRS instituted four main changes to the military retirement system.[7] Each of them is reviewed here because service members make contributions to the TSP in the context of the full retirement benefit as it pertains to their personal circumstances.

1. *The establishment of DoD automatic and matching contributions to the TSP*.[8] The TSP is a defined contribution plan, which means that its retirement value depends on the contributions of the employer and employee and on market performance after contributions. The military services automatically contribute 1 percent of basic pay to service member plans starting 60 days after entry into service whether the member contributes or not. Service members can make additional contributions within the limits set by the Internal Revenue Service. In addition, the services will match up to 4 percent of basic pay after 2 years of service if a service member contributes 5 percent of basic pay (Table 3.1).

   When automatically enrolled in the plan, service member contributions are set at 3 percent of basic pay, but members can adjust this amount at any time. For auto-enrolled service members, matching starts after 2 years of service. Service members who opted in to the BRS had the ability to choose their initial contribution rates and receive service matching contributions immediately regardless of years of service. Service members are immediately vested (have ownership) in their own contributions and any matching contributions but become vested in the service automatic funds after 2 years of service. Thus, the BRS allows service members to receive some retirement benefits if they serve less than 20 years. Service members who do not participate in the BRS can still contribute to the TSP but do not receive matching contributions.
2. *The reduction of the defined benefit plan monthly annuity payment multiplier*. The BRS has a defined benefit component as does the legacy system. The difference is that under the BRS, the defined benefit multiplier was changed from 2.5 percent to 2.0 percent. The formula for calculating the monthly pension payment for life is 2.0 percent x years served x average of highest 36 months of basic pay. This implies that the longer the service, the higher the monthly pension payment. Payments are adjusted for cost of living over time.

7. Public Law 112-239, National Defense Authorization Act for Fiscal Year 2013, 2012.

8. The TSP has existed since 1986 as a federal program available to civilian employees. In FY 2001, the Floyd D. Spence National Defense Authorization Act extended the TSP to military personnel. In general, service members did not receive matching contributions until the establishment of the BRS. See Gerry J. Gilmore, "Military TSP Savings Plan Enrollments Start Oct. 9," *DoD News*, August 20, 2001.

Table 3.1 Service Member and Service TSP Contributions Under the Blended Retirement System

Service Member Contribution (percentage)	Service Automatic Contribution (1 percent)	Service Matching Contribution (percentage)	Total Contribution (percentage)
0.0	1.0	0.0	1.0
1.0	1.0	1.0	3.0
2.0	1.0	2.0	5.0
3.0	1.0	3.0	7.0
4.0	1.0	3.5	8.5
5.0	1.0	4.0	10.0
>5.0	1.0	4.0	>10.0

3. *The establishment of continuation pay*. Active duty service members, National Guard, and reserve component service members in a pay status are eligible for continuation pay when they complete between eight and 12 years of service. (Continuation pay is calculated from the service member's Pay Entry Base date.) Active component service members (including Active Guard and Reserve and full-time support) enrolled in the BRS are eligible for a cash incentive of between 2.5 to 13 times regular monthly basic pay. Reserve component members are eligible for 0.5 to 6 times monthly basic pay (as if serving on active duty). Each service publishes guidance related to continuation pay rates annually. Currently, all of the Armed Forces are offering this pay for active duty and reserve duty members at 12 years of service, except for the Army Reserve which is offering this pay at 11 years of service. The multiplier is set at 2.5 for active duty and 0.5 for reserve duty, except for the Army Reserve and Army National Guard which is set at 4. All active and reserve components at this time require an additional four years of service.[9] But the services have flexibility to adjust the timing and amount based on retention needs. Continuation pay offsets potential declines in retention due to the decreased define benefit multiplier. Service members may contribute continuation pay to the TSP.
4. *The establishment of a lump-sum retirement option*. Between the age of military retirement (after 20 or more years of service) and the age of Social Security retirement, service members may elect to receive a portion of their future retirement payments in a discounted lump sum paid at the time of retirement from military service. Service members can choose to receive 25 or

9. Department of Defense, "Continuation Pay Rates—2020," as of January 17, 2020, Washington, D.C., 2020. The U.S. Public Health Service offers continuation pay at the ten-year service mark.

50 percent of future payments. Monthly retired pay from the time of retirement until Social Security retirement age will be 75 or 50 percent of the full monthly value if the lump-sum option is chosen. Once a person reaches full Social Security age, which is usually 67, the payments will revert to their full value. The lump sum election must be made no less than 90 days before retirement.

Overall Differences in Contribution Rates

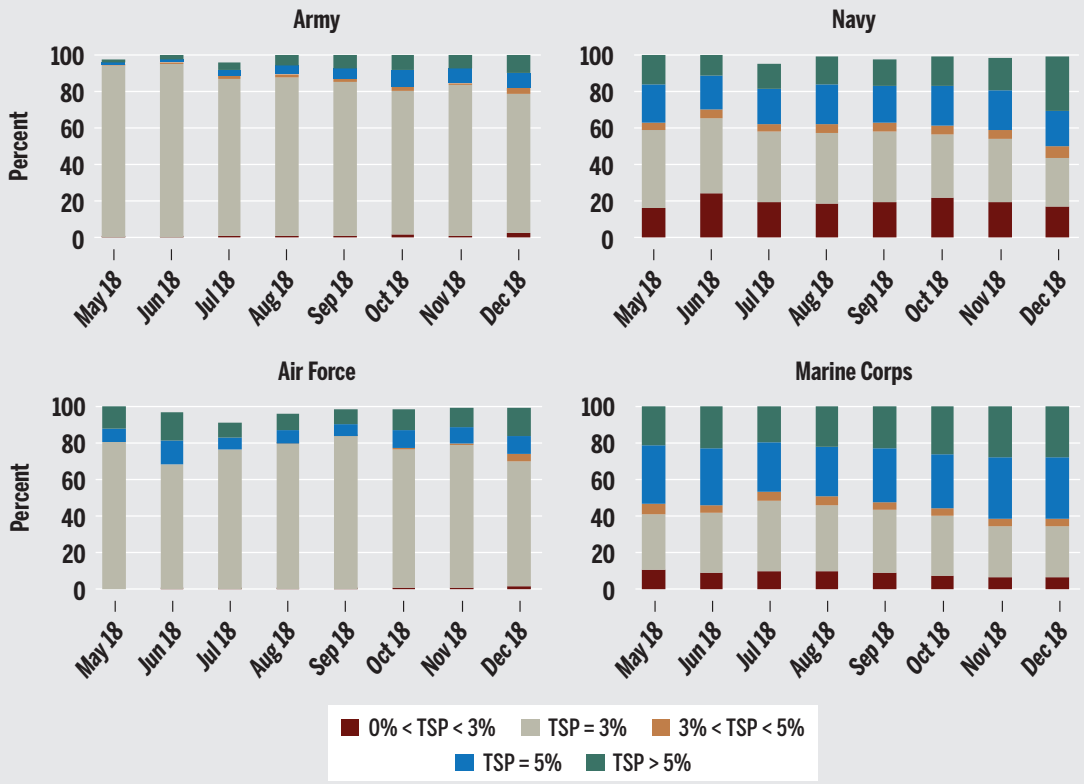
Clear service-level differences emerge in the amount that auto-enrolled participants contribute to TSP. Army and Air Force participants were much more likely than Navy or Marine Corps members to make the default TSP contribution of 3 percent of basic pay, likely reflecting service-level differences in BRS implementation. Figure 3.1 shows contribution patterns by service members who were automatically enrolled in the BRS in the Army, Navy, Air Force, and Marine Corps from May through December 2018—the period in which complete data were available for all four services. The gray segments in the figure indicate the 3-percent TSP contribution rate, which, as illustrated, dominates the contributions for Army and Air Force participants.

In every month since May 2018, at least 75 percent of auto-enrolled Army participants and 67 percent of auto-enrolled Air Force participants contributed 3 percent to the TSP, but fewer than 45 percent of Navy participants contributed 3 percent. Marine Corps data demonstrated contribution patterns but did not allow for a calculation of how many were contributing 3 percent.[10] The higher contributions reflected in Navy and Marine Corps data for auto-enrolled participants should reflect a higher desired savings level because matching contributions (beyond the automatic 1-percent contribution) do not begin until the 25th month of service. Those auto-enrolled in early 2018 would not have reached that point until early 2020.

However, while auto-enrolled Navy and Marine Corps participants were more likely to contribute at least 5 percent to the TSP (compared with those in the Army and Air Force), the Navy participants were also more likely than those in the other services to contribute less than 3 percent of basic pay. Over the second half of 2018, Army and Navy participants gradually became less likely to contribute the default rate while the percentage contributing over 5 percent increased. However, Air Force participants became more likely to contribute the default rate through September 2018, likely reflecting the fact that the sample of airmen was both smaller and grew at a different rate than the samples of Army and Navy participants.

10. Calculations for auto-enrolled Marines omit those contributing 0 percent, as this frequently indicates that the Marine has recently enlisted and does not yet have a TSP account. The results therefore understate the share of Marines contributing 0 percent or contributing any amount less than 5 percent and overstate the share of Marines at each other contribution level.

Figure 3.1 Thrift Savings Plan Contribution Rates for Auto-Enrollees in 2018, by Service



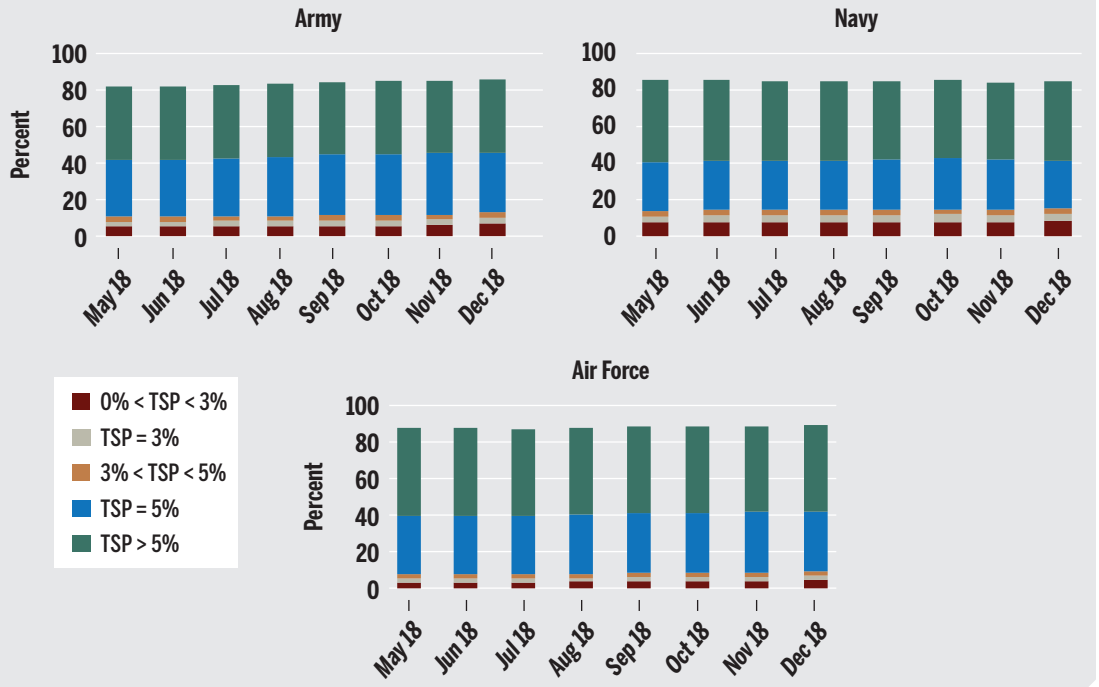
SOURCE: TSP Office and Defense Manpower Data Center.
NOTE: Data displayed do not include contributions equal to zero.

Marine Corps participants tended to contribute 5 percent or more at higher rates than the other three services.

Service members who opted in are more likely to contribute more than the default rate of 3 percent. Figure 3.2 shows the corresponding enrollment rates for the Army, Navy, and Air Force who opted in to the BRS over the same period, May through December 2018. (Comparable Marine Corps data were not available.) As a rule, service members who opted in to the BRS contributed different amounts to the TSP than those who were automatically enrolled. In any month, auto-enrolled participants in the Navy were over six times more likely than those who opted in to contribute 3 percent; and corresponding ratios for Army and Air Force participants were even higher.

In general, service members who opted in to the BRS were more likely than auto-enrollees to appear in any contribution category above 3 percent. This may be because they are immediately eligible for matching contributions and must

Figure 3.2 Thrift Savings Plan Contribution Rates for Opt-ins in 2018, for the Army, Navy, and Air Force



SOURCE: TSP Office.
NOTE: Data displayed do not include contributions equal to zero.

contribute at least 5 percent to receive the full match and because selecting a contribution rate is part of the opt-in process. Those who opt in also tend to be older and likely have higher incomes.

Although data for BRS enrollment status in the Marine Corps were not available, it was possible to observe TSP contribution patterns of Marines who were eligible for BRS compared with those who were not. *Both Marines who were eligible for the BRS and those who were ineligible became much more likely to contribute to the TSP in the May 2017 pay data, likely reflecting both corps-wide education on the BRS that began the year prior to implementation and positive spillover effects*. After eligible Marines were able to opt in to the BRS in 2018, contribution patterns became more stable, and the share of participants contributing 5 percent and contributing more than 5 percent increased in every month in 2018. The share of participants contributing less than 3 percent dropped gradually over the same year. This suggests that Marines who opted in to the BRS and had to choose a contribution level were disproportionately likely to seek the maximum matching level.

In addition to the contribution patterns observed, another important observation is that *service members from all four services frequently failed to maximize the amount of matching funds that they were eligible to receive*. As shown in Table 3.2, the majority of participants automatically enrolled in the BRS did not contribute enough (5 percent) to receive the full TSP matching contribution. Here again, service disparities are evident. Fewer Navy and Marine Corps auto-enrollees contributed less than 5 percent compared with auto-enrollees in the Army and Air Force. This is consistent with previous findings that Army and Air Force BRS participants were more likely to contribute at the default contribution rate of 3 percent.

These differences suggest that the services presented the default contribution rate differently to auto-enrolled service members and that Navy and Marine Corps members may have received greater encouragement to select contribution rates other than the default. It is also possible that some Army and Air Force auto-enrollees may be waiting to increase their contributions until they are eligible for matching funds—something that cannot be assessed until their behavior in 2020 and beyond can be observed—or had more immediate needs for the money.

For those BRS participants who opted in to the program, a much larger percentage contributed more than 5 percent. Differences in the percentage of participants contributing less than 5 percent among the Army, Navy, and Air Force are much smaller for those who opted in. These results suggest that the more substantial differences seen among auto-enrollees may be explained by how default contribution rates are presented during orientation to the program or the degree of training

Table 3.2 Thrift Savings Plan Contributions by Service, December 2018

	Auto-Enrollees		Opt-Ins[b]	
Service	No Contribution (percentage)	Less than 5 Percent	No Contribution (percentage)	Less than 5 Percent (percentage)
Army	1.1	82.2	14.2	27.1
Navy	0.4	50.6	14.1	29.6
Air Force	1.5	75.1	11.5	21.0
Marine Corps	N/A[a]	38.2[a]	37.7[b]	54.1[b]

SOURCE: Defense Manpower Data Center and TSP office.

[a] Calculations for auto-enrolled Marines omit those contributing 0 percent, as this frequently indicates that the Marine has recently enlisted and does not yet have a TSP account. These results therefore understate the share of Marines contributing 0 percent or contributing any amount less than 5 percent.

[b] Calculations reflect BRS-eligible Marines rather than those who opted in. Because those who did not opt in had much lower incentives to contribute any given amount, they are disproportionately unlikely to have done so. These results should not be directly compared with those for the other three services.

received. Another interesting observation is the number of participants who opted in that did not make any contributions at all, which may signal lack of interest in staying in service for 20 years. Marine Corps data for opt-ins is not directly comparable, but changes in contribution levels over time among eligible Marines may reflect more Marines opting in to the BRS rather than changes among those who already have opted in.

The contribution patterns observed among BRS participants by eligibility category align with findings in the civilian research literature. Studies show that, under automatic enrollment, employees are likely to keep the automatic contribution rate.[11] Providing a default contribution rate will lead to many more service members selecting that contribution level, yet the choice of a default contribution rate could be used to encourage optimal savings behavior. The Federal Retirement Thrift Investment Board has recently announced that the default contribution rate for service members enrolling on or after October 1, 2020 will increase to 5 percent. With this change, service members entering after this date will probably be more likely to contribute 5 percent and, in doing so, be more likely to maximize matching contributions received.

Other Observed Differences in Thrift Savings Plan Contribution Rates

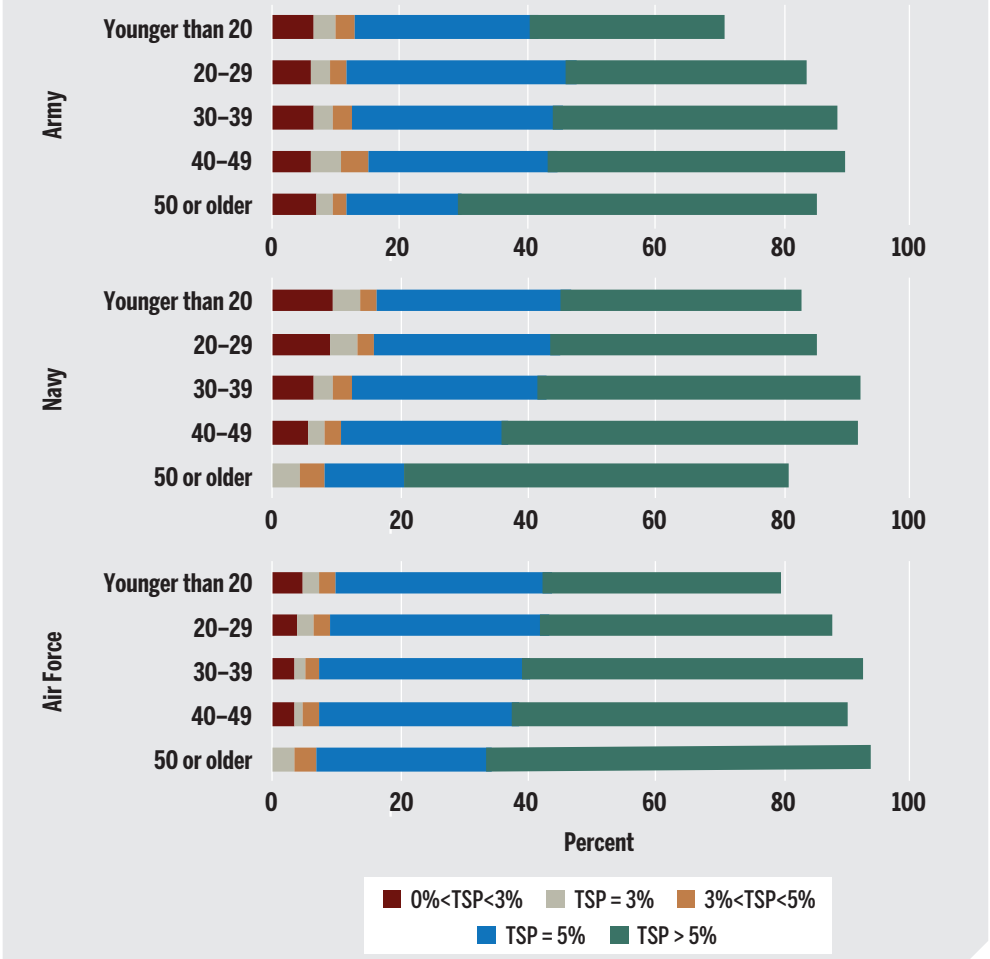
In the research literature on civilian retirement savings, age and income can affect retirement contributions. *Analysis of the effect of age, RMC, and pay grades (both for enlisted personnel and officers) on retirement savings exhibited clear correlations with BRS contribution levels*.

Older service members in the Army, Navy, and Air Force who are automatically enrolled in the TSP are less likely to contribute at the default 3-percent contribution. Within these services, a larger percentage of older participants who opt in contribute over 5 percent and a smaller percentage contribute nothing (Figure 3.3). Opt-in participants in the Army, Navy, and Air Force of all ages are less likely than auto-enrollees of any age group to contribute 3 percent.

Using data only for the Marine Corps, the QRMC was able to examine contribution rates by pay grade and RMC. Contribution rates appear to be strongly correlated

11. James J. Choi, David Laibson, Brigitte Madrian, and Andrew Metrick, "Defined Contribution Pensions: Plan Rules, Participation Decisions, and the Path of Least Resistance," *Tax Policy and the Economy*, Vol. 16, 2002, pp. 67–113; Brigitte Madrian and Dennis F. Shea, "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior," *Quarterly Journal of Economics*, Vol. 116, No. 4, 2001, pp. 1149–1187.

Figure 3.3 Thrift Savings Plan Contribution Rates by Age Among Opt-in Participants for the Army, Navy, and Air Force, September 2018



SOURCE: TSP Office.
NOTE: Data displayed do not include contributions equal to zero.

with both pay grade and RMC; however, it is likely that RMC is the more relevant factor. Among eligible enlisted Marines, for example, E-5s or higher were more likely than those at E-3 or E-4 to contribute over 5 percent to TSP in September 2018. These patterns may occur because Marines with low incomes may wish to prioritize immediate needs over future savings, limiting the effectiveness of matching plans. However, this result might also be explained by such factors as rating, BAH, officership, or other characteristics separate from RMC itself. That said, older Marines who are eligible for the BRS, as well as those who are ineligible, are more likely to contribute over 5 percent to their TSP account, suggesting that earnings play some role in contribution levels.

The Elective Deferral Limit

Some service members may be contributing to the TSP at too high a rate, thereby forgoing matching funds by reaching the elective deferral limit prior to December. Matching funds are contributed each pay period and are determined by the percentage of basic pay contributed in that month. Therefore, the timing of TSP contributions matters as much as the amount contributed.

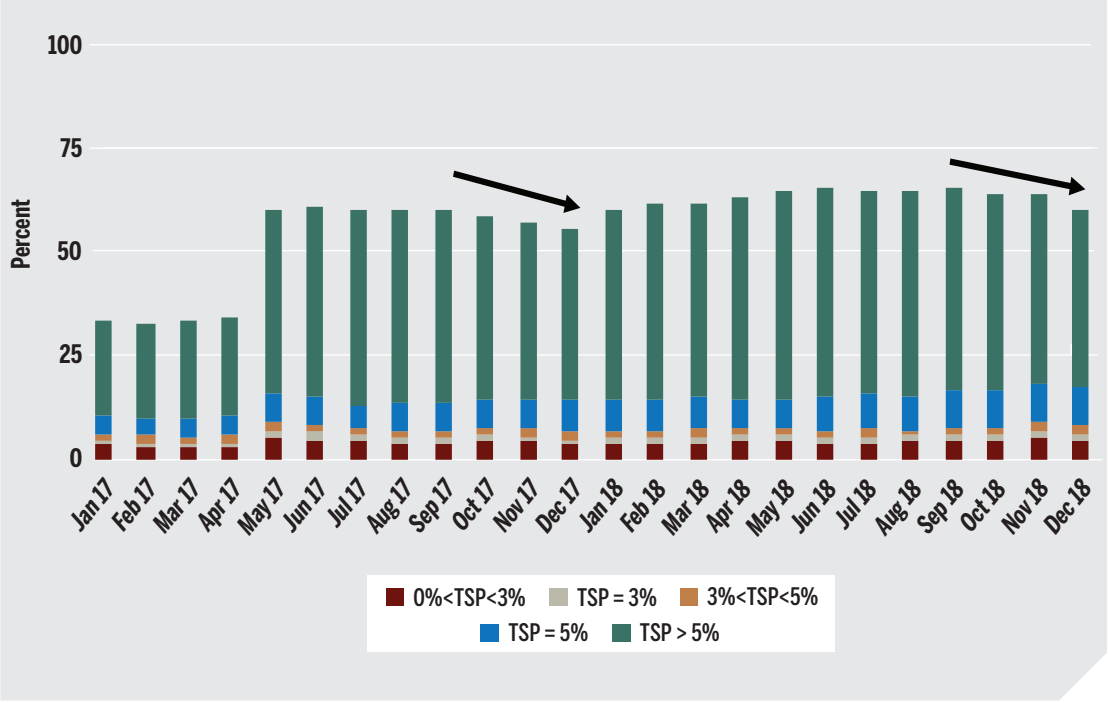
TSP contributions are capped by law in a number of ways. Contributions made directly by employees are limited on an annual basis ($18,500 in 2018), a cap referred to as the *elective deferral limit*. The total of employee contributions and the automatic and matching contributions made by employers is also limited each year ($55,000 for 2018). If service members reach the TSP elective deferral limit prior to the end of the year, they will continue to receive the automatic 1-percent contribution each month but will forgo matching funds for those months in which they cannot contribute.

To illustrate using an extreme example, a service member who contributes 36 percent of his or her basic pay in one month and nothing for the rest of the year receives 5-percent matching funds in January and the 1-percent automatic contribution in the remaining months for a total of 16 percent of monthly basic pay for the year. Another service member who contributes 3 percent of the same basic pay each month will receive contributions of 4 percent each month, for a total of 48 percent of monthly basic pay.[12] Any month in which a service member is unable to contribute because he or she has reached the elective deferral limit results in some loss of matching contributions.

Analysis of contributions made by eligible Marine Corps O-4s showed evidence of members reaching the elective deferral limit. As shown in Figure 3.4, toward the end of the year, these Marines become less likely to make any contribution. They also become less likely to contribute over 5 percent to the TSP. Although data limitations prevent observation of total contribution amounts, the decline in contributions observed is evidence that some Marine O-4s reach the contribution limits prior to the end of the year. Currently, relatively few Marines reach the elective deferral limit earlier in the year, but the issue could become more salient in the future as enrollees gain additional years of service and higher basic pay rates.

12. Although this case is extreme for exemplary purposes, service members are permitted to contribute certain pays, such as deployment pays, or certain lump sum bonuses, which might result in a larger contribution to their TSP account in a single month, which, in turn, could result in a loss of matching contributions later in the year.

Figure 3.4 Blended Retirement System Contributions by Eligible Marine Corps O-4s



SOURCE: Defense Manpower Data Center.
NOTE: Data displayed do not include contributions equal to zero.

Recommendations

- **Monitor automatically enrolled participants as they near two years of service, and send targeted communications to those members contributing less than 5 percent.**

  As mentioned previously, the civilian retirement literature suggests that employees are likely to choose the easiest path, which for auto-enrolled participants is to keep the default contribution rate. As auto-enrollees near two years of service, at which point they will be eligible for matching funds, sending timely and targeted communications to those members that explain the importance of matching funds to a member's retirement benefit and the level of contribution needed to earn them could motivate more auto-enrollees to change contribution levels.

- **Educate members on the merits of spreading their TSP contributions over the entire year.**

  Some service members may reach the annual limit on elective TSP contributions before the end of the year and thereby end up forgoing matching funds. While

this is currently a small problem, it could increase as current BRS enrollees who stay in service have higher earnings and therefore contribute more to the TSP. Educating service members about the potential loss of matching funds and the benefits of spreading out their contributions could resolve this problem. In addition, it should be relatively inexpensive to compute the maximum contribution rate at which a service member would optimize his or her matching funds and provide this information to service members prior to the beginning of each year. Such communications could help to increase savings patterns.

- **Allow for dollar-amount TSP elections, not just percentage-amount election.**

  Permitting service members to elect contributions in a dollar amount would allow members to calculate exactly how much to contribute each month (rather than use the less precise percentage-amount election) so that they do not reach the elective deferral limit before the end of the year.

Part
THREE

STRUCTURAL CHANGES TO THE MILITARY PAY SYSTEM

Chapter FOUR A Salary-Based Pay System

A central focus of the 13th QRMC was an examination of a salary-based pay system. An early impetus for this work came from the 2017 NDAA, which required the Secretary of Defense to submit to the Armed Services Committees a report on a single-salary pay system that discussed how such a system should be structured and implemented in DoD. The aim was to replace the current structure of regular military compensation—comprising basic pay, the housing and subsistence allowances, and the income tax advantage associated with the allowances, as described in Chapter 2—in favor of a single-salary system. Congress further directed that the single-salary system should be adjusted by the same cost-of-living adjustment that DoD uses for civilian employees and that the new pay structure "will result in no or minimal additional costs to the Government."[1]

The QRMC conducted an expansive analysis of a single-salary system that

- began with an examination of various perspectives toward a salary system
- considered the cost implications, including implications on take-home pay and other effects on pay, as well as implications for recruiting and retention
- sought out service member perspectives toward the current pay system and adoption of a salary system
- examined transition considerations
- identified alternative ways of improving the current military pay system to address perceived inequities and shortfalls without a structural overhaul.[2]

The Debate over a Single-Salary System

The 13th QRMC is not the first to examine the feasibility of a single-salary system. Consideration of a single-salary system for compensating military personnel is long-standing, going back to at least the post–Civil War era. More recently, the virtues of a

1. Public Law 114-328, National Defense Authorization Act for Fiscal Year 2017, Section 604, "FY2017 NDAA Instructions for a Report on a Single-Salary Pay System," December 23, 2016.

2. The research findings reported in this chapter are drawn from two supporting research papers: Thomas M. Geraghty, Kyle Neering, Patty Kannapel, Juliana Pearson, Lauren Malone, and Justin Ladner, *The Single Salary System for Military Personnel: A Review of Existing Practices and Literature*, CNA, which discusses a literature review and subject-matter expert discussions related to the U.S. military compensation system, civilian compensation systems, and foreign military compensation systems; and Nancy M. Huff et al., *Analysis of a Salary-Based Pay System for the Quadrennial Review of Military Compensation*, Institute for Defense Analyses, which contains a detailed discussion of the methodology for evaluating alternative single-salary systems, impacts on recruiting and retention, and service member perspectives. These supporting research papers are in Volume III of this report.

single-salary system have been debated since before the advent of the all-volunteer force. The QRMC has examined a single-salary system beginning with the 1st QRMC in 1967 and again by the 3rd (1976) and the 7th (1992), and it was also examined by the Defense Manpower Commission Report (1976)—each of which discussed the potential advantages and disadvantages of transitioning the U.S. military pay system to a salary system. Frequently raised arguments for a single-salary system include the following:

- *The current compensation system is complex.* Members do not understand the full value of their pay because of the multiple types of pay and allowances along with the tax advantage. With a single-salary system, as argued by its proponents, compensation would be more transparent to service members.[3]
- *The current system results in personnel costs that are not fully transparent to military decisionmakers*. Much of military compensation occurs through the tax system in the form of reduced revenues rather than explicit budget outlays. As a consequence, the current system does not reflect the true cost of military compensation. It has been suggested that eliminating the tax advantage by moving to a single-salary system would more clearly show decisionmakers the true cost of military personnel.[4]
- *The pay-plus-allowances system does not embody the principle of "equal pay for equal work."* According to this argument, because BAH and the tax advantage depend on such factors as a person's location, dependent status, and tax bracket, current RMC does not represent equal pay for equal work. Only the basic pay component does.[5] A single-salary system would, according to proponents, better reflect the equal-pay-for-equal-work principle.
- *The current system obscures the link between pay and productivity because only a fraction of a member's pay currently depends on work performed.* Some argue that a single-salary system may make it easier to award performance-based incentives and incorporate performance-based approaches, such as pay banding.
- *The current system incentivizes people with dependents to join and remain in the military and incentivizes service members to gain dependents*. This may not be desirable. Some argue that eliminating pay differentials based on a service member's marital or dependent status, as would be the case with a single-salary system, would align military pay more closely with private-sector practices.

3. Defense Manpower Commission, *Defense Manpower Commission Staff Studies and Supporting Papers*, Washington, D.C.: U.S. Government Printing Office, 1976.

4. Defense Manpower Commission, 1976.

5. Department of Defense, Office of the Under Secretary of Defense for Personnel and Readiness, *Third Quadrennial Review of Military Compensation*, Washington, D.C., 1976.

The literature also advances arguments against a salary system:

- *It could be more difficult to administer*, particularly if a system of charging rent for government-provided housing were instituted.
- *More high-ranking officers would find their pay capped* than is the case today because of constraints related to pay of executive level II and V government civilians.
- *The DoD budget would have to increase to compensate members for the full taxability of their salaries.* This could be politically difficult and involve jurisdictional disputes among relevant congressional committees.
- *The increased tax burden would fall more heavily on junior personnel because the tax-free allowances make up a larger proportion of their income.*
- *Eliminating pay differentials based on dependent status could be viewed as "antifamily," with negative implications for recruiting and retention.*
- *The implications of a salary system for the ultimate Social Security benefits service members will receive are obscure and depend on rank and ultimate years of service.* The true value of the compensation system would still not be entirely transparent.

Given the enduring debate over the merits of a single-salary system, the QRMC sought to provide quantitative evidence to evaluate the effects of transitioning to such a system and consider the merits of the system from the perspectives of the service members themselves.

The Role of Allowances

Because a single-salary system would eliminate the current allowances for housing and subsistence, it is useful to review the basic tenets of these allowances and consider how eliminating them must be addressed in a single-salary system.

- BAH constitutes about 19 percent of the DoD compensation budget and about 22 percent of current cash compensation. It is based on duty location, rank, and number of dependents. BAH is not taxed. To maintain a mobile workforce, some mechanism to adjust pay across locations is necessary to enable service members to maintain a degree of consistency in their accommodations and lifestyle across duty assignments.
- BAS is 5.6 percent of the DoD compensation budget and 6 percent of cash compensation. BAS is a per-capita amount paid to every service member. In 2020, the flat rate is $256.68 per month for officers and $372.71 per month for enlisted personnel. BAS is not taxed.

BAH is intended to neutralize variations in the cost of housing across assignment locations, which can vary widely depending on the local rental market. For example, an enlisted E-5 with no dependents receives $813 per month at Naval Air Weapons Station China Lake (located in the western Mohave Desert) but would receive $3,842 per month in San Francisco—an amount more than four times higher than the lower-priced market. BAH also varies by rank, with more-senior-ranking personnel earning higher BAH. Service members with dependents earn roughly 15 to 20 percent higher BAH than do single service members.

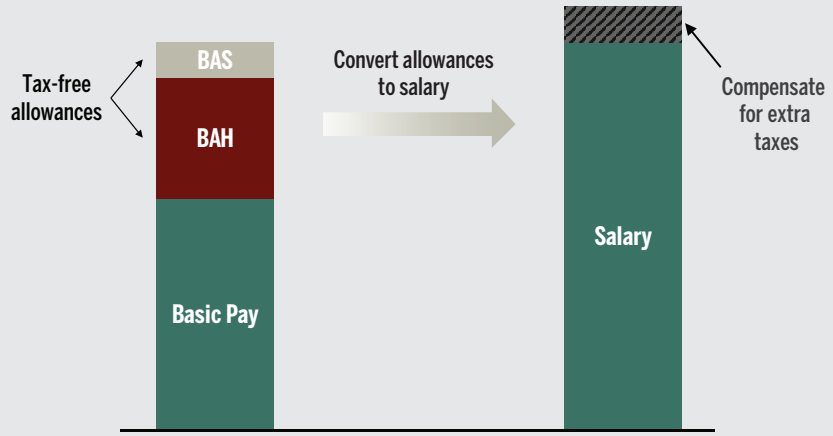
A criticism of these allowances, as mentioned previously, is that they are unrelated to a service member's job performance and contributions—particularly the fact that personnel with dependents receive a higher housing allowance, often referred to as the "dependency premium." Currently, about 890,000 service members receive BAH (or about 68 percent of the force), about 70 percent of whom have dependents. Estimates suggest the total "dependency premium" paid by DoD is $2.4 billion—not insignificant but only about 2.6 percent of DoD's annual current cash compensation and 1.5 percent of the total compensation budget.

Personnel living in government-owned quarters do not receive BAH but are provided housing at no cost, which has compensation value. The value varies substantially from barracks to the large homes provided to some officers. The value of this housing also depends on location and off-base housing alternatives. In developing a single-salary system in which allowances are folded into basic pay, the value of government housing needs to be considered. Including the value of government-owned housing as part of the compensation package narrows the gap between take-home compensation of those receiving BAH and those in government-owned housing. However, differences still remain and can be considerable for junior enlisted personnel because of the low imputed value of government-owned housing (often barracks).

Implications of a Salary System for Take-Home Pay: Winners and Losers

From a cash-flow perspective, moving to a salary system involves shifting funds from tax-free allowances to basic pay. But redistributing the amount spent on allowances to basic pay would leave service members as a whole with less take-home pay because the allowances, currently tax-free, would be taxed. Cost to the government would be reduced because of the higher taxes paid by service members. To resolve this outcome, basic pay must be increased by more than the current expenditure on allowances; it must be increased sufficiently to cover the additional tax burden on service members (Figure 4.1).

Figure 4.1 Redistribution of Allowances Under a Single-Salary System



While this increase in basic pay could be achieved at little or no additional cost to the government (because the increase in military pay would be offset by the increase in tax revenue), this additional increase in basic pay is a new cost for DoD, and a budget increase of approximately $9 billion would be required to cover these costs. There are other tax implications for service members as well. State taxes would also increase with the redistribution of allowances to basic pay—further increasing the tax burden on service members and reducing take-home pay. Since increased state tax revenue does not offset increased federal expenditures, total military compensation would decrease by approximately $600 million, reflecting the increased tax burden on individual members. That is, DoD could not increase military compensation to account for this increase in state taxation because doing so would increase costs to the federal government.

To better understand the cost implications of establishing a single-salary system—on the federal government, on DoD, and for individual service members—the QRMC examined four specific cases:

1. A **baseline system** in which basic pay increases by the same proportion in every grade redistributing the amount spent on current allowances ($24.9 billion). Basic pay is increased further to cover federal taxes on the higher basic pay.
2. A **tailored system** in which increases in basic pay vary by pay grade to reduce the variation in loss that occurs in the baseline case.
3. A **baseline system with rent** in which service members are required to pay market-equivalent rent for government-owned housing to reduce the variation by BAH status.

4. A **tailored system with rent** in which service members are required to pay market-equivalent rent for government-owned housing to address major variations by pay grade and BAH status.

For each of these systems, the effects of potential salary systems on take-home pay were considered based on personnel rank, whether or not members had dependents, and whether members were receiving BAH or were living in government-owned housing. This chapter contains the results of the baseline system (#1) and tailored system with rent (#4)—the system with the most equitable pay distribution among the four examined. Appendix A provides results for the tailored system and the baseline system with rent.

Baseline System

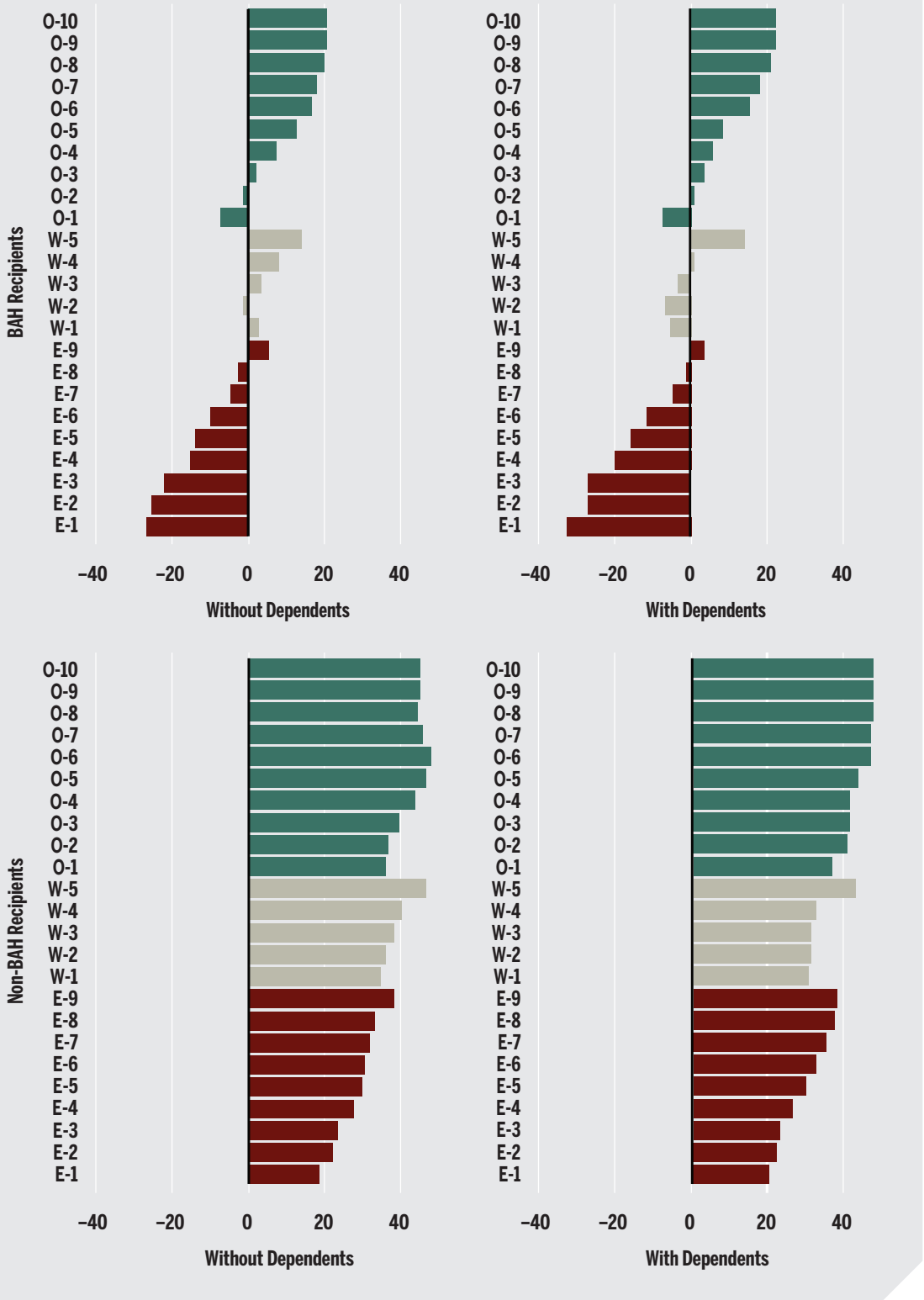
In the baseline case, the amount spent on allowances is distributed to basic pay by the same percentage in every grade. Pay is further increased to cover federal taxes that service members would have to pay since basic pay would be fully taxed. Under the baseline alternative, basic pay is increased by 53.9 percent overall, yielding a cost to the federal government equal to that of the current system.

Taxable income would rise by $30 billion and some service members would be pushed into higher tax brackets. The average federal income tax rate would increase from 15.1 percent to 17.9 percent. In constructing the baseline system, cost to the federal government of $74.8 billion remained the same as under the current system to meet the congressional requirement that the system be cost neutral to the government. However, by increasing the amount of pay that is taxable, state taxes increased by roughly $600 million. These taxes are not covered by the increase in basic pay and therefore result in a decrease in take-home pay for service members of the same amount. Although costs to the federal government stay the same, *the cost to DoD increases from $87.3 billion to $96.7 billion, an increase of more than $9 billion.*

Moreover, as illustrated in Figure 4.2, the baseline alternative results in a very uneven distribution in pay across the force, with average changes in take-home pay ranging from a decline of 33 percent to an increase of 48 percent, with clear winners and losers. Among BAH recipients (upper panel), officers tend to gain (green bars) while enlisted personnel in ranks below E-7 experience particularly severe losses (red bars). This disparity occurs because allowances are a larger fraction of compensation in the lower ranks.

Service members who do not currently receive BAH (lower panel) gain substantially under the shift to a salary system because they do not lose a benefit in the transition,

Figure 4.2 Percent Changes in Take-Home Pay Under the Baseline Salary System



NOTE: The value of government-owned housing is not included in take-home pay.

unlike BAH recipients, who do. These members did not receive BAH under the current system, but the redistribution of BAH by the same proportion in every grade across the force has the effect of a salary increase. The after-tax income of those who currently receive BAH decreases while after-tax income of those who do not currently receive BAH increases.

Tailored System with Rent

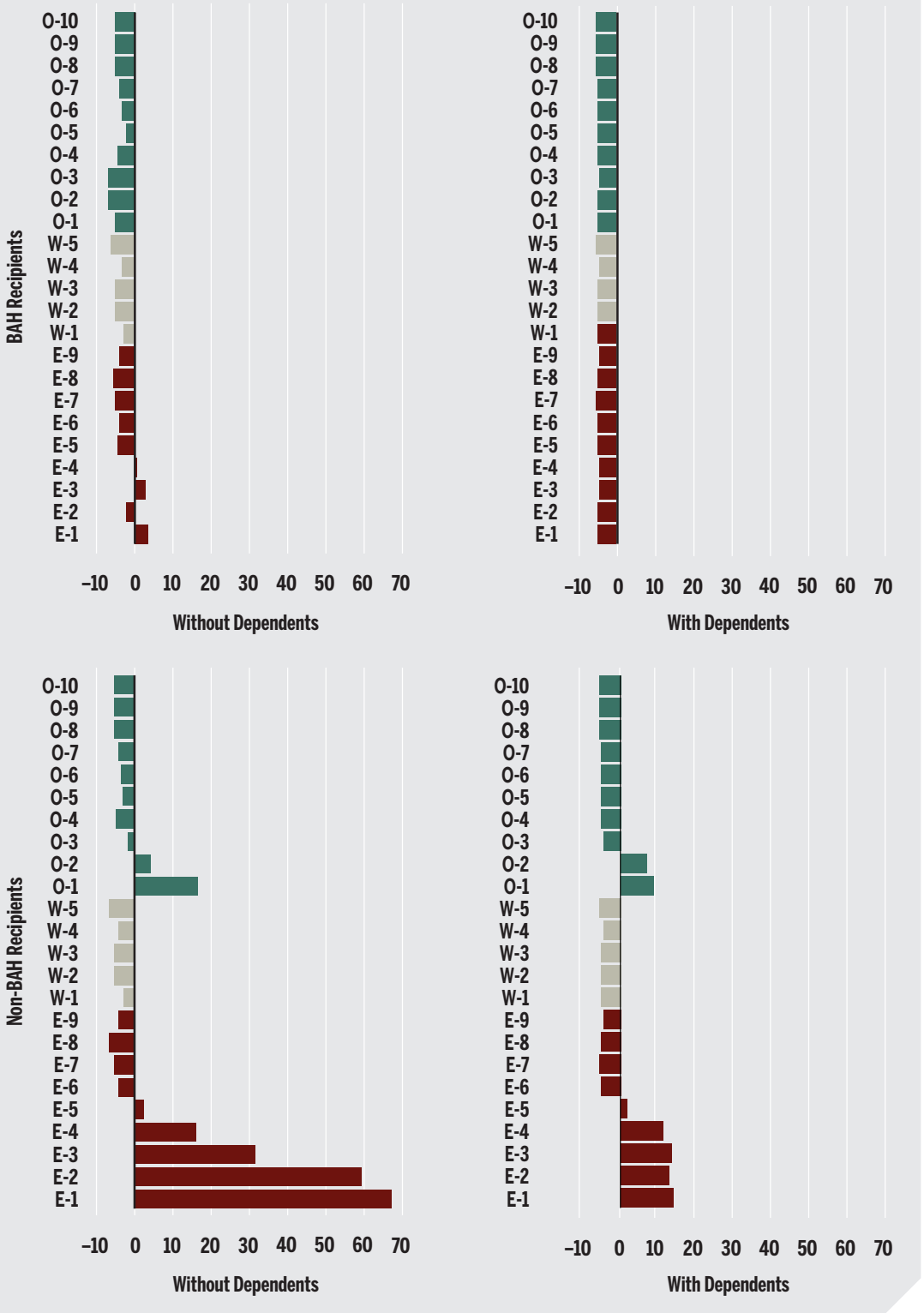
A system with tailored increases in basic pay that vary by pay grade eliminates some of the inequity of the baseline case that is a result of rank. For members receiving BAH at the with dependents rate, the inequity in the pay distribution across rank is nearly eliminated, but take-home pay for nearly all pay grades is lower. However, members who do not receive BAH still experience a disproportionately large increase in take-home pay under the tailored system compared with members who receive BAH.

Charging rent for government-owned housing could reduce these differences. However, except for junior members living in quarters, who have lower imputed rent (in some cases zero imputed rent), most members would see a reduction in pay. These disparities are caused by the requirement to redistribute what is now paid as BAH not just to members currently receiving BAH but also to members *not* currently receiving BAH and by the requirement to transition to a single-salary system with little or no additional cost to the federal government.

To incorporate the value of government-owned housing, a simple rule of thumb was developed. First, the value of government-owned housing is the same as BAH for higher-ranked officers and enlisted personnel (O-4 to O-10 and O-3s with dependents, W-1 to W-5, and E-6 to E-9). Second, quarters provided to junior enlisted personnel (E-1s and E-2s), who often live in barracks, have no market value as compensation. Though these assumptions may not precisely mirror market-value rents, they are sufficient to illustrate the impact of a system charging rent on the distribution of gains and losses in take-home pay.

Under a tailored system with rent, the average changes in take-home pay range from a loss of 7 percent to an increase in 67 percent (Figure 4.3), though with smaller inequities than the baseline system. For BAH recipients, the effects on take-home pay are smaller but still result in a decrease in pay, which could have an impact on the behavior of the force. In this case, junior enlisted personnel in government-owned housing experience large gains in take-home pay because their housing has little market value and they do not have to pay rent. (In Appendix A, Table A.1 details the impact on take-home pay for all single-salary systems analyzed, for those

Figure 4.3 Percent Changes in Take-Home Pay in a Salary System with Tailored Increases in Basic Pay and Rental Payments



NOTE: Includes the value of government-provided housing.

receiving BAH, for those who do not, and for married and single service members with and without dependents.)

Summary of Pay Distribution Under Alternative Salary Systems

Implementing a salary system like the baseline system would affect different groups of service members very differently. Tailoring increases in basic pay by rank and introducing rent payments for government-owned housing would reduce those inequities. However, except for very junior members, all members would see decreases in take-home pay.

Considering all the cases evaluated for the QRMC, the following conclusions are observed:

- The two criteria specified by Congress—that compensation not fall and that the cost to the government not rise—cannot be satisfied simultaneously. If government spending is not allowed to increase, the total take-home compensation of military personnel would fall under a salary system.
- When members in government-owned housing are not charged rent, they benefit from a single-salary system at the expense of other service members. Everyone in a given grade receives the same basic pay, but those in government housing have no out-of-pocket housing expenses. Charging market rents for government-owned housing generally eliminates these unequal gains.
- The baseline systems, with the same salary system multiples for all ranks, favors more-senior personnel.
- The tailored system reduces discrepancies among BAH recipients, particularly those with dependents, but most who are currently receiving BAH would receive less take-home pay under this system.
- A tailored salary system with market rents largely equalizes compensation within a pay grade regardless of dependent status and occupancy of government-owned housing. The only remaining differences are due to marriage-based differences in tax rates.
- Compensation costs to DoD would increase by an estimated $9 billion because of the increases in basic pay to offset the increase in federal taxes that service members would owe.
- The largest losers in moving to a single-salary system are those who now receive BAH, with losses varying by rank depending on the specifics of the salary system. An alternative system under which current BAH recipients would experience no losses would increase the cost to the government by an estimated $8 billion and the cost to DoD by an estimated $10 billion.

Additional Effects on Pay

The previous section provides an overview of how a salary system would affect the compensation of active duty military personnel. But there are many possible indirect effects of a salary system as well. Several of the most important, discussed here, are locality pay, military retirement benefits, and compensation for members of the reserve component. Appendix B explores the far-reaching effects of a salary system in greater detail.

Locality Pay

By eliminating BAH, a salary system would change how service members' compensation varies by location. BAH would need to be replaced by some type of locality pay to compensate for geographic differences in cost of living. The 2017 NDAA specified that a salary system should be adjusted by the cost-of-living increase DoD uses for civilian personnel. Geographic adjustments of government civilian salaries are based on *wage differentials* in relevant occupations. But locality pay is not an exact substitute for BAH. BAH compensates service members for the *expected cost of rental housing*. Wage differentials account for many more quality-of-life factors beyond the cost of housing, including food costs, transportation costs, and the value of local amenities. Cognizant of this difference, the QRMC examined the impact of incorporating civilian location pay into a DoD salary system.

Federal locality pay is relatively simple. The tables reflect pay levels for nonfederal workers in 53 locality-pay areas. The tables were originally designed to match federal wages to nonfederal wages by locality. Each locality is associated with a percentage increase to the general schedule base pay of each worker working in the locality. For example, workers in the Colorado Springs, Colorado, locality in 2020 receive 17.79 percent more than the general schedule base pay defined by their grade and step.

Adaptation of federal locality pay to military pay would be similarly simple. Each entry in the basic pay table would increase by the percentage increase associated with a given locality in the same way it is currently applied to each entry in the general schedule base pay table. In theory, DoD could devise its own localities and definitions to align with its principles rather than use the localities in the federal system. But for this analysis, the federal locality definitions and percentages are used. Like BAH, locality pay would cause service member incomes to vary across localities, with less variation in after-tax income than the current system.

The effect of shifting from BAH to locality pay would depend a great deal on where a service member is stationed. The federal locality-pay areas are coarse. Each area is either a metropolitan area, the entire states of Alaska or Hawaii, or a monolithic area

referred to as the "Rest of the United States." Military installations in the continental United States that are not in a metropolitan area would all be associated with the lowest locality pay according to the federal locality pay program. A more ideal locality-pay system for service members would be granular, data-driven, and regularly updated to reflect changes in economic geography and service members' preferences.

Table 4.1 illustrates how allowances and locality pay would differ for two example service members—a married E-5 with six years of service and a married O-4 with 12 years of service. In this example, the locality pay is structured to allow the closest comparison to allowances. One important difference is that locality pay as part of a single-salary system is taxed. These examples illustrate the considerable difference between allowances and locality pay and the fact that there will be clear winners and losers depending on where one is located, if the federal locality-pay system is implemented along with a single-salary system.

For example, some locations have relatively high BAH but would have relatively low locality pay, and vice versa. Honolulu typifies localities with relatively high BAH but relatively low locality pay. It is an area high in natural and cultural amenities that workers are willing to accept in lieu of higher pay. San Diego has similar BAH as Honolulu but would have higher locality pay. Locality pay in San Diego is significantly lower than the sum of the allowances, reflecting a high value of amenities. Anchorage has lower BAH than San Diego but a similar level of locality pay, reflecting the low value individuals place on amenities in Anchorage.

Lawton is an example of a location with low BAH that falls into the "Rest of the United States" locality, which has the lowest multiplier. Those locations would experience the greatest gains from replacing allowances with locality pay. The

Table 4.1 Examples of Monthly Allowances and Locality Pay

	E-5, Six Years of Service, with Dependents		O-4, 12 Years of Service, with Dependents	
	BAH and BAS	Locality Pay	BAH and BAS	Locality Pay
Atlanta, GA	$2,635	$2,087	$2,882	$2,337
Honolulu, HI	3,286	1,977	3,959	2,121
San Diego, CA	3,223	2,410	3,839	2,971
Lawton, OK	1,261	1,824	1,763	1,820
Anchorage, AK	2,440	2,406	2,957	2,963

NOTE: Computed using the 2020 general schedule locality pay multipliers and the 2020 basic pay table.

high locality pay relative to allowances reflects the low value of amenities in those locations. On average, workers assigned to these low-BAH, low-amenity locations need additional compensation beyond the cost of housing to be as satisfied as they would be working in a higher-amenity location.

These examples illustrate how locality pay would vary less than BAH, which means that some service members would lose more income than others as compared with current allowances, depending on where they are stationed. Moreover, compared with BAH, locality pay would redistribute compensation from high-amenity locations to low-amenity locations—which in theory should lead to more-consistent satisfaction across all locations. Whether service members would agree depends on how fair they think the current system is and how these deviations compare. There is some evidence from the literature that equalizing compensation between high- and low-amenity areas would improve retention: Scott E. Carrell (2007) studied the effect of differences in military and civilian wages across locations and occupations on Air Force retention. He found that retention is significantly higher for airmen stationed in locations where the military pay is competitive with civilian pay.[6]

Another potential advantage of locality pay compared with BAH is its simplicity and consistency. Each locality has a single multiplier, while each BAH location has 48 different multipliers, varying by pay grade and dependent status.

Military Retirement Benefits

The 2017 NDAA that mandated a DoD study of a salary system specified that the retirement system, under a single-salary system, would be modified to ensure that members of the Armed Forces would receive retirement benefits similar to what they receive under BRS today. Under BRS, retirement benefits are calculated as a fraction of the final basic pay retirees receive. Those who retire with 20 years of service receive 40 percent of the average of their highest three years of basic pay. The multiple increases by 2 percent for every additional year of service.

Since basic pay would increase dramatically under a salary system, retirement benefits would significantly increase unless a change to the retirement system is made, and the structure of the salary system would determine how large the increase is. Estimates of the alternative systems reviewed for the QRMC suggest the increase in retirement accrual could be as high as $10.6 billion. To maintain the current level of retirement benefits, the Department could adjust the multiplier used

6. Scott E. Carrell, "The National Internal Labor Market Encounters the Local Labor Market: Effects on Employee Retention," *Labour Economics*, Vol. 14, 2007, pp. 774–787.

to calculate retirement pay or retain a legacy pay table for the purpose of calculating retirement benefits—each of which requires careful assessment. For example, the Department will need to use an average pay table to adjust the multiplier since incorporating locality pay into the salary will result in different pay based on location. If not addressed, a salary system could create a perverse incentive for service members to retire from high wage-differential areas where locality pay is higher.

Continuation pay, offered to service members between the 8th and 12th year of service, is implemented at the discretion of each military service. Tied to basic pay, the level of continuation pay can vary between 2.5 months of basic pay and 13 months of basic pay for active component members and 0.6 to 6 times monthly basic pay (as if serving on active duty) for reserve component members. Under a salary system, continuation pay would be considerably higher. Services that want to offer this pay at the lower end of the range, which is how the pay is being implemented in 2020 by all the services for active component personnel, will face a higher bill.

Pay for Members of the Reserve Components

When members of the reserve components are called to active duty, they receive the same pay and benefits, including BAH, as their counterparts in the active components. During 2018, 79,000 members of the reserve components were in this category. If a single-salary system were adopted, these reservists would presumably continue to be treated like their active component peers—receiving increased basic pay and forgoing allowances. Selective reserve personnel who are activated for shorter periods for training or operational purposes are generally eligible for some form of BAH.[7] Under a salary system, they would also forgo BAH and receive higher basic pay.

However, for selected reserve personnel who are not activated, the situation is different. Under a salary system, their basic pay would rise by the same proportion as that of active duty personnel with no offsetting loss in BAH and BAS—thus, imposing an increased cost to the federal government. Depending on the structure of the salary system, the cost of reserve component pay could increase by between $3.1 billion and $3.6 billion per year. One solution to prevent these additional costs is to keep the National Guard and reserve members under a legacy basic pay table except when they are on active duty. In practice, however, the reserve components may be unwilling to accept separate pay tables if they believe they are not being paid the same as their active duty counterparts.

7. Huff et al., in Volume III of this report, elaborates on this point.

Implications for Recruiting and Retention

As described previously in this chapter, a single-salary system would change compensation for different categories of service members, which could, in turn, affect recruiting and retention. In exploring the implications of a single-salary system on recruiting and retention, the QRMC analysis was inconclusive—though some evidence suggests that career retention would likely decline while accessions might benefit. Prior analyses of the impact of changes in compensation on recruiting and retention and research conducted for the QRMC provide some insight.

Prior research has shown that compensation changes affect recruiting and retention. Research conducted since 2001 has concluded the following:

- The 9th QRMC found that a 1-percent change in military compensation increased first-term reenlistment by 1.2 percent to 2.2 percent. Estimates for the second term are lower. A one-unit increase in the Selective Retention Bonus multiplier on reenlistment rates fell between 1 and 4 percentage points.[8]
- Mattock et al., 2014, found that a 10-percent increase in officer RMC would cause retention to year 20 to increase by over 10 percentage points (from under 20 percent to about 30 percent). The authors also found that a $20,900 bonus in the tenth year of service would increase retention of Army officers to the tenth year of service by 10 percent.[9]
- Asch et al., 2010,[10] and Warner, 2012, both found positive effects on recruitment from enlistment bonuses. Warner summarizes estimates of the effect of a permanent 10-percent increase in military compensation as increasing the supply of high-quality enlisted recruits by 6 to 11 percent.[11]

As previously discussed, a salary system that is cost neutral for the federal government will lower average military compensation. The tailored salary system with rent, for example, would lower average officer compensation by about 5 percent. Applying the estimates from Mattock et al., 2014, would imply that a

8. "A Survey of Enlisted Retention: Models and Findings," staff paper for *Ninth Quadrennial Review of Military Compensation*, Volume III, Chapter 2, 2002.

9. Michael G. Mattock, Beth J. Asch, James Hosek, Christopher Whaley, and Christina Panis, *Toward Improved Management of Officer Retention: A New Capability for Assessing Policy Options*, Santa Monica, Calif.: RAND Corporation, 2014.

10. Beth J. Asch, Paul Heaton, James Hosek, Francisco Martorell, Curtis Simon, and John T. Warner, *Cash Incentives and Military Enlistment, Attrition and Reenlistment*, Santa Monica, Calif.: RAND Corporation, 2010.

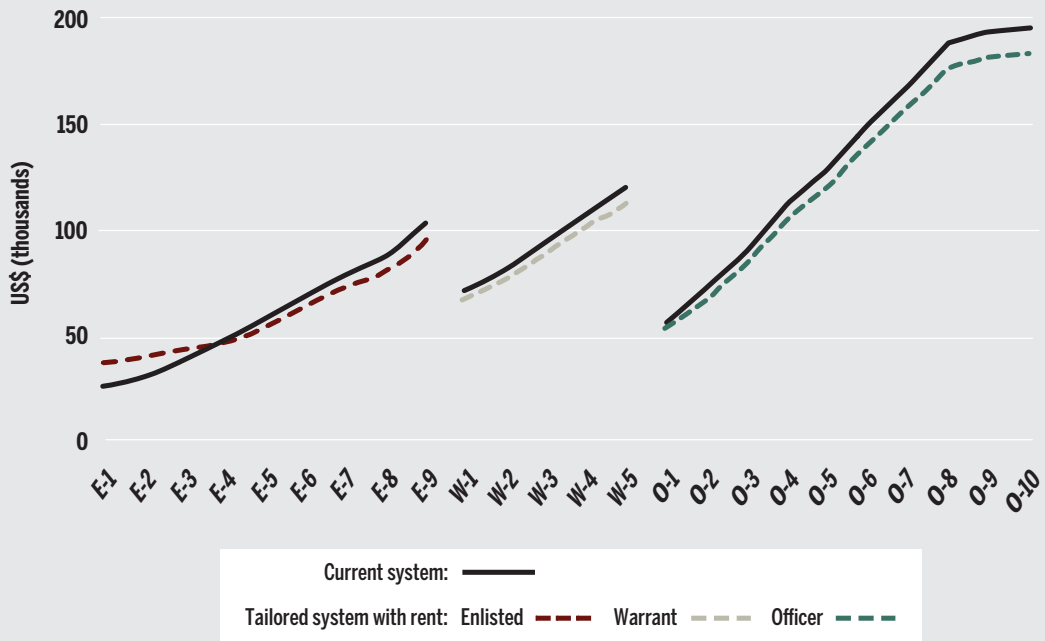
11. John T. Warner, "The Effects of the Civilian Economy on Recruiting and Retention," in DoD, *Report of the Eleventh Quadrennial Review of Military Compensation, Supporting Research Papers*, Part 1, Chapter 2, June 2012.

salary system might reduce the retention of officers at the 20th year of service by 5 percentage points—assuming that officers respond in the same way to a reduction in pay as an increase. Considering the theory of loss aversion, which suggests that the dissatisfaction people feel from a loss tends to be greater than the satisfaction they get from an equal gain,[12] the impact of a reduction in pay could be larger.

Enlisted recruits, however, may respond positively to a salary system. Junior enlisted pay below the grade of E-4 increases on average under a tailored salary system with rent as shown in Figure 4.4—compared with officers, warrant officers, and enlisted above the grade of E-4, for whom pay declines. Using estimates developed by Warner, 2012, the percent change in the supply of high-quality enlisted recruits could be between 5 percent and 12 percent based on average salary changes from implementing a tailored salary system with rents.

It is difficult to draw clear conclusions about service member behavior under a single-salary system. Prior estimates of the effects of changes in compensation

Figure 4.4 Average Annual After-Tax Income of Military Personnel by Grade for Tailored Salary System with Rent



12. Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica*, Vol. 47, No. 2, 1979, pp. 263–291.

may not be relevant to understanding the effects of a salary system. Moreover, compensation policies play a role in signaling to employees how much they are valued by their employer.[13] Employees value changes in compensation in terms of whether they are adequately compensated and what those changes suggest about their employer's view and commitment to the mission. Thus, a change to a salary system could affect service member behavior beyond the compensation effects—something we explore in the next section.

To complement the long history of prior research, research for the QRMC used changes in state tax rates to estimate how active duty service members are likely to respond to changes in after-tax income. The analysis showed that a state military income-tax exemption, which increases income on the order of $1,000 per year, had no significant effect on retention. For the reasons cited previously, it is unclear how these results can be applied in the context of the losses that will occur in adopting a salary system. Overall, the unprecedented nature and magnitude of the changes inherent to adopting a salary system and the diversity of service member perspectives and perceptions preclude confident prediction of service member responses.[14]

Service Member Perspectives

Because of the potential importance of service member perspectives in the successful implementation of a single-salary system, the QRMC sought out service member views. The QRMC engaged with 740 service members, individually and in focus groups, in every military service by visiting active and reserve component installations in four states across the United States. The aim of these discussions was to understand service member perspectives toward the current system and a single-salary system.

In general, service members

- *Value pay and benefits but also join for the employment stability as well as the education and career-development opportunities in the military.* Service members place more value on the opportunity to serve their country; specific benefits they receive, including childcare, health care, and education benefits

13. James B. Rebitzer and Lowell J. Taylor, "Extrinsic Rewards and Intrinsic Motives: Standard and Behavioral Approaches to Agency and Labor Markets," in Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Vol. 4, Amsterdam, North Holland: Elsevier, 2011, pp. 701–772.

14. The QRMC also examined the effect of a single-salary system on marriage rates and retention, highlights of which are in Appendix D.

and loan forgiveness; and stability in compensation than on the precise level of compensation.

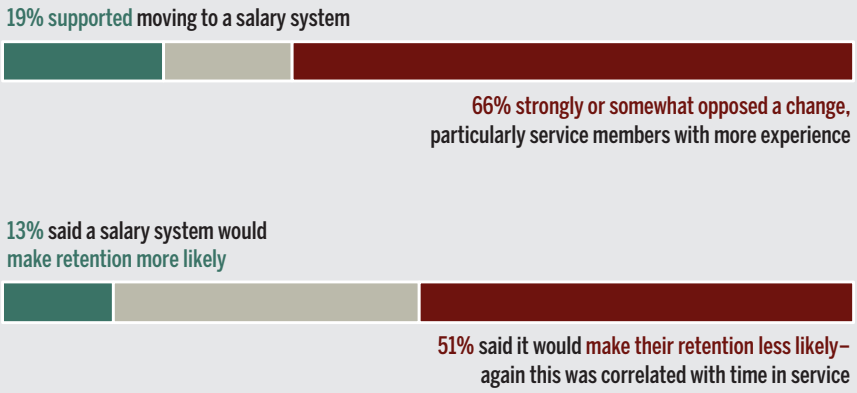
- *Strongly favor equity in pay that reflects work demands, risks, and rank.* There is wide support for greater differentials in pay—independent of rank—for performance, assignment responsibility, hours, and onerous or risky duty.
- *Express strong concerns about "fixing" childcare and housing allowances while hoping for improvements in other noncash benefits.* Service members see inadequate childcare as a particularly important issue that also relates to the fairness of family compensation. Some members expressed the view that BAH is too low and that the quality of on-base housing, particularly barracks, is poor.
- *Express strong skepticism of major compensation system restructuring.* Service members view the current system as imperfect but "fair enough." They see uncertainty in how a salary system would work and its implications for themselves. Their major feedback focused on the needed improvements within the current system and frequently asked the question: What problem are you trying to solve?

The response to several questions added to the 2020 Status of Forces survey to assess service members' response to a single-salary system indicated skepticism toward a salary system. As seen in Figure 4.5, 66 percent of respondents strongly opposed or somewhat opposed a change to a single-salary system, particularly more experienced service members; only 20 percent supported a move. As for impacts on retention, 51 percent of respondents said it would make their retention less likely while only 13 percent said a salary system would make retention more likely. These results align with those from the focus groups, who overwhelmingly opposed a salary system.

The QRMC's review of the literature on service member compensation preferences complemented these findings. In general, service members are satisfied with the military compensation package as a whole, despite dissatisfaction with some aspects of the system.[15] Thus compensation reforms aimed at particular areas of dissatisfaction might be more widely accepted by service members.

15. Leon Panetta, Jim Talent, Jim Jones, and Kathy Roth-Douquert, *The Military Compensation Conundrum: Rising Costs, Declining Budgets, and a Stressed Force Caught in the Middle*, Washington, D.C.: Bipartisan Policy Center, 2016; U.S. Government Accountability Office, *DOD Needs to Improve the Transparency and Reassess the Reasonableness, Appropriateness, Affordability, and Sustainability of Its Military Compensation System*, GAO-05-798, Washington, D.C., 2005.

Figure 4.5 Service Member Responses to a Salary System



Transition Considerations

Transitioning to a single-salary system would be a complex undertaking. By examining the system as a whole, the 13th QRMC was able to identify the complex interactions and policy changes that would be necessary to establish a single-salary system while maintaining current levels of compensation without increasing cost to the government. Among the most significant impacts were the increase to the DoD budget to cover loss of the tax advantage for allowances of about $9 billion; the need to recalibrate pays that are tied to basic pay, such as retirement pay, continuation pay, and some bonuses; the need to lift executive pay caps to accommodate the many officers who would find their pay capped; the need for separate pay tables for reserve component members on active and inactive duty; the need to establish rental policies and rates for on-base housing; and the need to renegotiate privatized housing arrangements. (Appendix B details more than two dozen additional pays and programs that would be affected by transition to a single-salary system; Appendix C discusses the effect of a single-salary system on privatized housing arrangements.)

Transitioning to a single-salary system will be costly, and ongoing administrative costs could be higher. Initial costs to transition to a new compensation system are potentially very large—the high implementation costs of transitioning, as well as the increase in the defense budget that will be required to offset the loss of the tax advantage associated with the allowances. In addition, any administrative savings that come about from the elimination of BAH and BAS will be small because the introduction of locality pay and rent will incur their own administrative costs. Indeed, net administrative costs could rise due to the complexity of a locality-pay system and the changes that will need to be made to retirement pay and reserve

pay. If legacy pay tables are used to resolve implications for retirement or reserve pay, maintaining two pay systems would increase overall administrative costs and complexity of implementing a salary system.

In addition, transitioning to a salary system will require transparency, effective messaging, and education. The importance of transparency and messaging is underscored in the research on civilian-sector compensation practices and experiences of foreign militaries. Private-sector subject-matter experts emphasized the importance of sharing a rationale that resonates with employees; experiences of foreign militaries that have transitioned to salary systems emphasize this point as well. It will be important to provide detailed information about the total compensation and incentives that service members will receive under the new system and how the new system compares with the old one. Leadership buy-in is key, and leaders should be well educated about the new system, its advantages, and messaging.

Alternatives for Achieving the Objectives of a Salary System

It is possible to improve some of the more problematic aspects of the current military compensation system without making a change as major as adopting a single-salary system. The options presented here could be pursued independent of a salary system using policy levers available to the Department today. But even these more limited reforms raise important tradeoffs that require thoughtful analysis.

Reform the basic pay table to strengthen the link between pay and performance. The basic pay table built on rank is already geared to reward professional performance as a means of achieving promotions and career longevity. However, the basic pay table could be recalibrated to steepen the progression of pay with rank to incentivize advancement—the degree to which could be different for enlisted, officers, and warrant officers to meet DoD requirements for numbers of high-quality personnel over the distribution of ranks and career lengths. Additional bonuses could be provided to reward early promotions. A second possible reform could be to create alternatives to the basic pay table tailored to specific occupations where the current pay table does not account for the value of experience and the competitiveness of external markets for needed skills. This alternative would be costly and may not be more effective or flexible than the current system of special and incentive pays.

Convert BAH to "assignment pay" to better reflect service member locational preferences. DoD could use individuals and available funding more effectively if it

could better match individuals with assignments, and the Department already has the authority to provide assignment incentives. The locational component of pay could be converted to assignment pay that is calibrated to better reflect locational factors beyond the cost of housing. For example, assignment pay could take into consideration the willingness of service members to serve in a given location. Desirable locations would have relatively low assignment pay; less-desirable locations would have relatively high assignment pays. An effective assignment-pay mechanism would improve both efficiency and fairness.

Convert BAS and the dependents allowances to pays that strengthen readiness. Eliminating BAS and reforming BAH to eliminate the "dependency premium" would free up resources that could be reallocated in ways that might better contribute to readiness. If BAS were shifted into targeted, flexible pays, such as special and incentive pays, or to a pay-for-performance system, overall readiness might be enhanced. Eliminating the BAH dependency differential by establishing a single level of BAH for each location and rank—the most frequently cited flaw in the current system—could foster an environment of equal pay for equal work. Reforming the dependents premium would be easier than revamping the entire pay system.

Improve the targeting of flexible pays to increase readiness. This powerful tool is already at DoD's disposal and, used effectively, could have the clearest and most direct influence on readiness. The current system of special and incentive pays provides flexibility in dealing with variations in market conditions. Incentives can be used, for example, to attract and retain people with marketable skills or to incentivize service members to acquire demanding skills. Regardless of whether a salary system is adopted, this tool should be employed effectively and efficiently to address readiness.

Improve the quality and availability of in-kind benefits. One powerful theme from the discussions with service members was that they would rather see DoD improve basic in-kind services than embark on a complex reform of the pay system. Service members expressed a strong desire for improvements in the quality and availability of childcare and on-base housing. These are highly valued components of compensation that must be factored into any overall restructuring of the compensation system.

Recommendation

- **Based on this analysis, the QRMC recommends that DoD retain the current compensation system.**

  A single-salary system should only be adopted if there is strong and compelling evidence that the system presents clear advantages, which the QRMC's

research did not uncover. There was no conclusive evidence that indicated improvements to readiness, recruiting, or retention. Applying estimates of prior research suggests that career retention would likely decline and accessions might benefit, but the actual outcomes could reflect a more complex set of influences. Moreover, the transition to a single-salary system would be disruptive and costly. The DoD budget would need to increase, and executive level pay caps that are applicable to the military would need to be eliminated or expanded. Equally important is the fact that service members are largely satisfied with the current system and are skeptical of the need for change. Finally, concerns about the current system can be addressed with targeted changes using tools already available to the Department and the military services. To the extent that problems with the efficiency and fairness of the current compensation system exist, it is far from clear that moving to a salary system is an important part of the solution.

Chapter FIVE
Analysis of a Time-in-Grade Pay Table

The Senate Armed Services Committee markup of the 2019 NDAA included a requirement that DoD submit a report with a proposal for a time-in-grade pay table. Although this requirement was not included in the final bill, the 13th QRMC decided, as part of its study of potential structural changes to the compensation system, to assess the merits of a time-in-grade basic pay table as a replacement for the current time-in-service basic pay table.[1] The issue of whether a time-in-grade pay table is preferred over a time-in-service pay table is related to the question of whether the military's promotion system sufficiently rewards personnel who perform better and whether the promotion system embeds strong enough incentives for performance. Renewed interest in the concept has come about because a time-in-grade basic pay table, as argued by past studies and commissions, would provide a stronger reward for promotion and thereby increase military personnel performance—an outcome that aligns with congressional and service objectives of improving military personnel talent management and enabling more flexibility in managing military personnel.

In the 2019 NDAA, Congress included a number of reforms to the 1980 Defense Officer Personnel Management Act that increase flexibility in personnel management. In the 2019 act, the services were authorized to grant "constructive credit" for education as well as for work experience, thereby allowing individuals to enter service at a rank as high as an O-6 (colonel or Navy captain). The services are also allowed to suspend "up-or-out" requirements for some types of officers so that officers have more opportunities for promotion to a higher grade. Another flexibility allows better-performing officers to be placed higher on promotion lists than their peers, changing the traditional seniority-based system. In testimony before the Senate Armed Services Committee, former under secretary of defense for personnel and readiness Dr. David S. C. Chu suggested that a time-in-grade pay approach might better support the new authorities granted by Congress.[2]

The time-in-grade pay table has been studied for decades, dating back to the development of the time-in-grade pay table by the Hook Commission in 1948. Since then, the 1st, 7th, and 10th QRMCs revisited the topic along with several

1. The research findings reported in this chapter are drawn from Beth J. Asch, Michael G. Mattock, and Patricia K. Tong, *Analysis of a Time-in-Grade Pay Table for Military Personnel and Policy Alternatives*, RAND Corporation, a supporting research paper in Volume III of this report. This paper contains detailed discussion of the development of the time-in-grade pay table, modeling capabilities used in the assessment, and more detailed findings.

2. David S. C. Chu, "Reconsidering the Defense Officer Personnel Management Act," testimony to the Subcommittee on Personnel, Committee on Armed Services, Washington, D.C.: U.S. Senate, January 22, 2018.

commissions and advisory committees.[3] Some of these groups supported the time-in-grade pay table, while others did not; but even some that did not support transition to a time-in-grade pay table recognized the need to embed stronger incentives for performance in the military pay structure.

The 13th QRMC's reexamination of the merits and drawbacks of a time-in-grade pay table builds on the work of these earlier studies. The time-in-grade pay table developed for the 13th QRMC updated and extended the pay table developed for the 2006 Defense Advisory Committee on Military Compensation and the 10th QRMC, which concluded in 2008. Using the newly developed time-in-grade table, the QRMC examined, as have prior studies, how pay varies under different promotion rates for active duty military. The QRMC examined how a time-in-grade pay table would affect enlisted members who become warrant officers or commissioned officers, as well as how it affects lateral entrants. The QRMC also conducted analyses of the retention, cost, and performance effects of a time-in-grade pay table, a topic not investigated in prior studies. In addition, the question of whether other policy levers could be used with a time-in-service pay table to replicate the benefits of a time-in-grade table was examined. Thus, the 13th QRMC provides perhaps the most expansive assessment of the time-in-grade pay table conducted to date.

An Updated Time-in-Grade Pay Table

Every service member on active duty receives basic pay. The amount is determined by a time-in-service basic pay table in which members' pay is based on their pay grade and *length of service in the military*. The structure of the current pay table was created just after World War II, and while the pay table has changed over time—for example, enlisted pay grades were added in 1958, and the pay table was extended to 40 years of service in 2007—the basic structure and the fact that pay is based on rank and years of service has remained unchanged.

An alternate approach to setting the pay table is to base the amount of pay on pay grade and *years in that grade*, otherwise known as a time-in-grade pay table. The federal general schedule pay table is an example of a time-in-grade system. The pay of federal employees is based on their grade (e.g., GS-9) and their pay step within a grade. Importantly, years of experience is not used for computing the amount of pay. For military personnel, a time-in-grade pay table would base monthly basic pay on rank and years served within a given grade.

The QRMC based its updated time-in-grade pay table on the January 2018 time-in-service basic pay table. To prevent pay decreases or inversions when members are

3. For an overview of the arguments of these previous commissions and study groups see Asch, Mattock, and Tong, in Volume III of this report.

promoted and to ensure that members receive a pay increase over the first five years in a given grade, some cells were imputed, as was done by the 10th QRMC. In addition, more recent promotion times were incorporated into the updated table using data on average times to promotion, or "due course" promotions, for 2013–2018. Table 5.1 shows the updated time-in-grade pay table built for the 13th QRMC; cells where pay was imputed are highlighted in yellow.

The first column in the pay table, "Entry Years of Service," shows the years of service from the time-in-service pay table that defines pay at entry to a given grade. For example, the pay of an E-6 with zero years in the time-in-grade pay table is equivalent to the pay of an E-6 with six years of service in the time-in-service pay table—which aligns with the average time to promotion for an E-6 between 2013 and 2018 of six years. Because the time-in-grade pay table was built using average promotion times during 2013–2018, pay over the course of a career for those receiving due course promotions is the same under the time-in-service and time-in-grade pay tables, which Figure 5.1 depicts for officers and enlisted personnel. The findings discussed in this chapter are specific to this time-in-grade pay table.

Advantages of a Time-in-Grade Pay Table

The time-in-grade table has both advantages and disadvantages, which are discussed in some detail in this section. The key advantage of a time-in-grade pay table is that it achieves similar retention but greater performance than a time-in-service table, at lower cost. While other policies under a time-in-service table can move in this direction, they do not achieve the full effect of a time-in-grade table, particularly in terms of efficiency. On the other hand, a time-in-grade table will involve a transition cost and a disruption to the force. The transition cost is a one-time cost that can be offset with savings over time, but the disruption to the force will still be present. If the disruption is deemed too much, a policy of constructive credit for performance under the time-in-service table is an alternative.

Permanent Reward for Early Promotion

Consistent with the findings of past commissions, *the time-in-grade pay table would provide a permanent financial reward for early promotion, thereby providing greater incentives for performance for both enlisted personnel and commissioned officers*. This is the key advantage of the time-in-grade pay table given that fast promotion is the primary means by which the military rewards its members for better performance. A member who is promoted one year earlier to a grade and then receives due course promotions thereafter will receive a higher rate of pay that is permanent under a time-in-grade table compared with a member who only receives due course promotions. Under a time-in-service pay table, the higher pay for the

Table 5.1 Proposed Time-in-Grade Monthly Basic Pay Table for January 2018

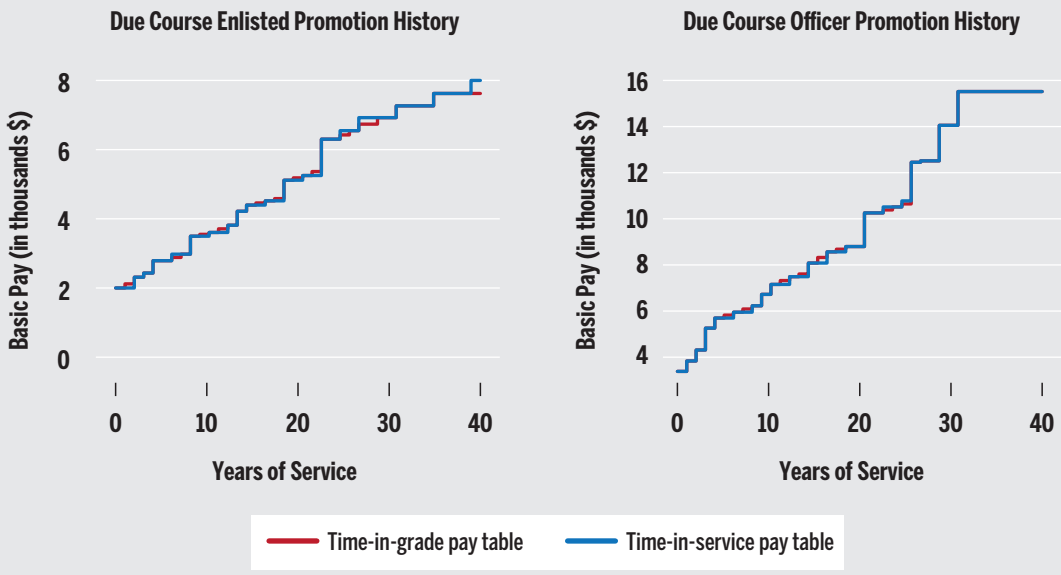
Entry Years of Service		Years in Grade																				
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Commissioned Officers																						
28	0-10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10
26	0-9	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10.	15,800.10.	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10	15,800.10
24	0-8	14,268.30	14,268.30	14,625.60	14,625.60	14,625.60	14,625.60	14,991.00	14,991.00	14,991.00	14,991.00	14,991.0	14,991.00	14,991.00	14,991.00	14,991.00	14,991.00	14,991.00	14,991.00	14,991.00	14,991.00	14,991.00
22	0-7	12,591.90	12,656.40	12,656.40	12,656.40	12,656.40	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60	12,909.60
19	0-6	10,295.70	10,295.70	10,431.15	10,566.60	10,703.85	10,841.10	11,372.40	11,372.40	11,372.40	11,372.40	11,599.80	11,599.80	11,599.80	11,599.80	11,599.80	11,599.80	11,599.80	11,599.80	11,599.80	11,599.80	11,599.80
14	0-5	8,022.30	8,275.95	8,529.60	8,650.05	8,770.50	8,770.50	9,009.30	9,009.30	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20	9,280.20
9	0-4	6,601.20	7,052.70	7,228.20	7,403.70	7,525.65	7,647.60	7,647.60	7,788.00	7,788.00	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30	7,869.30
3	0-3	5,069.70	5,527.80	5,660.40	5,793.00	5,938.20	6,083.40	6,083.40	6,271.20	6,271.20	6,580.20	6,580.20	6,741.60	6,741.60	6,741.60	6,741.60	6,741.60	6,741.60	6,741.60	6,741.60	6,741.60	6,741.60
1	0-2	3,580.50	4,077.90	4,696.20	4,854.90	4,905.00	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10	4,955.10
0	0-1	3,107.70	3,171.30	3,234.90	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20	3,910.20
Commissioned Officers with over Four Years of Active Duty Service as an Enlisted Member or Warrant Officer																						
10	0-3E	6,271.20	6,315.10	6,359.30	6,403.82	6,435.84	6,451.93	6,468.02	6,484.19	6,500.36	6,516.61	6,532.86	6,532.86	6,532.86	6,532.86	6,532.86	6,532.86	6,532.86	6,532.86	6,532.86	6,532.86	6,532.86
8	0-2E	5,112.60	5,245.80	5,379.00	5,481.90	5,584.80	5,584.80	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10	5,738.10
6	0-1E	4,175.40	4,252.65	4,329.90	4,408.80	4,487.70	4,487.70	4,642.80	4,642.80	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90	4,854.90

NOTE: Yellow highlighted cells are values that are not derived from the January 2018 time-in-service monthly basic pay table but are imputed, as described in the main text.

Table 5.1 Proposed Time-in-Grade Monthly Basic Pay Table for January 2018 (continued)

Entry Years of Service		Years in Grade																			
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Warrant Officers																						
20	W-5	7,614.60	7,807.65	8,000.70	8,144.55	8,288.40	8,288.40	8,606.70	8,606.70	8,606.70	8,606.70	9,037.80	9,037.80	9,037.80	9,037.80	9,489.00	9,489.00	9,489.00	9,489.00	9,964.20	9,964.20	9,964.20
14	W-4	6,172.50	6,313.35	6,454.20	6,569.55	6,684.90	6,684.90	6,909.60	6,909.60	7,239.90	7,239.90	7,511.10	7,511.10	7,820.70	7,820.70	7,820.70	7,820.70	7,976.70	7,976.70	7,976.70	7,976.70	7,976.70
9	W-3	4,815.30	5,174.10	5,258.70	5,343.30	5,441.10	5,538.90	5,538.90	5,739.90	5,739.90	6,102.30	6,102.30	6,346.80	6,346.80	6,492.90	6,492.90	6,648.30	6,648.30	6,860.10	6,860.10	6,860.10	6,860.10
5	W-2	3,957.60	4,182.30	4,356.60	4,530.90	4,617.30	4,703.70	4,703.70	4,873.80	4,873.80	5,082.00	5,082.00	5,244.60	5,244.60	5,391.90	5,391.90	5,568.30	5,568.30	5,684.10	5,684.10	5,775.90	5,775.90
0	W-1	3,037.50	3,201.00	3,364.50	3,452.40	3,638.10	3,638.10	3,857.70	3,857.70	4,181.70	4,181.70	4,332.60	4,332.60	4,543.80	4,543.80	4,751.70	4,751.70	4,915.50	4,915.50	5,065.80	5,065.80	5,248.80
Enlisted Members																						
22	E-9	6,306.60	6,306.60	6,431.40	6,556.20	6,747.60	6,939.00	6,939.00	6,939.00	7,285.50	7,285.50	7,285.50	7,285.50	7,650.00	7,650.00	7,650.00	7,650.00	8,033.10	8,033.10	8,033.10	8,033.10	8,033.10
18	E-8	5,099.70	5,168.55	5,237.40	5,354.55	5,471.70	5,471.70	5,601.90	5,601.90	5,921.70	5,921.70	5,921.70	5,921.70	6,040.50	6,040.50	6,040.50	6,040.50	6,040.50	6,040.50	6,040.50	6,040.50	6,040.50
13	E-7	4,186.80	4,368.90	4,431.00	4,493.10	4,559.10	4,625.10	4,625.10	4,676.10	4,676.10	4,848.30	4,848.30	4,940.40	4,940.40	5,921.40	5,291.40	5,291.40	5,291.40	5,291.40	5,291.40	5,291.40	5,291.40
6	E-6	3,453.60	3,508.65	3,563.70	3,670.20	3,776.70	3,776.70	3,841.50	3,841.50	3,888.90	3,888.90	3,944.10	3,944.10	3,944.10	3,944.10	3,944.10	3,944.10	3,944.10	3,944.10	3,944.10	3,944.10	3,944.10
3	E-5	2,733.30	2,733.30	2,829.30	2,925.30	3,025.50	3,152.70	3,290.70	3,290.70	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50	3,310.50
2	E-4	2,248.50	2,370.30	2,490.60	2,490.60	2,543.55	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50	2,596.50
1	E-3	1,931.10	2,052.30	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80	2,176.80
0	E-2	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30	1,836.30
0	E-1	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30	1,638.30
0	E-1<4	1,514.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure 5.1 Simulated Annual Basic Pay over a Career, Time-in-Grade Compared with Time-in-Service for Enlisted Personnel and Officers



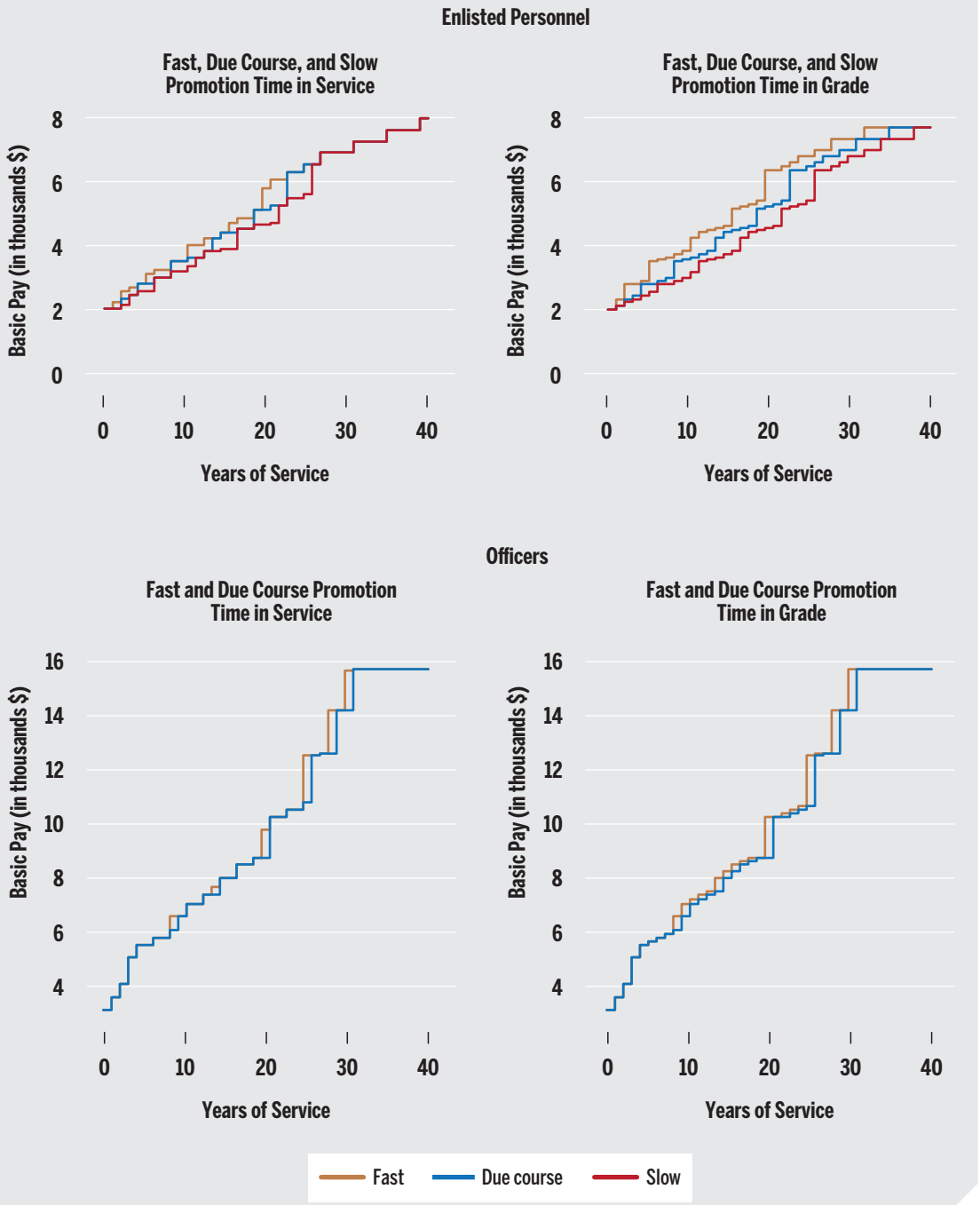
member promoted one year early only lasts for one year. This feature of a time-in-grade pay table provides greater incentive for performance.

Simulations of basic pay over a career illustrate the pay difference under the time-in-grade table. The difference in pay for enlisted personnel promoted from E-5 to E-6 at varying times (fast, due course, slow) is illustrated in the top half of Figure 5.2. For any given year of service, the difference in pay is the financial reward for faster promotion. The panel on the left illustrates the results of simulations of monthly basic pay over a career under a time-in-service pay table. In that case, those promoted faster (gold line) receive higher pay for a year or two, but the pay advantage lasts only until those promoted on time (blue line) catch up. In contrast, under a time-in-grade pay table (right panel), the higher pay for faster promotion is permanent, lasting for a full career. Those who receive due course promotions do not catch up. Consequently, under a time-in-grade pay table, basic pay over a career is higher for those promoted faster and lower for those promoted more slowly. Higher basic pay also means higher retired pay for those who qualify, as well as increased contributions to the TSP over a career.

A pay advantage for promotion also occurs for officers, though it is not as large because the officer pay table is more compressed than for enlisted personnel.[4] Figure 5.2 also shows simulations for officers who are promoted early versus on

4. Beth J. Asch, *Setting Military Compensation to Support Recruitment, Retention, and Performance*, Santa Monica, Calif.: RAND Corporation, RR-3197-A, 2019.

Figure 5.2 Simulated Annual Basic Pay over a Career, Time-in-Grade Versus Time-in-Service Pay Tables



NOTE: Data for enlisted personnel indicate annual basic pay differences for promotion from E-5 to E-6. Data for officers indicate annual basic pay differences for promotion from O-3 to O-4.

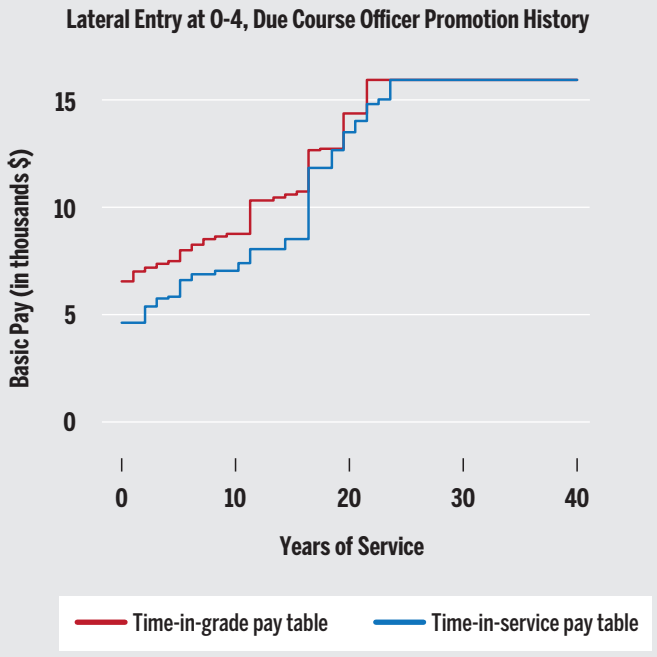
time to O-4. Officers are considered for promotion by entry-year group and are either promoted or not promoted by a particular year of service for each grade—promotion from O-3 to O-4, for example, occurs around the tenth year of service. In contrast, enlisted personnel may be considered for promotion every year over a wider interval. Because of this difference, only due course promotions for officers compared with promotions that occur one year faster are shown. Again, pay over a career for an officer who is promoted faster than his or her year group is higher under the time-in-grade pay table (right panel).

Higher Pay for Lateral Entrants

Also consistent with past commission findings, *a second advantage of the time-in-grade pay table is that it provides higher entry basic pay to lateral entrants than the time-in-service pay table*. The ability to offer higher pay to individuals transitioning to military service from the civilian workforce later in their careers is considered a major advantage of a time-in-grade pay table. To achieve higher pay under the current pay table, lateral entrants are often brought in at a higher grade than their military peers—something that a time-in-grade pay table would resolve.

Figure 5.3 illustrates the advantage in basic pay of the time-in-grade pay table for facilitating lateral entry as an O-4. Under a time-in-service pay table, a lateral

Figure 5.3 Simulated Basic Pay over a Career for Lateral Entrant as an O-4, Time-in-Grade Versus Time-in-Service



entrant would enter at zero years of service. In contrast, under the time-in-grade pay table, lateral entrants receive the pay of an O-4 with nine years of service, which is the entry years-of-service point for an O-4 (see Table 5.1)—resulting in higher basic pay at the time of entry. As discussed later in this chapter, other tools can be used in conjunction with a time-in-service pay table to realize similar pay outcomes but would require changes to current law to achieve.

Stronger Retention Incentives and Higher Performance

Another advantage of the time-in-grade pay table is that *it can provide stronger retention incentives and higher performance* than a time-in-service pay table. A time-in-grade pay table gives a permanent financial reward to faster promotion, as shown earlier in this chapter. Thus, if better performers are promoted faster, a time-in-grade pay table would increase the retention incentives for better performers and increase separation incentives for poorer performers. If the retention effect of better performers is stronger, retention will increase.

Our simulation results support this theory for the enlisted force, as shown in Figure 5.4. Under the time-in-grade pay table (red line), retention increases slightly primarily in the midcareer period, though the Marine Corps shows the smallest increase. These results show that the positive effect on retention for those who are promoted faster more than offsets the negative effects of those who are promoted slower under the time-in-grade table.

Based on these simulations, under the time-in-grade pay table enlisted force size for the Army, for example, increases by 1.5 percent, with a small change in cost per member—which decreases from $64,324 to $64,173. As shown in Table 5.2, the increase in force size across the services ranges from 0.4 percent for the Marine Corps to 1.5 percent for the Army. Cost decreases range from $111 per member for the Marine Corps to $274 per member for the Air Force.

For officers, there is a small effect across the services, implying that the positive and negative effects are about equal with the negative effect stronger in some cases. For officers, the change in force size ranges from −0.2 percent for the Army to 0.7 percent for the Marine Corps (Table 5.2). The smaller effects for officers could be due to the smaller effects of the time-in-grade table compared with the time-in-service table for fast-promoting officers, due to the compression in the officer pay table discussed previously. Another explanation may be that higher retention rates among officers as compared with enlisted personnel reflect a relatively higher preference for military service among officers—which means monetary changes may have less influence on officer retention decisions than those of enlisted personnel.

In addition to higher retention incentives, the average performance of the entire force and those in the higher grades also increases under a time-in-grade pay table.

Figure 5.4 Enlisted Retention Under Time-in-Service and Time-in-Grade Pay Tables

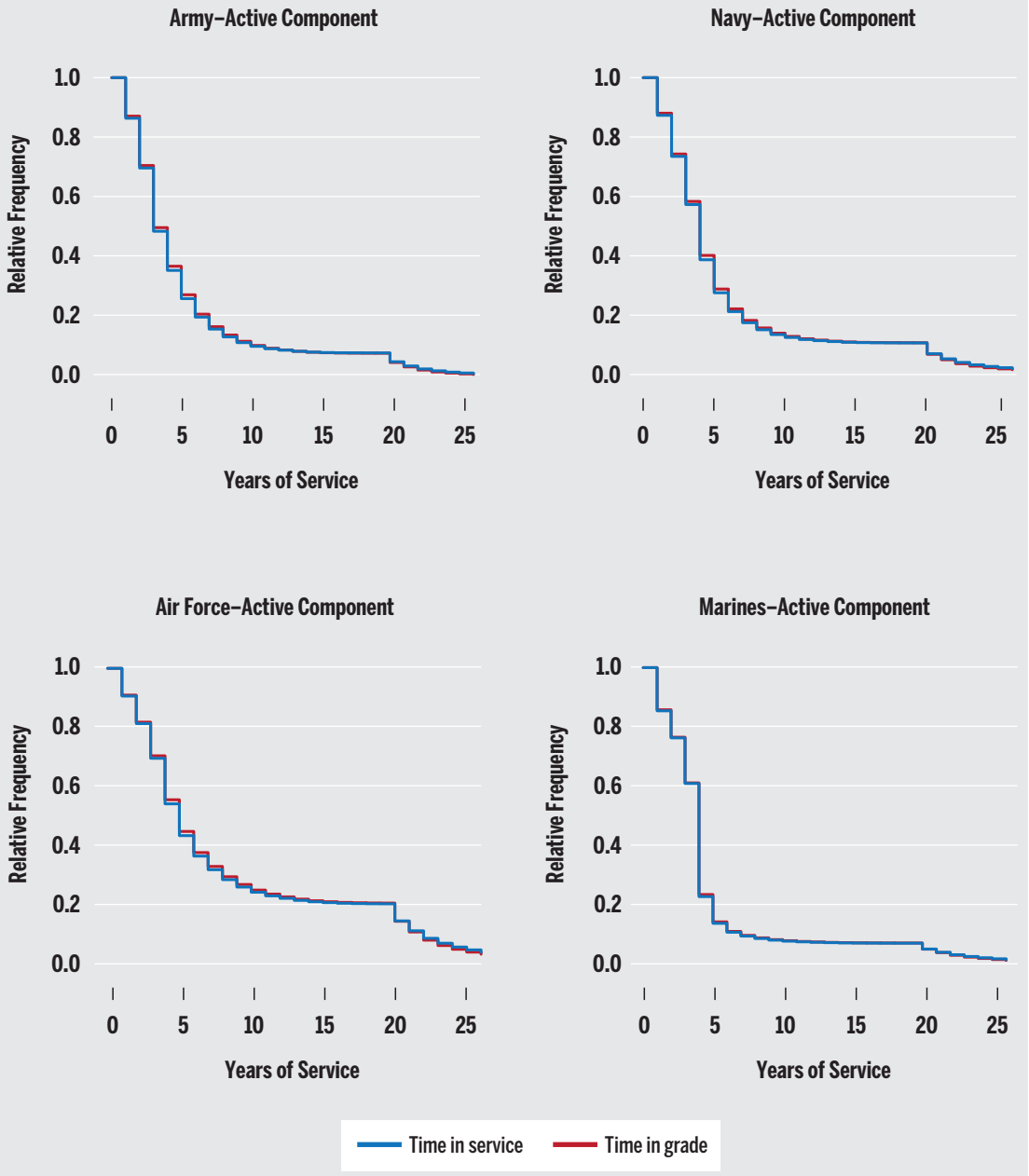


Table 5.2 Summary Statistics by Service on Retention and Cost

	Time-in-Service Pay Table	Time-in-Grade Pay Table
Enlisted		
Army		
Retention: percent change in force size	0.0	1.5
Cost per member (2019 dollars)	$64,324	$64,173
Navy		
Retention: percent change in force size	0.0	1.3
Cost per member (2019 dollars)	$66,770	$66,582
Marine Corps		
Retention: percent change in force size	0.0	0.4
Cost per member (2019 dollars)	$65,105	$64,994
Air Force		
Retention: percent change in force size	0.0	1.2
Cost per member (2019 dollars)	$73,518	$73,224
Officers		
Army		
Retention: percent change in force size	0.0	−0.2
Cost per member (2019 dollars)	$123,989	$122,876
Navy		
Retention: percent change in force size	0.0	−0.3
Cost per member (2019 dollars)	$120,528	$119,331
Marine Corps		
Retention: percent change in force size	0.0	0.7
Cost per member (2019 dollars)	$127,814	$127,054
Air Force		
Retention: percent change in force size	0.0	0.1
Cost per member (2019 dollars)	$124,322	$123,401

SOURCE: QRMC computations.
NOTE: Costs include active duty basic pay and allowances and retirement accrual costs.

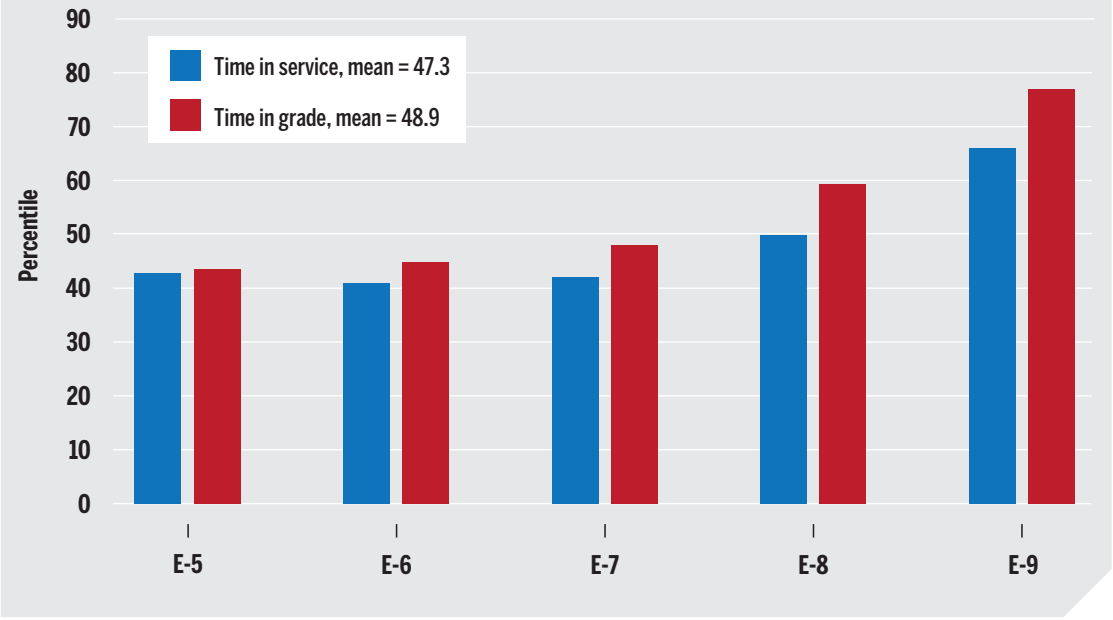
Using ability as reflected by the speed of promotion as a measure of performance,[5] the average ability percentile across Army enlisted personnel, for example, is 47.3 under a time-in-service pay table compared with 48.9 under a time-in-grade

5. By *ability*, we mean characteristics of individual members that increase or decrease their promotion speed relative to their peers and can include innate cognitive intelligence as well as other characteristics that lead to success, such as ability to work well in teams and work in a hierarchical organizational structure and resilience to such changes as frequent moves and new assignments. The estimates presented here assume that ability is normally distributed with a mean of zero and a standard deviation of 0.5 for enlisted personnel and a standard deviation of 1.5 for officers.

table, an increase of 3.4 percent. Furthermore, the time-in-grade pay table is more successful at inducing higher ability personnel to stay in service and seek advancement to the upper grades, as illustrated in Figure 5.5 for Army enlisted grades E-5 to E-9. Overall average ability gains and gains for selected grades are shown for all the services in Appendix E.

Because the productivity of higher-ranked personnel has a spillover effect on those in lower ranks, it is important that those in the more senior ranks have high ability. Under a time-in-grade pay table, average ability of those in the higher ranks is greater than it is under the time-in-service pay table. Furthermore, the difference between the average ability of those in the senior ranks relative to those in the junior ranks is greater than it is under a time-in-service pay table. In particular, in Figure 5.5 under the time-in-service pay table, the average ability percentile of an E-9 is 66.0 compared with 44.5 for an E-5, an increase of 42.8 percent. This effect is stronger under the time-in-grade pay table; the average ability percentile increases 76.3 percent (from 43.6 to 76.9 percent) between E-5 and E-9. This result occurs because better performers are more likely to be promoted and retained under the time-in-grade pay table. Similar results were observed for enlisted personnel and officers in the other services.

Figure 5.5 Simulated Average Ability for the Army Enlisted Force Grades E-5 to E-9



NOTE: Graph shows mean ability percentile by grade.

Efficiency

Modeling simulations indicate that the *time-in-grade pay table would be a more efficient approach to setting basic pay because it can achieve about the same retention as the time-in-service pay table, at less cost per member, and improved performance*. A key result of the simulations conducted for the QRMC is that retention and average ability increase for enlisted personnel under the time-in-grade pay table versus a time-in-service pay table with virtually no change in cost per member. This result implies that the time-in-grade pay table is more efficient—more readiness is produced by the time-in-grade pay table for the same cost. An additional implication is that about the same retention could be achieved under the time-in-grade pay table with less cost.

To illustrate this implication, the QRMC simulated the effect of a 0.375-percent across-the-board pay cut. These results, using the Army enlisted force as an example in Table 5.3, indicate that a 0.375-percent across-the-board pay cut under the time-in-grade pay table would lead to a force size equivalent to a force size under a time-in-service pay table. Although force size is the same, cost per member is lower, $63,634 versus $64,173. Furthermore, even with an across-the-board pay cut, the time-in-grade pay table still results in higher ability overall (48.9) and higher ability in the upper ranks (76.8 for E-9) than a time-in-service pay table. The results imply that the time-in-grade pay table would enable DoD to achieve existing retention rates with higher ability at a lower cost per member.

Table 5.3 Army Enlisted Summary Statistics of Retention, Performance, and Cost

Army Enlisted Personnel	Time-in-Service Pay Table	Time-in-Grade Pay Table	Time-in-Grade Pay Table with 0.3751% Across-the-Board Pay Cut
Average ability percentile			
E-5	42.8	43.6	43.7
E-9	66.0	76.9	76.8
Overall	47.3	48.9	48.9
Retention: percent change in force size	0.0	1.5	0.0
Cost (2019 dollars)	$64,324	$64,173	$63,634

SOURCE: QRMC computations.
NOTE: Costs include active duty basic pay and allowances and retirement accrual costs.

Disadvantages of a Time-in-Grade Pay Table

The time-in-grade pay table is not without disadvantages, and the three most commonly cited are transition costs, pay inversions, and the reality that differences in promotion speed do not always reflect differences in individual performance. But as explained in the following discussion, policy options are available that can minimize some of these drawbacks and others tie to advantages as well.

Transition Costs

The major disadvantage of a time-in-grade pay table is that the transition would involve a cost to DoD and would be disruptive to a significant fraction of the force. Commissions as early as the 1957 Defense Advisory Committee on Professional and Technical Compensation raised the concern that members would see a reduction in pay during the transition from a time-in-service to a time-in-grade pay table. Like later commissions, including the Defense Advisory Committee on Military Compensation, the 1957 commission recommended "save pay," a policy that would prevent members from receiving lower compensation than before the change.[6]

The time-in-grade pay table constructed for the QRMC contained entry years of service that were based on average promotion times observed between FY 2013 and 2018 (see Table 5.1). But promotion timing for individual service members can vary from these averages. As a consequence, basic pay for an individual at the time of transition to a time-in-grade pay table may be higher or lower than what he or she earned under the time-in-service table. As it turns out, a considerable portion of the force would be affected during the year of transition.

Analysis performed for the QRMC estimated that just under one-third of the active force would experience a basic pay reduction in the transition to the time-in-grade pay table, or 32.1 percent, as shown in Table 5.4, with an average reduction in basic pay of 6.0 percent among those who would experience a pay reduction. Across all active duty personnel, 45.7 percent would receive the same basic pay, and 22.3 percent would experience a pay increase.

However, the proportion of the force affected by a change in basic pay varies by grade category. Nearly all warrant officers, 91.6 percent, would experience a reduction in pay of about 15 percent on average, while just over half, or 53.2 percent, of commissioned officers would experience a reduction in pay of 6.6 percent on average at the time of transition to a time-in-grade pay table. On the other hand, the

6. Department of Defense Financial Management Regulation 7000.14-R, *Military Pay Policy—Active Duty and Reserve Pay*, Volume 7A, Washington, D.C., April 2017; U.S. Office of Personnel Management, "Fact Sheet: Pay Retention," webpage, undated.

Table 5.4 Extent of the Change in Basic Pay in the Year of Transition to a Time-in-Grade Pay Table from a Time-in-Service Pay Table

	Percent of Members			Given Pay is Lower in Time-in-Grade Table
	Same	Lower in Time-in-Grade Table	Higher in Time-in-Grade Table	Average Percent Difference in Basic Pay
Enlisted	50.2	27.1	22.7	–5.2
Commissioned officers	29.3	53.2	17.5	–6.6
O-1E to O-3E	2.6	44.2	53.2	–8.5
Warrant officers	3.1	91.6	5.4	–15.0
All	45.7	32.1	22.3	–6.0

SOURCE: QRMC computations.
NOTE: Tabulations based on the 2018 time-in-service and time-in-grade pay table (see Tables 5.1) and DMDC data on active-duty members in January 2019.

majority of enlisted personnel who became officers and are in pay grades O-1E to O-3E would experience a pay increase. Over one-quarter, or 27.1 percent, of enlisted personnel would experience a pay reduction of 5.2 percent on average.

DoD could adopt a save pay provision to mitigate these pay reductions and hold members harmless—a policy option already available to the Department today. Analysis for the QRMC estimated that in the first year, the cost of a save pay provision would be $1.39 billion in 2018 dollars. A little over 40 percent of the cost, $0.61 billion, is associated with the enlisted force.[7] The total is about the same as the $1.43 billion estimated by the 10th QRMC.[8]

To put the $1.39 billion figure in context, the 2018 appropriation for active component military personnel was about $115.9 billion.[9] Furthermore, this cost would be incurred in the short run. In the long run, the time-in-grade pay table would produce a cost savings as discussed previously in the context of efficiency gains. The transition costs for save pay estimated here do not include the cost of providing financial education to the force and "socializing" the change to smooth

7. Costs for other grade categories are as follows: $0.58 billion for commissioned officers, $0.50 billion for O-1E–O-3E; and $0.17 billion for warrant officers.

8. Paul Hogan and Patrick Mackin, "Final Report on the Time-in-Grade Pay Table," in Department of Defense, Office of the Under Secretary of Defense for Personnel and Readiness, *Tenth Quadrennial Review of Military Compensation*, Vol. III, Chapter 10, Washington, D.C., February 2008.

9. Department of Defense, Office of the Under Secretary of Defense (Comptroller), *Department of Defense Budget for 2020*, Washington, D.C., March 2019. The figure in the main text excludes Medicare-Retiree Health Care Contributions.

the transition. Yet some of the cost of a save pay provision could be mitigated if Congress and DoD implemented a transition to a time-in-grade pay table and associated save pay costs in conjunction with the annual across-the-board pay adjustments.[10]

Pay Inversions

Another challenge with establishing the time-in-grade pay table is that *pay for warrant officers and commissioned officers who transition out of the enlisted force could decrease, creating a pay inversion for these personnel*. The inversion arises because members promoted from the enlisted force to either the warrant officer or commissioned officer status often have widely different amounts of prior enlisted service. Another reason for the inversion is that the time-in-grade pay table for warrant officers is designed for those with no prior enlisted service, so for those who become warrant officers with prior enlisted service, pay would be lower than under a time-in-service pay table.[11]

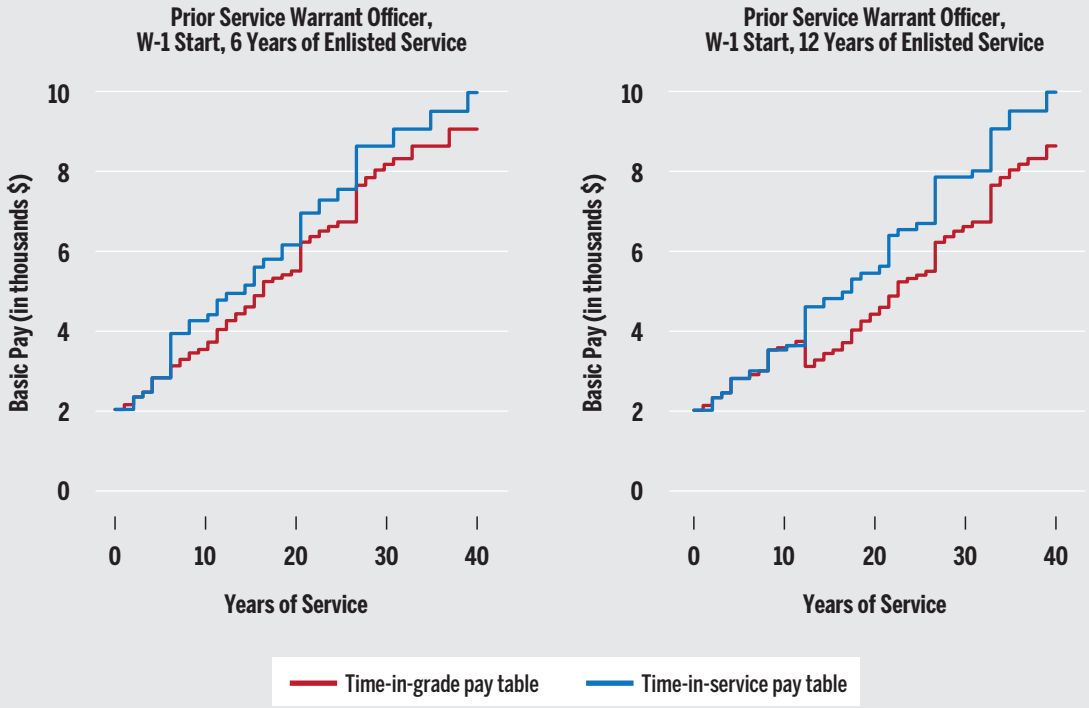
The potential for pay inversion is illustrated in Figure 5.6, which shows basic pay over a career under both time-in-grade and time-in-service pay tables for a member who transitions to warrant officer status after either 6 or 12 years as an enlisted member (left and right panels, respectively). In years prior to promotion to warrant officer, basic pay is the same under either pay table reflecting the design of the time-in-grade pay table as described earlier in this chapter (the red and blue line overlap). After promotion to warrant officer, pay is lower under the time-in-grade pay table. In the case of those with 12 years of service as an enlisted member, pay is not only lower under the time-in-grade pay table compared with a time-in-service table, but at the transition point to warrant officer status pay actually declines under the time-in-grade pay table, as seen by the reduction in pay at 12 years of service (right panel).

This disadvantage of the time-in-grade pay table could be addressed by allowing the services the flexibility to set the starting grade for those with prior enlisted service. For example, warrant officers with substantial amounts of prior enlisted service could be permitted to transition to warrant officer status at a grade higher than W-1. They could transition to warrant officers status at the grade of W-2 or W-3, assuming positions are available for which the individual has the requisite skills. Such flexibility could go a long way to addressing the pay inversion that otherwise occurs and is

10. This proposal was explored by Hogan and Mackin, 2008, for the 10th QRMC.

11. It is possible to design a time-in-grade table for warrant officer pay such that it is higher than the pay for those without prior enlisted service, but doing so would mean that those who enter without prior enlisted service would receive a "rent" or a pay increase that is not required to sustain accessions or retention.

Figure 5.6 Simulated Annual Basic Pay over a Career, Time-in-Grade Versus Time-in-Service Pay Tables with Due Course Promotion Histories for Warrant Officers with 6 or 12 Prior Years of Enlisted Service



consistent with the Navy approach of allowing warrant officers to enter as a W-2. A similar strategy could be used for commissioned officers.

Promotion Speed Reflects Other Factors in Addition to Individual Performance

Another disadvantage of a time-in-grade pay table noted in the past is that *differences in promotion speed can reflect factors other than differences in individual performance*, such as differences in promotion opportunities due to supply and demand factors. For example, if the economy improves, retention falls, thereby increasing promotion opportunities for those in the lower grades. Past critics of a time-in-grade pay table were concerned that a relatively large share of the variation in promotion is attributable to such factors as supply and demand that are unrelated to merit. That said, past commissions have also argued that this feature of a time-in-grade pay table also has an advantage. The change in promotion opportunities due to changes in retention (motivated by factors outside of DoD's control) is a self-correcting mechanism that creates an offsetting retention and recruiting effect. By magnifying the pay differences associated with promotion, this self-correcting effect is stronger under a time-in-grade pay table.

The QRMC considered empirical evidence regarding the role of supply and demand factors in promotion speed, focusing on enlisted personnel, where promotion speeds are more apt to vary over time and across personnel. Analysis of time for promotion to E-4 and E-5 for enlisted cohorts entering in 2001 to 2013 shows considerable variation in time to promotion for both grades. And these differences in time to promotion lead to basic pay differences within grades and across services that are larger under the time-in-grade pay table than under a time-in-service pay table (and are eliminated under the time-in-service pay table once everyone in a cohort is promoted).

However, the results of this analysis also indicate that the conclusions are more nuanced than those drawn by the critics of the time-in-grade pay table. Consistent with the concerns of the critics, there is evidence that a relatively large share of the variation in promotion is attributable to supply and demand factors unrelated to promotion. The QRMC found that about half of the variation in survival to E-4 and one-quarter of the variation in time to E-5 is explained by supply and demand factors. But when controlling for the influence of supply and demand factors, remaining pay differences represent a financial incentive for performance, and these differences are still larger under a time-in-grade than a time-in-service pay table. Thus, while the criticism has merit, it is still the case that the time-in-grade pay table provides a stronger financial incentive for performance.

Alternatives to Achieving Benefits of a Time-in-Grade Approach

A question that arises in consideration of a time-in-grade pay table is whether the advantages of the time-in-grade pay table could be fully achieved with a time-in-service pay table. The answer to this question is yes for some advantages of the time-in-grade pay table—namely, the ability to offer more competitive pay to lateral entrants. But in terms of the major advantages of the time-in-grade pay table—the increased efficiency and performance of the force—the answer is no, though with some changes in policy, a time-in-service pay table might be able to come close. The QRMC considered two policy options toward this end—constructive credit for performance and credential pay (pay to members who earn a specific skill credential).

Expanded Definition of Constructive Credit

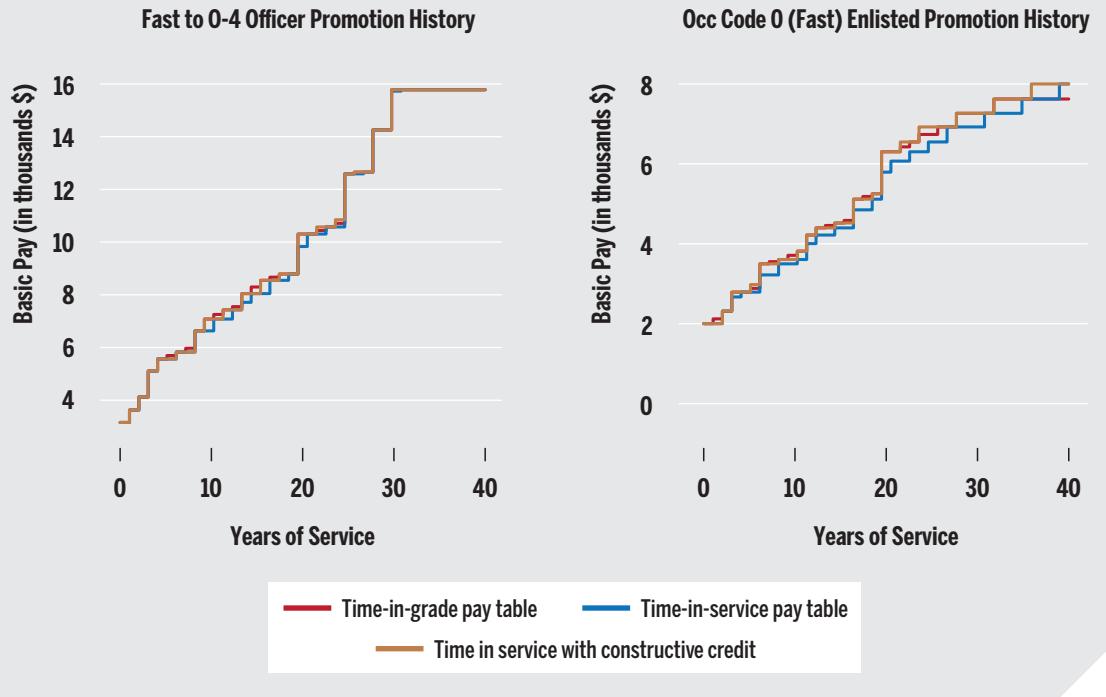
Constructive credit, as currently implemented by DoD, rewards service members for advanced education, training, or experience earned prior to entering the military. The policy gives years-of-service credit for these activities and allows these individuals to enter service at a higher entry grade and, consequently, at higher military basic pay than they would earn in the absence of constructive credit. The

use of constructive credit is limited to certain specified specialties. As mentioned previously in this chapter, constructive credit authority included in the 2019 NDAA allows officers to enter service at a grade as high as O-6.

Current policy regarding constructive credit focuses on providing higher entry grades for lateral entrants than they would receive if they entered as an O-1. An advantage of the time-in-grade pay table is that it would allow pay to be more competitively set for lateral entrants. But an identical result could be achieved under a time-in-service pay table, if Congress changed the current definition of constructive credit to give the services the opportunity to offer both a higher entry grade and a higher longevity entry point. For example, a lateral entrant could be permitted to enter as an O-3 at ten years of service rather than one year of service.

A further expansion of the definition of constructive credit that would give years of service credit in the pay table for better performance can broadly replicate the higher basic pay found under the time-in-grade pay table and provide a permanent reward for fast promotion—something missing from the time-in-service pay table. The pay improvement would apply only to basic pay, not to a member's retirement eligibility for computing retired pay. Figure 5.7 illustrates these effects for officers at the grade of O-4 and for enlisted personnel in fast-promoting occupations in the

Figure 5.7 Simulated Annual Basic Pay over a Career, Time-in-Grade, Time-in-Service, and Time-in-Service Pay Table with Constructive Credit



Army. Basic pay profiles for fast promoters under a time-in-service pay table with constructive credit (gold line) are higher than without constructive credit (blue line) and nearly identical to the time-in-grade pay profile (red line).

Simulations of the effect of constructive credit on retention, cost, and ability indicate that constructive credit for performance would also be an improvement over the time-in-service pay table (in the absence of constructive credit for performance) in terms of efficiency. But enlisted and officer retention and average ability would not improve as much as predicted under the time-in-grade pay table. In other words, the simulations indicate that constructive credit is an improvement over the current time-in-service pay table but would be less efficient than the time-in-grade pay table, as shown in Table 5.5.

For Army officers, retention is higher under a time-in-service pay table with constructive credit than under either a time-in-service or a time-in-grade pay

Table 5.5 Army Enlisted and Officer Summary Statistics Under a Time-in-Service Pay Table with Constructive Credit

	Time-in-Service Pay Table	Time-in-Grade Pay Table	Time-in-Service Pay Table with Constructive Credit
Army Enlisted Personnel			
Average ability percentile			
E-5	42.8	43.6	43.4
E-9	66.0	76.9	73.2
Overall	47.3	48.9	48.3
Retention: percent change in force size	0.0	1.5	1.2
Cost (2019 dollars)	$64,324	$64,173	$64,748
Army Officers			
Average ability percentile			
O-3	31.1	31.3	28.1
O-7	72.6	75.7	75.8
Overall	36.6	37.3	37.1
Retention: percent change in force size	0.0	–0.2	1.0
Cost (2019 dollars)	$123,989	$122,876	$124,503

SOURCE: QRMC computations.
NOTE: Costs include active duty basic pay and allowances and retirement accrual costs. Percent change in force size is based on the September 2019 force size of the Army enlisted and officer forces.

table, particularly later in an officer's career. As the table shows, officer force size increases by 1 percent compared with −0.2 percent under the time-in-grade pay table. For Army enlisted personnel, force size increases by 1.2 percent under a time-in-service pay table with constructive credit but not by as much as the 1.5-percent increase under time in grade.

Like retention, the performance of the force, as measured by ability, also improves under a time-in-service pay table with constructive credit relative to a time-in-service pay table without constructive credit but not as much as under a time-in-grade pay table. The same pattern holds for performance at higher grades. The average ability percentile for an E-9 increases from 66.0 under a time-in-service pay table to 73.2 when constructive credit is added. But the increase is not as large as under the time-in-grade pay table, where the average ability percentile for an E-9 increases to 76.9. For Army officers, the average ability percentile is also lower, albeit slightly, under constructive credit versus the time-in-grade pay table but higher than a time-in-service pay table without constructive credit.

The simulation results for enlisted personnel and officers also show that constructive credit is less efficient than the time-in-grade pay table. For enlisted personnel, cost per member is higher, $64,748 versus $64,173, and constructive credit improves retention by less (1.2 percent versus 1.5 percent), improves average ability by less (48.3 versus 48.9), and results in lower average ability in the senior grades (73.2 versus 76.9).

Skill or Credential Pay

Credential pay, or proficiency pay, refers to additional monthly compensation that a military service member could receive for holding a specific educational credential or training proficiency. The QRMC examined whether credential pay could provide performance incentives under a time-in-service pay table that are similar to what could be provided by the time-in-grade pay table.

Prior analysis showed that skill-incentive pay allows the services to offer a pay for a skill that is not tied to a position or duty assignment. Consequently, members with the requisite proficiency can receive proficiency pay even if they are not currently performing the duty—such as service members with foreign language skills that are not using those skills in their current duty assignment. This can help the services meet the requirements for or ensure an inventory of personnel with needed skills. It enables the services to pay for expertise that could exist in the civilian sector or be developed in the military and raises pay for marketable skills. It also provides more pay stability to the extent that the pay does not turn on or off as members are rotated in and out of duties requiring the skill.

An examination of the relevant academic and defense manpower literature on credential pay suggests that credential pay is not designed to be a pay-for-performance program that rewards superior performance and reduces pay for those who fall short. When a higher level of skill increases performance, skill pay provides an incentive for greater performance. But credential pay is designed to reward skill, *not changes in performance*, and would not increase or decrease to reflect superior performance or performance that falls short. Thus, it would not be an effective substitute to the time-in-grade pay table in terms of increasing performance incentives.

Recommendation

The QRMC finds that a time-in-grade pay table and a new form of constructive credit have merit and warrant further study. It recommends that the Department undertake these studies and, as part of this effort, develop a plan and parameters for a pilot program with a service partner(s).

Part
FOUR

USE OF ASSISTANCE PROGRAMS

Chapter SIX

Service Member Use of Supplemental Nutrition Assistance Program

The last topic raised in the QRMC charter was the usage of SNAP and the implication of its usage in assessing the adequacy of overall military compensation. One measure of the adequacy of compensation is how many service members qualify for public assistance. Thus, the QRMC examined the usage of SNAP among members of the U.S. military. SNAP is a federal aid program, formerly known as the Food Stamp Program, that helps low-income individuals and families with financial assistance to purchase food. The amount of the assistance depends on household size, household income, and other circumstances.

The QRMC's analysis began by exploring the eligibility requirements for SNAP as it relates to military allowances and in-kind benefits and estimating the potential *eligibility* for SNAP based on aggregated data. The QRMC also considered the eligibility among service members today for the Family Subsistence Supplemental Allowance (FSSA) if it were to be reinstated. FSSA is a DoD benefit established in 2001 to eliminate the need for SNAP benefits for service members; the program was discontinued in 2016 for members serving in the United States, Puerto Rico, the U.S. Virgin Islands, or Guam but is still available for those members serving outside these areas.[1]

This initial examination was extended to determine *the usage* of SNAP among active component service members using the Public Assistance Reporting Information System (PARIS), which includes information on people who receive SNAP and other federal benefits. These data come from the participating states and are the most authoritative data ever used to estimate the use of SNAP by service members. Both estimates show that a very small number of service members are eligible for or enrolled in SNAP at any point in time, and these members tend to be in the junior enlisted grades with several dependents.[2]

1. Department of Defense Financial Regulation 7000.14-R, *Military Pay Policy—Active Duty and Reserve Pay*, Volume 7A, Chapter 25, Washington, D.C., April 2018.

2. The research findings reported in this chapter are drawn from the following supporting research papers: Peggy Golfin, Jacklyn Kambic, and Josh Horvath, *Improving Knowledge about the Number and Characteristics of Servicemembers Receiving SNAP Benefits*, CNA; and Peggy Golfin and Danielle Angers with Chris Gonzales, *Supplemental Nutrition Assistance Program (SNAP) and Military Families: Who Qualifies and Where*, CNA. These reports contain detailed discussion of the data, analytic approach, other methodological information, and more-detailed findings. Additional information on SNAP eligibility is contained in Peggy Golfin, Danielle Angers, Chris Gonzales, Chris Petrillo, and Tom Geraghty, *A Guidebook for Military Families: Eligibility Criteria for SNAP; Women, Infants, and Children; and the Subsidized School Lunch Program*, CNA. These supporting research papers are in Volume IV of this report.

Supplemental Nutrition Assistance Program Guidelines

SNAP is administered by the U.S. Department of Agriculture's Food and Nutrition Service with benefits distributed by the states and U.S. territories. Puerto Rico is the only jurisdiction that does not participate in SNAP.[3] SNAP eligibility is based on households' gross income, net income, and assets. For the purpose of SNAP, households are defined as people who live and eat meals together, even if they are not dependents in the Defense Enrollment Eligibility Reporting System.[4] States have the option of using federal guidelines for screening households or automatic approval by being eligible for or receiving benefits from other assistance programs, such as Supplemental Security Income, Temporary Assistance for Needy Families, or state-run programs. This latter eligibility standard is referred to as Broad-Based Categorical Eligibility (BBCE). As of July 2019, 39 states, the District of Columbia, Guam, and the Virgin Islands have implemented BBCE.[5]

Federal and State Guidelines

Federal SNAP guidelines require gross household income to be no more than 130 percent of the federal poverty line, which varies with the number of household members and is higher for residents of Alaska and Hawaii, as shown in Table 6.1. (Households with an elderly member [defined as age 60 or older] or a disabled member are not subject to the gross income requirement.[6]) A four-member household living in the 48 contiguous states, for example, must have no more than $2,719 in monthly income ($2,092 times 1.3).

Income is defined as all earned and unearned income, including wages, salaries, cash assistance, Social Security, unemployment insurance, and child support.[7] Service members who live separately from their families while deployed are typically counted as household members on the family's SNAP application, and their pay is included in household income as long as it is made available to the household (such as deposited

3. Puerto Rico administers a program known as the Nutrition Assistance Program using funds provided through a block grant from the U.S. federal government.

4. Service members serving in U.S. territories do not have unique military housing areas. For instance, a military housing area may include areas within Guam and the Virgin Islands. Consequently, U.S. territories are not included in the calculations reported here. See U.S. Department of Agriculture, Food and Nutrition Service, "Supplemental Nutrition Assistance Program (SNAP)," webpage, April 22, 2018a.

5. U.S. Department of Agriculture, Food and Nutrition Service, "Broad-Based Categorical Eligibility," webpage, May 8, 2020.

6. U.S. Department of Agriculture, Food and Nutrition Service, 2018a.

7. Center on Budget and Policy Priorities, "A Quick Guide to SNAP Eligibility and Benefits," October 16, 2018.

Table 6.1 Fiscal Year 2019 Federal Monthly Poverty Level Income

Number of Household Members	48 Continuous States, D.C., Guam, and Virgin Islands	Alaska	Hawaii
1	$1,012	$1,265	$1,134
2	$1,372	$1,715	$1,578
3	$1,732	$2,165	$1,992
4	$2,092	$2,615	$2,406
5	$2,452	$3,065	$2,820
6	$2,812	$3,515	$3,235
7	$3,172	$3,965	$3,649
8	$3,532	$4,415	$4,063
Per additional person	$360	$450	$415

SOURCE: *Annual Update of HHS Poverty Guidelines: A Notice by the Health and Human Services Department*, Federal Register 83, January 18, 2018, pp. 2642–2644.

into a joint checking account).[8] Assets, referred to as countable resources, are capped at $2,250 or, if at least one member of the household is elderly or disabled, at $3,500. Certain assets are not counted, such as a home and lot; states determine how vehicles are treated.[9] There are detailed guidelines pertaining to various assets and certain work or education and training requirements related to eligibility.

Net income, which is the basis for calculating monthly benefits, is derived by subtracting the following items from gross income:

1. 20 percent of gross income
2. a standard deduction that is based on household size
3. dependent care expenses if they are needed for work, training, or education
4. medical expenses for elderly or disabled members if they exceed $35 per month and are not paid by insurance or someone else
5. in some states, child support payments
6. excess shelter costs (which include fuel for heating and cooking, electricity, water, telephone, rent or mortgage and interest, and taxes on the home), defined as costs associated with the household's shelter that exceed half of its income after deductions 1 through 5 are made.

8. This interpretation of income as it applies to families with deployed service members comes from an email response from the U.S. Department of Agriculture, Food and Nutrition Service, SNAP office.

9. U.S. Department of Agriculture, Food and Nutrition Service, 2018a.

States that have implemented BBCE apply a flexible definition of eligibility. Households in a state qualify for SNAP if they satisfy the state-set gross income limit (which ranges between 130 and 200 percent of the federal poverty level) and asset thresholds, one or both of which are higher than the federal standard. In all but five BBCE states or territories, there is no asset limit. But federal law makes households in which all members of a household are eligible for or receiving benefits from any of a number of assistance programs automatically eligible for SNAP. Households that fall into this category have already gone through the eligibility determination for those programs and then bypass income and resource tests for SNAP.

All states, including those with BBCE, use the federal formula for calculating net income and adhere to the federal net income limit of 100 percent of the poverty line.

In addition to meeting income and asset requirements, SNAP has two work requirements: a general work requirement and one for able-bodied adults without dependents.[10] While all service members would satisfy these requirements, other household members, including spouses, also would be required to meet these requirements.

Monthly Benefits

SNAP guidelines require households to spend 30 percent of their net monthly income on food. The amount of SNAP benefit they receive is the difference between the maximum amount for that number of people in the household and their 30-percent contribution. Table 6.2 shows the maximum benefits by household members and location. For instance, a household of four in one of the contiguous states that had a net income of $2,000 per month would be expected to contribute $600 toward food. Its maximum benefit is $642, so it would receive $42 in monthly SNAP benefits. All households consisting of one or two members who qualify based on gross and net income levels, or because they qualify in a BBCE state, are eligible for a minimum SNAP benefit, as shown in the last row. Maximum monthly SNAP benefits in the 48 continuous states range from a minimum of $15 for a household of one or two people to $1,155 for a household of eight members (plus $144 per additional person).[11] Benefits are higher in Alaska, Hawaii, and the territories.

10. U.S. Department of Agriculture, Food and Nutrition Service, "SNAP Work Requirements," webpage, undated.

11. U.S. Department of Agriculture, Food and Nutrition Service, "SNAP Eligibility," webpage, "Am I Eligible for SNAP?" webpage, September 28, 2018b.

Table 6.2 Fiscal Year 2019 Supplemental Nutrition Assistance Program Maximum Monthly Benefits

Number of Household Members	48 States and D.C.	Alaska Urban[a]	Alaska Rural 1	Alaska Rural 2	Hawaii	Guam	Virgin Islands
1	$192	$232	$295	$360	$358	$282	$247
2	$353	$425	$542	$660	$656	$520	$454
3	$505	$609	$776	$945	$940	$745	$650
4	$642	$773	$986	$1,200	$1,193	$946	$825
5	$762	$918	$1,171	$1,425	$1,417	$1,123	$980
6	$914	$1,102	$1,405	$1,711	$1,701	$1,348	$1,176
7	$1,011	$1,218	$1,553	$1,890	$1,880	$1,490	$1,300
8	$1,155	$1,392	$1,775	$2,161	$2,148	$1,703	$1,485
Per additional person	$144	$174	$222	$270	$269	$213	$186
Minimum (1–2 people)	$15	$19	$24	$30	$29	$23	$20

SOURCES: Lizbeth Silbermann, "SNAP—Fiscal Year 2019 Cost-of-Living Adjustments," memorandum to all regional directors, Supplemental Nutrition Assistance Program, July 27, 2018; "Supplemental Nutrition Assistance Program (SNAP) Fiscal Year (FY) 2019 Minimum Allotments," USDA (United States Department of Agriculture). As of October 8, 2019: https://fns-prod.azureedge.net/sites/default/files/media/file/FY19-Minimum-Allotments.pdf

[a] For details regarding Alaska city and village classifications, see State of Alaska Health and Social Services, *Alaska Food Stamp Manual*, "Addendum 1: Food Stamp Program City and Village Classification," undated.

Benefit Recertification

SNAP benefits are approved for a certain number of months, typically 6 to 12 months, referred to as the certification period. Households are required to report changes in income, which are verified and eligibility and benefit levels recalculated; asset changes must also be reported. At the end of the certification period, households must apply for recertification to continue to receive benefits.

Treatment of Military Pays

Almost all military compensation is considered as income for SNAP. The only exceptions are additional payments received by a member while deployed to a combat zone that the service member did not receive before deployment to or service in a federally designated combat zone.[12] Other exceptions are in-kind benefits, defined as benefits for which no monetary payment is made on behalf

12. Silbermann, 2017.

of the household. Living in government-owned housing for which there is no rent or utility cost is an example of an in-kind benefit. According to the Code of Federal Regulations,[13] any gain or benefit (including in-kind benefits) that is not in the form of money payable directly to the household is exempt from income for SNAP eligibility purposes.

All service members receive basic pay and are eligible for a variety of entitlements, but not all service members receive all other entitlements. BAH and BAS are two elements of compensation, as the results will show, that are important factors in determining which service members are eligible for SNAP. One-time or infrequently disbursed special and incentive pays that add volatility to service members' income can also affect SNAP eligibility.

Estimates of Supplemental Nutrition Assistance Program Eligibility

The QRMC estimated the number of service members who are potentially eligible for SNAP based on data aggregated from several sources and a number of assumptions about household composition, income, and assets. Gross income was calculated as the total of basic pay, BAH, BAS, and the cost-of-living allowance. Household size was the number of dependents in the Defense Enrollment Eligibility Reporting System plus the service member. Some assumptions may result in higher numbers of eligible service members, and others in lower numbers; but the estimates provide a reasonable baseline of eligibility.

Given data on the current composition of members serving in the United States, about 1,929 members would be eligible for SNAP benefits each month, as shown in Table 6.3, which contains estimated SNAP eligibility for each compensation category and overall, as well as monthly SNAP benefits. The number of eligible service members represents less than 0.2 percent of service members stationed in the United States, far less than the 9.6 percent of adults in the United States, ages 18 to 59, enrolled in SNAP in FY 2018.

None of the potentially eligible service members are above the pay grade of E-7, and about half (903) are in junior enlisted grades E-1 through E-3. A significant number of junior service members have several dependents. Junior members who qualify for SNAP would be eligible for only a period of a few months to perhaps one or two years due to rapid promotions in the junior grades for all services. Service members

13. Specifically, this refers to Code of Federal Regulations, Title 7, Subtitle B, Chapter 11, Subchapter C, Part 273, Subpart D, Section 273.9.

Table 6.3 Estimated Supplemental Nutrition Assistance Program Eligibility by Pay Grade and Compensation Category

Pay Grade	Number Eligible			Monthly SNAP Benefits ($)			Total Additional Monthly Compensation Required ($)		
	No BAH	BAH with Dependents	Total	No BAH	BAH with Dependents	Total	No BAH	BAH with Dependents	Total
E-1	9	180	189	1,815	20,048	21,863	7,157	42,107	49,264
E-2	18	222	240	2,005	21,220	23,225	6,469	38,276	44,745
E-3	32	442	474	5,956	61,327	67,283	19,433	108,162	127,595
E-4	96	450	546	9,510	81,295	90,806	29,746	113,870	143,616
E-5	135	329	464	19,515	33,408	52,923	57,284	32,410	89,694
E-6	13	0	13	2,531	0	2,531	6,590	0	6,590
E-7	3	0	3	382	0	382	876	0	876
E-8	0	0	0	0	0	0	0	0	0
E-9	0	0	0	0	0	0	0	0	0
Total	306	1,623	1,929	41,716	217,300	259,016	127,555	334,825	462,380

without dependents cannot quality for SNAP in any military housing area or pay grade; no officers qualify for SNAP.

Although fewer members who do not receive BAH are eligible for SNAP, a higher percentage of those members are eligible for SNAP (10 percent would qualify) than members who receive BAH with dependents (0.4 percent would qualify). The reason is because in-kind quarters do not count as income while BAH does—illustrating our previous point that receipt of entitlements or certain pays has a direct effect on SNAP eligibility.

The total cost of SNAP benefits is estimated to be about $259,000 each month, or $3.1 million annually. For these service members to no longer be eligible for SNAP, the Department would have to pay them an additional $5.6 million, roughly 1.8 times the amount of their SNAP benefits. Recall that SNAP guidelines indicate that recipients should spend 30 percent of their net income on food and that several deductions are made to gross income to derive net income. As a consequence, the amount of SNAP benefits is far less than the additional gross income a member would require because each additional dollar a recipient earns in income reduces their SNAP benefit by less than 30 cents.

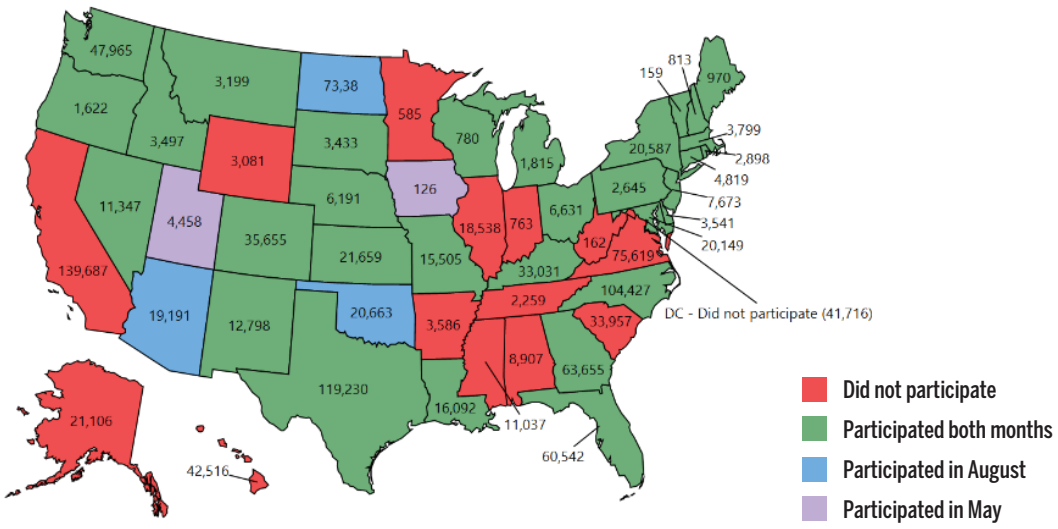
Estimates of Supplemental Nutrition Assistance Program Usage Based on State-Level Data

The QRMC was able to gain access to state-level data from PARIS for May and August 2019, which included information on individuals who receive SNAP and other federal benefits—the most comprehensive information available regarding service members' enrollment in SNAP. These data from 33 states in May and 34 states in August represented 60 percent of all active component service members assigned to duty in the United States each month. Access to these data enabled the QRMC to provide more precise estimates of the number of service members who receive SNAP benefits.

Figure 6.1 shows the states that have active component service members in the PARIS data set. Of note, several of the states that did not participate in either month (states in red) have a large number of service members: California (13 percent of members stationed in the United States), Hawaii (3.7 percent), South Carolina (2.9 percent), Virginia (11 percent), and the District of Columbia (0.9 percent). Of these, California, Hawaii, and the District of Columbia are three of the four states with the highest BAH rates in the country.

Anomalies were found in the PARIS data that indicated a significant number of service members in the data set were no longer members of households receiving SNAP benefits. This may have occurred, for example, because a service member

Figure 6.1 States Participating in the Public Assistance Reporting Information System and Total Number of Active Component Service Members in Each State



SOURCE: Defense Manpower Data Center data.

was in a household receiving SNAP before going on active duty or was part of a SNAP household that was in a different state than the member's duty state (likely in both cases because the SNAP household had not recertified eligibility since the member joined the service). To account for such anomalies, the QRMC made certain assumptions about which members were using SNAP and restricted the data sample to eliminate the anomalies, which is likely a more accurate reflection of service members who are currently receiving SNAP benefits. SNAP recipients in this data set represent between 0.1 and 0.7 percent of service members in the states for which data are reported.

Top-Level Results

The QRMC estimated a range of potential SNAP users using both least restrictive and most restrictive assumptions regarding likely SNAP users. At the lower bound, using the most restrictive assumptions, between 0.1 percent (1 in 1,000) and 0.08 percent (8 in 10,000) of service members were enrolled in SNAP in May and August, respectively—or between 880 to 1,100 service members. The sample does not include many of the service members in initial training because a number of service bootcamps are in states not represented in the data. Because new recruits are generally not eligible for SNAP, the overall percentage of service members who might qualify could be less than 0.1 percent. Conversely, as mentioned previously, some of the most expensive U.S. duty locations—especially San Diego and Honolulu—are also missing from the data and are locations where a greater percentage of service members potentially could qualify for SNAP. These factors may offset each other in the estimate.

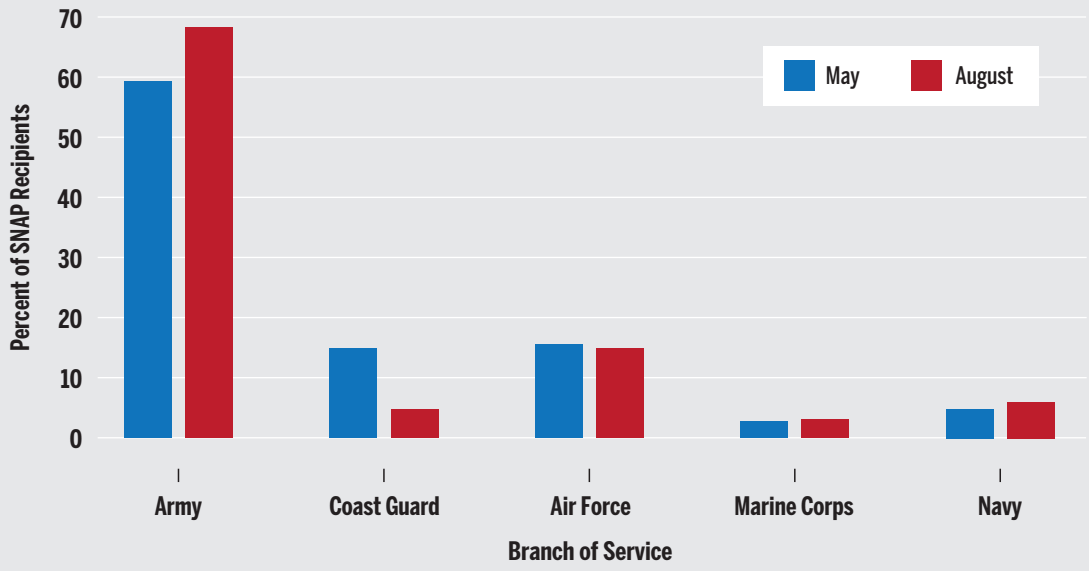
Using the least restrictive assumptions regarding who is likely using SNAP, we estimate an upper bound of 0.4 and 0.2 percent of service members receiving SNAP benefits in May and August, respectively—or between 4,620 and 1,980 service members.

In total, the range of potential SNAP users spans from 0.08 percent of service members (880) to 0.4 percent of service members (4,620). However, we believe the most restrictive assumptions regarding who is likely using SNAP provide the most accurate estimate. Thus, the QRMC concluded that 0.08 percent is likely a more accurate reflection of service members who are currently receiving SNAP benefits.

Characteristics of Supplemental Nutrition Assistance Program Recipients

Information about the characteristics of service members enrolled in SNAP—distribution across the services, whether they are concentrated in certain grades, and the number of dependents—helps shed light on whether these service

Figure 6.2 Percentage of Supplemental Nutrition Assistance Program Recipients in Each Service



members, despite being extremely small in number, represent a concern that the services can help address. Turning first to distribution across the services, shown in Figure 6.2, the Army has the greatest share of those enrolled in SNAP: 60 percent in May and almost 70 percent in August. The Army also is the largest military service, but soldiers constitute only about 50 percent of the sample. Thus, a greater proportion of service members in the Army in these states are enrolled in SNAP than are members of the other services. In comparison, the Air Force represents 28 percent of the sample, the Navy represents 10 percent, the Marine Corps represents 7 percent, and the Coast Guard represents 3 percent. The Army also has the least restrictions on accessions with dependents and has accessed far more members with several dependents in the past few years than the other services, which may help explain why its junior enlisted service members are the most likely to be enrolled in SNAP.[14]

The proportion of service members enrolled in SNAP can vary by service and by geographic region for a variety of reasons. One is the difference in SNAP eligibility rules by state. Another is the differences in the geographic distribution of service members by pay grade. The eligibility analysis discussed in the previous section showed that junior personnel with dependents were most likely to qualify for SNAP.

14. No service has restrictions on dependents after accession.

Areas with a high concentration of junior personnel are more likely to have a greater proportion of members enrolled in SNAP.

The distribution of SNAP recipients in the sample by pay grade is illustrated in Figure 6.3. Junior enlisted (E-1 to E-4) represent the largest number of SNAP recipients in the sample, with E-4s representing the largest percentage of SNAP recipients—more than one-third of all recipients each month (but not one-third of all E-4s). Combined, service members in pay grades E-1 through E-4 represent 69 and 75 percent of May and August SNAP recipients in the restricted sample, respectively. Those in pay grades E-1 through E-6 represent 96 and 98 percent of SNAP recipients, respectively. For comparison, E-1 through E-4 service members represent about 28 percent of all service members in the sample each month; service members in grades E-1 through E-6 represent 66 percent of all service members. These results again show that members receiving SNAP benefits are disproportionately in lower enlisted pay grades.

While E-4s represent the largest proportion of SNAP recipients, E-2s are most likely to be enrolled—though less than 1 percent of all E-2s in our sample are enrolled. Enrollment decreases with increasing pay grade, which is reasonable considering that pay increases with pay grade. Because service members advance through the lower ranks relatively quickly—on average across the services E-1s advance to E-2 within about 6 months and to E-3 within about 18 to 20 months—it is likely that most of these members are receiving SNAP benefits for a relatively short time.

Figure 6.3 Supplemental Nutrition Assistance Program Recipients by Pay Grade

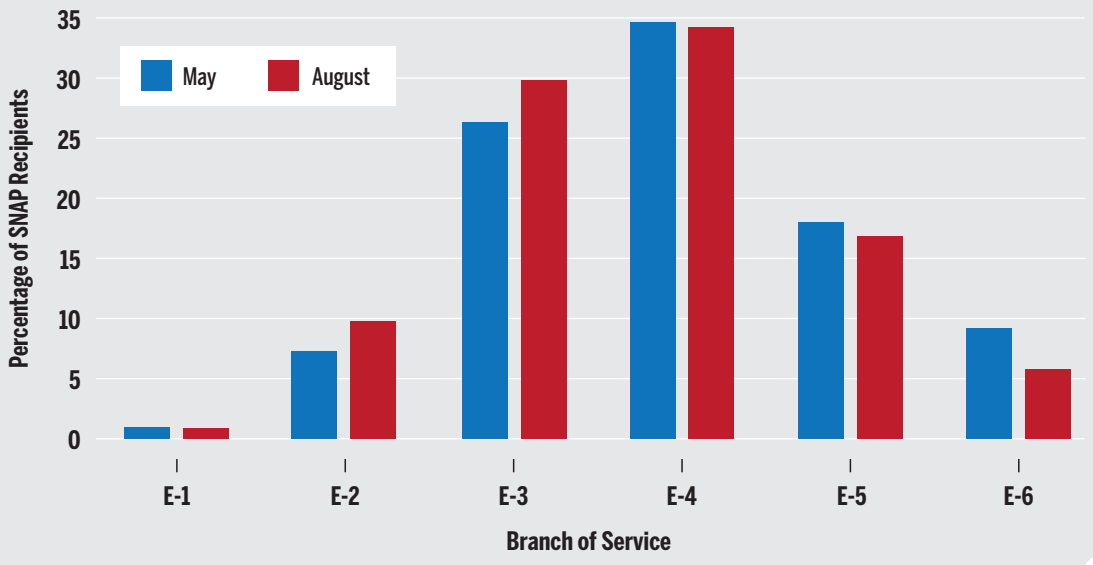
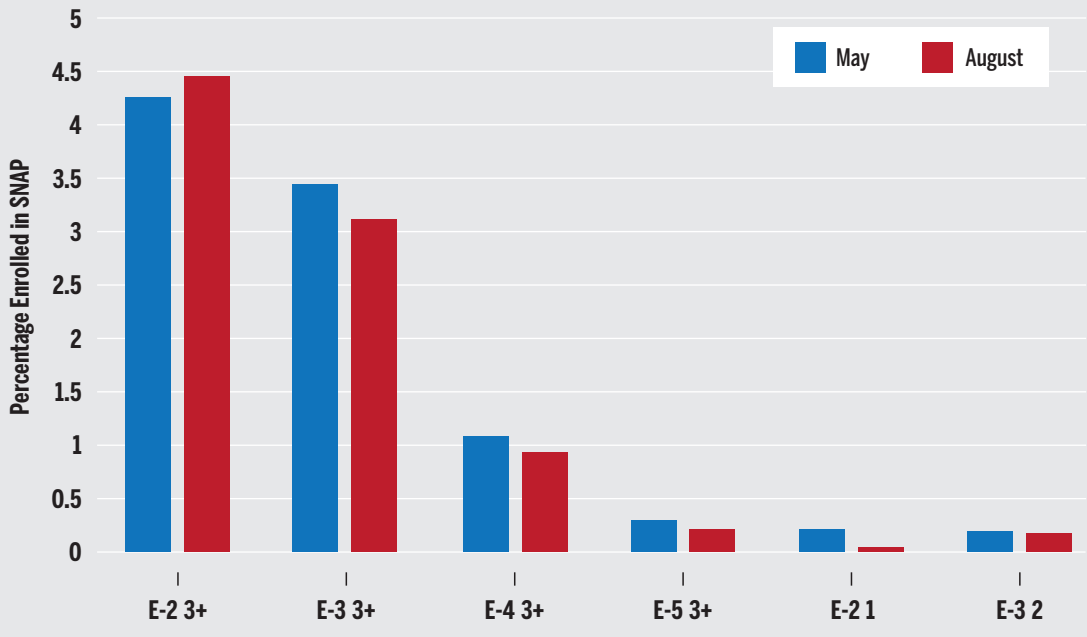


Figure 6.4 combines pay grade and number of dependents—which offers insight into the combination of pay grade and dependents most likely to qualify for SNAP in the sample. As shown in the figure, service members in pay grades E-2 through E-4 with three or more dependents are far more likely to be enrolled in SNAP than all other service members. This is an important finding. Approximately 4.3 percent and 4.5 percent of E-2s with three or more dependents were enrolled in SNAP in May and August, respectively, followed by 3.5 and 3.1 percent of E-3s with three or more dependents enrolled in May and August, respectively.

The proportion then drops significantly at E-4, where about 1 percent of members in that pay grade with three or more dependents are enrolled in SNAP. Junior enlisted service members with several dependents are more likely to be recent accessions (rather than newly demoted members). SNAP recipients in the sample have far more dependents than their peers who are not enrolled in SNAP, and these service members tend to be older than their peers in the same pay grade.

The data do not allow us to determine what event caused service members to stop or start SNAP participation. For some, it may be due to a change in dependents or advancement, but those events do not explain a majority of SNAP transitions. It is likely that changes in household income, such as a change in spousal employment,

Figure 6.4 Pay Grade and Number of Dependents Most Likely Enrolled in the Supplemental Nutrition Assistance Program



which cannot be measured with these data, are a contributing factor to eligibility for many service members. Service members who stopped receiving SNAP benefits were enrolled in SNAP in the same state for about eight months. This may be an indication of the average time members are on SNAP. This estimate could be low because members may reenroll in states after a permanent change in their duty station. However, as mentioned previously, eligible members in junior enlisted pay grades promote relatively quickly, so the duration of their eligibility is likely not much longer than this.

Overall, this examination of SNAP usage, using the PARIS data, results in findings that are similar to the eligibility estimates reported previously in this chapter. Fewer than 0.4 percent of service members are enrolled in SNAP, and junior enlisted members with several dependents (three or more) are most likely to be enrolled.

Further Analysis

Some small improvement in the estimate of the number of service members who qualify for SNAP could be made if the analysis was based on more months of PARIS and military data. An expanded data set might make it possible to better identify where service members live, how long they lived there, and whether they were enrolled in SNAP in different states where they changed duty locations. It also would be helpful if more states participated in the PARIS match. Finally, it would be beneficial to obtain a better accounting of current household members and better estimates of household income. The Social Security Administration might be a possible source of such information.

Related to current events, the unprecedented levels of unemployment caused by the COVID-19 pandemic may affect the number of service members who are receiving SNAP benefits, but the net results are uncertain. On the one hand, the services likely will have less difficulty in recruiting in a weak economy so will be less likely to access recruits with dependents. On the other hand, retention will be higher, so service members with dependents may be the most likely to remain on active duty. Further, those members with spouses may have lower household income if more working spouses are unemployed. Using additional data sets to continue monitoring the use of SNAP in the coming years will help DoD determine whether trends in the use of SNAP change and whether use is significantly changed by COVID-19.

Family Subsistence Supplemental Allowance

To qualify for FSSA, service members must be receiving BAS, must have at least one military dependent, and must have household income, including military income of the member and any other household income, less than 130 percent of the

poverty level. The amount of the incentive is calculated as the difference between 130 percent of the federal poverty income level for a given household size and a service member's total household income. The incentive is capped at $1,110 per month.[15] In contrast to SNAP, FSSA eligibility considers gross income only, without any deductions or consideration of assets. Also, different from SNAP, the in-kind benefit that service members receive who live on base and do not receive BAH is considered income and is therefore given a monetary value (equal to the amount of BAH that service members would be eligible for if they did receive BAH).

Estimates of the number of service members who would be qualified for FSSA if the incentive were reinstated for members serving within the United States are based on the assumption that the household has no other source of income besides basic pay, BAH, BAS, and the cost-of-living allowance and that the household consists of the service member and military dependents only. The QRMC estimated that far fewer service members would be eligible for FSSA than would be eligible for SNAP primarily because the value of in-kind housing is included in the income valuation. Specifically, 578 service members serving in the 50 states and the District of Columbia would qualify for FSSA, only four of whom do not receive BAH. All are in pay grades E-1 to E-5 and have a minimum of five household members. The total annual cost of FSSA for these members would be $1.5 million.

Many service members who would not receive FSSA, as well as some of those who would, would still be eligible for SNAP benefits. There are three reasons why this is possible. First, since FSSA is capped at $1,100, the incentive could still leave household income below 130 percent of the federal poverty level for some households. Second, many states set their maximum household gross income above 130 percent; some are as high as 200 percent of the federal poverty level. And third, many service members who do not receive BAH would be eligible for SNAP but not for FSSA because of the value of their in-kind benefits.

Recommendation

- **Continue to monitor SNAP usage among service members, subject to appropriate agreements.**

  The QRMC concludes that overall military compensation is adequate as it relates to SNAP usage. As demonstrated in Chapter 2 of this report, military

15. Department of Defense Financial Management Regulation, *Summary of Major Changes to DOD 7000.14-R*, Vol. 7A, Chapter 25, "Basic Allowance for Subsistence (BAS)," Washington, D.C., February 2002; Department of Defense Regulation 7000.14-R, *Department of Defense Financial Management Regulation*, Volume 7A, Chapter 25, "Subsistence Allowances," Washington, D.C., April 2018.

pay is well above the 70th-percentile benchmark compared with comparably educated civilians, and service member usage of SNAP is extremely low compared with the civilian population. Moreover, SNAP usage is largely limited to junior enlisted members with large families, who will quickly promote out of eligibility. Thus, targeted pay raises are not needed for such a small population. However, the Department should continue to monitor SNAP usage, with additional data and over time, to further improve its understanding of the characteristics of SNAP users and ensure that trends do not deteriorate.

Part
FIVE

CONCLUSION

Chapter SEVEN Summary of Recommendations

As mentioned at the outset of this report, the 13th QRMC conducted its review of military compensation during a period of keen interest in improving military personnel management in DoD and the role that military compensation could play toward that end. The topics put forward in the QRMC's charter consider not only whether service members are being adequately paid but also whether the structure of the military compensation system enables the Department to recruit and retain a force that is able to carry out its missions as defined in the National Military Strategy.

Against this backdrop, the QRMC explored five broad topics:

- the adequacy of regular military compensation and implications on the quality of recruits
- TSP contributions under the BRS
- a single-salary system
- a time-in-grade pay table
- service member usage of SNAP.

The findings from these assessments point to areas where the system is working well today and areas where the Department can take steps to further advance the effectiveness of the compensation system for the future. The 13th QRMC concludes the following:

Average RMC continues to compare favorably with the compensation of comparably educated civilians using the current 70th-percentile benchmark. For the first 20 years of service, RMC for 2017 is estimated to be at the 85th percentile of civilian wages for enlisted personnel and at the 77th percentile of civilian wages for officers. RMC has increased substantially since 1999 relative to civilian wages. During this period, recruit quality in all services, except the Army, has increased as well. This is generally good news, but broad pay comparisons do not reveal whether underlying pay inequities exist, such as geographic differences in pay or whether pay for highly skilled workers is adequate. Thus, the Department must continue to conduct pay comparisons to ensure recruitment and retention goals can be met.

- Refrain from providing targeted pay raises at this time, since average RMC is more than adequate compared with civilian pay.
- Continue to periodically ensure military pay compares favorably to the 70th-percentile benchmark.

- Conduct a study that examines a more expansive view of military compensation to include RMC plus special and incentive pays targeted toward recruiting and retention.
- Determine whether the services need a measure of officer quality at accession.
- Consider conducting a study on geographic differences in RMC percentiles.

For many service members, contribution decisions do not tend to maximize available earnings under TSP. The BRS provides service members with some retirement benefit if they leave before qualifying for a pension. It also puts more responsibility on service members to proactively save for retirement. Savings decisions differ by service, which may suggest differences in education approaches. Service members who opt in to the system are more likely than those automatically enrolled to contribute more than the default rate of 3 percent. And some service members' contributions are distributed across the year in such a way that they forgo matching funds. Focused interventions could help service members make better savings decisions.

- Monitor automatically enrolled participants as they near two years of service, and send targeted communications to those members contributing less than 5 percent.
- Educate members on the merits of spreading their TSP contributions over the entire year.
- Allow for dollar-amount TSP elections, not just percentage-amount election.

Major structural changes to the compensation system, such as a single-salary system, should only be adopted if there is strong and compelling evidence that the system presents clear advantages. The QRMC's research found no conclusive evidence that a single-salary system showed improvements to readiness, recruiting, or retention. Implementation of the proposed single-salary system would introduce substantial additional complexity and reduce aggregate take-home compensation. Moreover, a salary system is likely to encounter substantial skepticism and resistance from current service members.

- DoD should retain the current compensation system.

Changes to the compensation system that provide stronger incentives for top performance would enhance flexibility in military personnel management. A time-in-grade basic pay table would provide a stronger reward for promotion, thereby increasing military personnel performance, while achieving similar retention at lower cost. It also provides a means to offer higher entry basic pay for lateral entrants. Adopting a time-in-grade pay table will involve a transition cost, a disruption to the force, and require additional study to address the many

details associated with implementation. A new form of constructive credit, affording members years-of-service credit for the purpose of pay but not retirement, would be less disruptive but not as efficient as a time-in-grade pay table.

- A time-in-grade pay table and a new form of constructive credit have merit and warrant further study. The Department should undertake these studies and, as part of this effort, develop a plan and parameters for a pilot program with a service partner(s).

Overall military compensation is adequate as it relates to SNAP usage. The QRMC developed a range of estimates about service member enrollment in SNAP, with a lower bound of 0.08 percent (880) of service members enrolled and an upper bound of fewer than 0.4 percent (4,620)—far less than the 9.6 percent of adult civilians in the United States enrolled in the program. The QRMC concluded that 0.08 percent is likely a more accurate reflection of service members who are currently receiving SNAP benefits. Members enrolled in SNAP tend to be in the junior enlisted grades with large families, who will quickly promote out of eligibility. This represents a small population and, at this time, does not warrant a change in policy. Additional study into the characteristics of SNAP users could provide insight into opportunities to further reduce enrollment among military members.

- Continue to monitor SNAP usage among service members, subject to appropriate agreements.

The research that forms the basis of this report explored topics that have been studied many times in the past. But, for the 13th QRMC, these topics were explored in greater depth and included numerous new subtopics. We believe the research on the single-salary system and the time-in-grade pay table are the definitive studies on these topics.

We believe the research on the single-salary system conducted for the 13th QRMC puts to rest the notion that it is a viable alternative to the current pay system. The QRMC did not uncover the type of evidence that is necessary to support such a disruptive and costly overhaul of the military compensation system. Indeed, the research results suggest retention might be adversely affected by a salary system. Some of the problems with the current compensation system that prompted interest in a salary system can in fact be addressed individually; consequently, we believe addressing them with a salary system is not the correct solution.

Regarding a time-in-grade pay table, the research in this QRMC detailed the pros and cons and possible alternatives, while emphasizing its value in better aligning pay with performance. The only question remaining is whether to implement such a pay table.

The TSP contribution patterns of members covered by the BRS were based on new research, and the SNAP study analyzed the best data set DoD has ever had access to—resulting in the best estimates of SNAP usage by service members that has ever been developed.

The QRMC also points to further study that the Department will likely want to undertake—to periodically update the benchmarking study and analyze newer data on SNAP usage and TSP contribution patterns. It may decide to explore such new areas as geographic differences between military and civilian pay (which could be important for recruiting efforts) and develop a pilot program for a time-in-grade pay table or a new form of constructive credit.

The rigorous analysis by the 13th QRMC of complex compensation issues should be of lasting value.

Appendix A Evaluation of Two Additional Salary Systems

This appendix presents the basic pay distribution of the two alternative salary systems described but not reported in Chapter 4. These are the tailored system and the baseline system with rents.

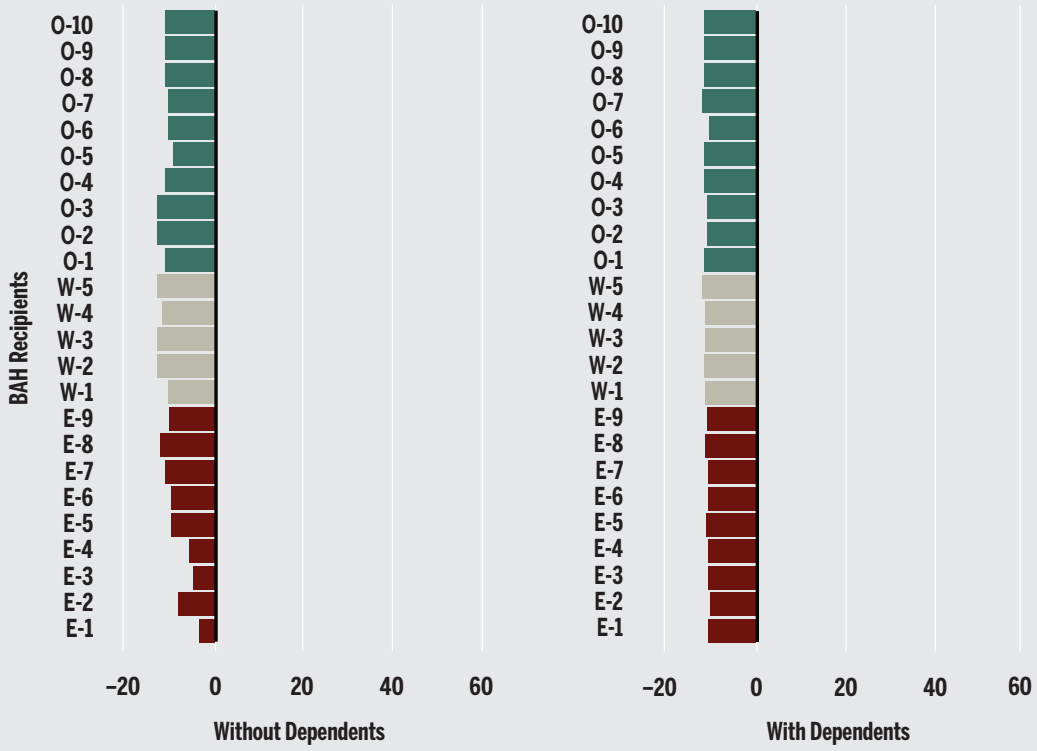
Tailored System

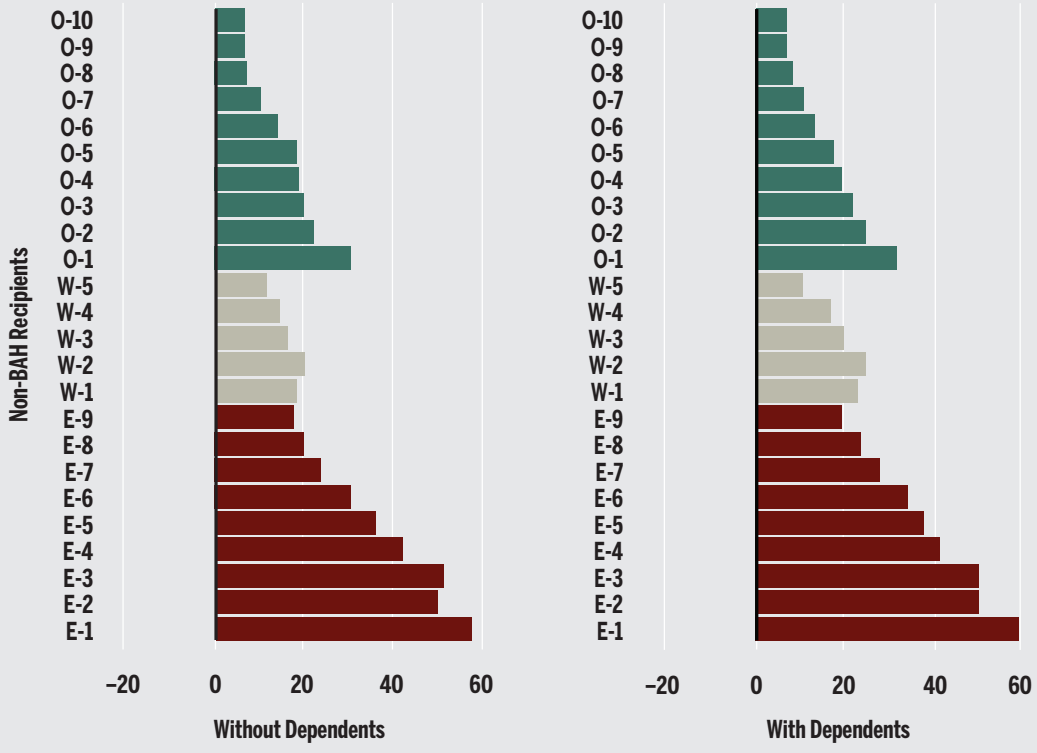
As described in Chapter 4, the baseline salary system increases basic pay by the same percentage for all, but the implication of this system in terms of take-home pay across the force is very uneven, with junior personnel with dependents losing the most take-home pay. To help mitigate the variation in take-home pay by rank, in the tailored system, the basic pay increase is tailored by pay grade. Under this system, increases in take-home pay are a larger percentage for junior personnel not receiving BAH, particularly junior enlisted personnel. Figure A.1 shows the resulting changes in take-home pay. Those receiving BAH lose an average of 10 percent under the tailored salary system, and compared with the baseline, the distribution of losses is more evenly distributed. However, even under this tailored system, take-home pay for personnel who did not receive BAH exceeds that of their peers by a considerable amount, with personnel in the most junior ranks benefitting the most.

Table A.1 shows the after-tax income under the current pay system and under the baseline and tailored alternatives for a single-salary system. Consider, for example, the outcomes for E-3 personnel without dependents not receiving BAH. Under the current system, their take-home pay is lower than their BAH-receiving colleagues with dependents ($32,533 compared with $46,792) because the value of their government-provided housing is less than BAH. Under the salary systems, they would do better than BAH recipients, with the benefit to E-3 personnel even greater when the basic pay multiplier is tailored by pay grade ($38,658 compared with $34,110 for the baseline system, $46,201 compared with $41,744 for the tailored system).

Tailoring the basic pay multiple by pay grade eliminates the inequity in the baseline salary system, in which increases in benefits went disproportionately to senior personnel. However, tailoring preserves a different inequity. Service members in government-owned housing would receive the same higher basic pay as previous BAH recipients, and they would still be receiving value in the form of their rent-free housing.

Figure A.1 Percent Changes in Take-Home Pay Under a Salary System with Tailored Increases in Basic Pay that Vary by Rank





NOTE: The value of government-owned housing is not included in take-home pay.

Baseline System with Rents

Charging rents for government-owned housing could eliminate the asymmetric treatment of service members living in such housing. Currently, personnel not receiving BAH occupy government-furnished housing and do not pay rent. If members who do not receive BAH had to pay rent, the level of basic pay that would keep cost to the federal government the same would be 62.6 percent above its current level. This percentage assumes that occupants of government-provided housing would pay rent. As in the baseline case, this increase would be paid to all members regardless of rank.

Figure A.2 illustrates the distribution of take-home pay when rents are charged. BAH recipients suffer smaller losses in take-home pay because of the larger basic pay increase. On the other hand, those who did not receive BAH experience smaller gains because they are now paying rent. Junior BAH recipients suffer the largest losses, while other BAH recipients gain. This disparity occurs because BAH is a larger fraction of their total compensation in the current system. In addition, the larger cash payment does not compensate them as well for the loss of their tax advantage. Reintroducing tailored increases in basic pay adjusts for this loss, as described in Chapter 4.

Consider again the E-3 personnel without dependents not receiving BAH (Table A.1). Their take-home pay increases from $32,633 under the current system to $34,631 under the baseline with rents salary system—a smaller gain than under the tailored system. The loss in income of their BAH-receiving colleagues with dependents declines compared with the tailored system ($46,792 current, $34,110 baseline, $36,166 baseline with rent—but losses are higher than under the tailored system, $41,744; see Table A.1).

Figure A.2 Percent Changes in Take-Home Pay Under the Baseline System with Rental Payment

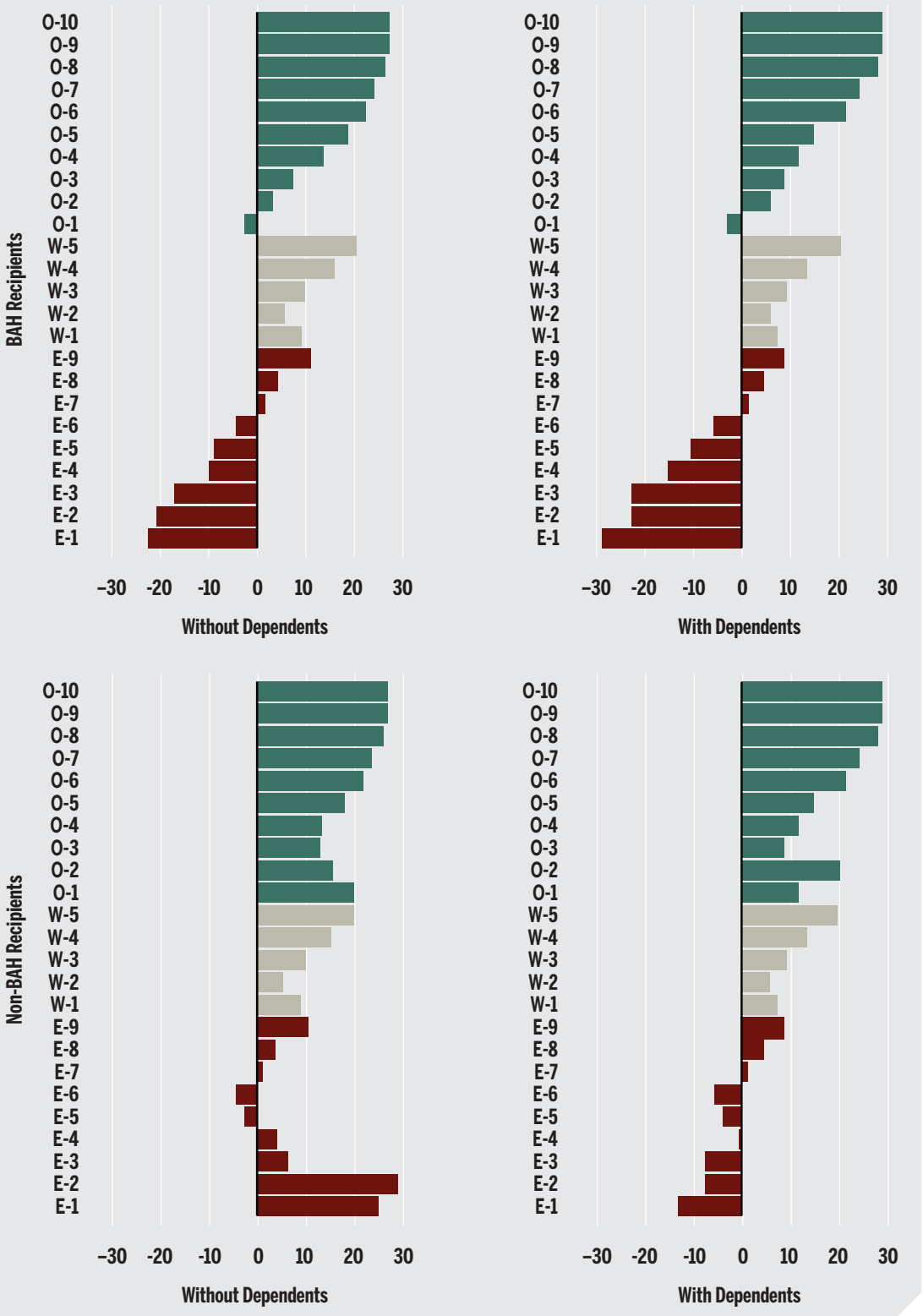


Table A.1 Take-Home Pay of Military Personnel by Category, Including the Estimated Values of Government-Provided Housing, Under Alternate Compensation Systems

	BAH					Non-BAH				
	Current	Baseline	Tailored	Baseline with Rents	Tailored with Rents	Current	Baseline	Tailored	Baseline with Rents	Tailored with Rents
Without Dependents										
O-10	179,303	217,306	160,436	228,572	170,037	179,303	245,950	189,080	228,572	170,037
O-9	178,203	215,968	159,480	227,159	169,017	178,203	244,420	187,932	227,159	169,017
O-8	172,693	207,561	154,505	218,277	163,789	172,693	236,205	183,149	218,277	163,789
O-7	154,583	182,771	139,137	192,085	148,410	154,583	211,415	167,781	192,085	148,410
O-6	137,216	160,037	123,866	168,066	132,346	137,216	188,465	152,294	168,066	132,346
O-5	116,335	131,427	106,445	138,188	113,429	116,335	157,863	132,881	138,188	113,429
O-4	102,643	110,574	92,218	116,901	98,121	102,643	135,798	117,442	116,901	98,121
O-3	84,365	86,263	73,967	90,668	78,500	79,877	104,214	91,918	90,668	78,500
O-2	69,676	68,547	61,135	72,054	64,693	61,883	80,236	72,824	72,054	64,693
O-1	54,954	50,944	49,038	53,456	52,074	44,487	57,921	56,015	53,456	52,074
W-5	111,941	128,236	97,985	134,925	104,794	111,941	152,295	122,044	134,925	104,794
W-4	98,147	105,842	86,720	113,839	94,565	98,147	128,318	109,196	113,839	94,565
W-3	86,121	88,837	75,183	94,963	81,647	86,121	110,317	96,663	94,963	81,647
W-2	74,478	73,705	65,308	78,595	70,611	74,478	93,889	85,492	78,595	70,611
W-1	64,745	66,332	58,465	70,739	62,949	64,745	81,692	73,825	70,739	62,949
E-9	93,291	98,098	83,939	103,615	89,717	93,291	120,178	106,019	103,615	89,717
E-8	79,613	77,743	70,304	82,963	74,806	79,613	98,921	91,482	82,963	74,806
E-7	71,543	68,022	64,227	72,563	67,712	71,543	87,678	83,883	72,563	67,712
E-6	62,726	56,455	56,860	60,076	60,305	62,726	75,667	76,072	60,076	60,305
E-5	54,217	46,524	49,128	49,355	51,844	50,579	61,078	63,681	49,355	51,844
E-4	45,480	38,549	43,193	41,060	45,793	39,436	47,614	52,258	41,060	45,793
E-3	41,706	32,542	40,086	34,631	42,839	32,533	38,658	46,201	34,631	42,839
E-2	40,734	30,392	37,593	32,329	39,814	25,002	30,392	37,593	32,329	39,814
E-1	35,902	26,191	35,001	27,834	37,050	22,186	26,191	35,001	27,834	37,050

Table A.1 Take-Home Pay of Military Personnel by Category, Including the Estimated Values of Government-Provided Housing, Under Alternate Compensation Systems (continued)

	BAH					Non-BAH				
	Current	Baseline	Tailored	Baseline with Rents	Tailored with Rents	Current	Baseline	Tailored	Baseline with Rents	Tailored with Rents
With Dependents										
O-10	194,655	238,385	172,356	251,466	183,503	194,655	272,357	206,328	251,466	183,503
O-9	193,392	236,832	171,246	249,825	182,319	193,392	270,576	204,990	249,825	182,319
O-8	187,118	227,071	165,675	239,512	176,249	187,118	261,043	199,647	239,512	176,249
O-7	167,943	198,288	148,481	209,102	158,897	167,943	232,260	182,453	209,102	158,897
O-6	149,076	171,892	131,688	181,214	140,738	149,076	204,580	164,376	181,214	140,738
O-5	128,236	139,690	113,828	147,399	120,988	128,236	170,950	145,088	147,399	120,988
O-4	111,629	118,061	99,224	124,548	105,292	111,629	146,609	127,772	124,548	105,292
O-3	92,308	95,910	82,470	100,596	87,650	92,308	120,663	107,224	100,596	87,650
O-2	74,348	74,852	66,288	78,905	70,399	65,790	87,689	79,124	78,905	70,399
O-1	59,746	55,122	52,893	58,059	56,443	51,873	66,931	64,702	58,059	56,443
W-5	118,963	136,169	105,152	143,679	112,135	118,963	160,228	129,211	143,679	112,135
W-4	106,870	107,676	95,053	121,409	101,636	106,870	133,452	120,829	121,409	101,636
W-3	93,167	90,328	82,561	102,046	88,358	93,167	114,928	107,161	102,046	88,358
W-2	80,203	74,836	71,026	85,184	75,973	80,203	98,224	94,414	85,184	75,973
W-1	70,944	67,301	63,084	76,118	67,272	70,944	87,005	82,788	76,118	67,272
E-9	101,821	105,268	90,714	110,926	96,653	101,821	131,248	116,694	110,926	96,653
E-8	85,641	84,711	76,041	89,710	80,760	85,641	109,021	100,351	89,710	80,760
E-7	77,162	73,427	69,078	78,190	72,680	77,162	96,695	92,346	78,190	72,680
E-6	67,912	60,175	60,639	64,008	64,268	67,912	82,915	83,379	64,008	64,268
E-5	57,911	48,797	51,780	51,831	54,658	53,833	65,108	68,091	51,831	54,658
E-4	50,358	40,207	44,981	42,639	47,785	42,909	51,382	56,155	42,639	47,785
E-3	46,792	34,110	41,744	36,166	44,431	39,146	45,579	53,214	36,166	44,431
E-2	43,733	31,904	39,251	33,809	41,393	36,663	42,510	49,857	33,809	41,393
E-1	40,920	27,597	36,631	29,207	38,629	33,711	38,412	47,446	29,207	38,629

Appendix B The Far-Reaching Effects of a Salary System

Chapter 4 alluded to the complexity of introducing a single-salary system and the many policies and programs that would be affected by such a large structural change to the military compensation system. As discussed in that chapter, the need to replace BAH by some type of locality pay that accounts for geographic differences in assignment location, the impact on retired pay, and the impact on reserve pay are three primary areas that need to be addressed. Though perhaps the most critical, these impacts are simply the tip of the iceberg. Identifying other nondirect potential effects is important to ensure that appropriate legislation and regulations can be adopted to mitigate problematic effects should a single-salary system be adopted.

Based on an extensive literature and policy review and conversations with subject-matter experts from across DoD and the services, research for the QRMC identified more than 25 potential effects of a move to a single-salary system.[1] These programs fall into six broad areas: housing and food arrangements, retention and separation pays, changes in the dependency ratio, family and dependent benefits, income support programs, and other effects.

Each program was evaluated in terms of the number of people potentially affected, budget costs, and potential risks to readiness—and rough estimates of these impacts are provided. This assessment also considered the type of policy changes that would be needed to mitigate effects and the feasibility of measuring impacts, as well as criteria related to future research needs. The implications of all these potential effects will need more in-depth study should a salary system be considered, beginning with the highest-priority effects.

Highest-Priority Effects

Programs with the highest-priority effects are those that affect a relatively large number of people with potentially large budgetary impacts and substantial risks to military readiness. These programs include housing and food arrangements, retention and separation pays, and changes in the dependency ratio.

1. The research findings reported in this appendix are drawn from the supporting research paper Thomas M. Geraghty, Lauren Malone, Tom Woo, and Christopher Gonzales, *The Single-Salary System for Military Personnel: An Analysis of Second- and Third-Order Effects*, CNA, contained in Volume III of this report. This paper contains more-detailed descriptions and discussion of each of the 25 potential effects summarized here.

Housing and Food Arrangements

The most important effects involve housing and meal programs for service members. Current housing and meal programs are predicated on the existence of BAH and BAS, so eliminating these allowances will require a substantial redesign of these arrangements. In terms of number of people affected, housing and meal arrangements in one way or another affect every service member, and housing arrangements affect dependents as well. Budgetary effects are potentially large and the potential risks to readiness, which may include adverse impacts on housing and food availability and quality (perhaps leading to negative effects on morale, nutrition and health, and/or willingness to deploy), are probably the highest of any of the policies considered. Should a salary system be under consideration, the effects on housing and food arrangements would be top priorities for further study. Four policy or program areas are affected.

- *On-base family housing.* All active component service members receive some sort of direct housing provision or allowance from the military. Members receive either BAH, privatized housing benefits, or an in-kind housing benefit in the form of military-provided housing.[2] Service members residing in privatized housing have their rents capped at BAH.[3] Roughly 125,000 active component service members with dependents live in on-base, military-provided housing, which is an in-kind benefit.[4] Depending on how a single-salary system is structured, a number of issues could arise, including an inequity between those who live in military-provided housing and those who receive allowances; a change in demand for on-base housing, which could vary by location; and changes in the way military housing is managed, in particular the potential need to establish a system of rents or charges for military-provided housing. The management of privatized military housing, discussed in Appendix C, would be substantially affected.
- *Off-base housing.* Service members living off base in the United States receive BAH to offset the cost of renting or owning a house. Some sort of locality pay would need to be instituted as part of a single-salary system to provide service members with the geographic equity provided by BAH. About 770,000 service

2. Carla Tighe Murray, *Military Compensation: Balancing Cash and Noncash Benefits*, Washington, D.C.: Congressional Budget Office, 2004; Kristie L. Bissell, Robert L. Crosslin, and James L. Hathaway, *Military Families and Their Housing Choices*, Tysons, Va.: Logistics Management Institute (LMI), HCS80T2, 2018.

3. Service members who live in privatized housing units larger than their entitlement may pay some out-of-pocket costs.

4. Department of Defense, Office of the Under Secretary of Defense for Personnel and Readiness, "Selected Military Compensation Tables," Washington, D.C., 2018.

members received BAH in FY 2017.[5] A move to a single-salary system could affect the demand for off-base housing, which in turn could affect the ability of service members to find affordable off-base housing, particularly in high-cost areas; younger service members could be especially effected. If BAH is eliminated, location-based pay adjustments may also be needed, for example, to accommodate service members on short-term moves, for frequent moves in quick succession, or in cases where service members and their dependents are living in different locations.

- *Overseas housing allowances.* Service members stationed in U.S. territories and abroad who are not assigned to military-owned housing currently receive the Overseas Housing Allowance (OHA), which is a dollar-for-dollar reimbursement for housing costs up to a predetermined maximum amount. A single-salary system that eliminated BAH but retained OHA could create an inequity between service members living overseas and those living in the United States. Resolving this inequity would require elimination or revision of OHA policy and/or a separate basic pay table for service members living overseas. Also, DoD may have to consider establishing rents for military-owned overseas housing.
- *Military meal programs.* Service members entitled to basic pay are also entitled to government-provided provisions, which take the form of either BAS or subsistence in kind (SIK). BAS recipients must pay for government-provided meals consumed. All active component service members—1.3 million people—receive either BAS or SIK. Perhaps the biggest question with respect to military meal programs under a single-salary system is what happens to SIK? If BAS is eliminated and SIK recipients continue to receive a benefit, it would introduce an inequity into military compensation unless some other policy change was enacted to mitigate it. If SIK were eliminated, what would replace it? These questions raise concerns about effects on the requirement for dining facilities and dining facility management, as well as impacts on commissaries and the post exchange system.

Table B.1 summarizes the estimated effects of a salary system on housing and meal policies and programs.

Retention and Separation Pays

After housing and meals, the next most important effects are those associated with some of the retention and separation pays. These programs and policies are important force-shaping tools used to ensure that the military has the right personnel levels across pay grades, experience levels, and occupations. As a result,

5. This includes service members residing both off base and in MHPI housing. DoD, Office of the Under Secretary of Defense for Personnel and Readiness, 2018.

Table B.1 Housing and Meal Policies Affected by a Single-Salary System

Policy or Program	Second- and Third-Order Effects	Number of People Affected	Current Annual Cost	Potential Cost Change	Risk to Readiness
On-base (family) housing	Housing affordability, quality, demand	125,000 service members plus dependents (not including MHPI)	$60 million (not including MHPI), $10 billion (including MHPI)	Depends on demand change	Recruiting, morale issues, retention
Off-base housing		Up to 770,000 service members plus reservists, dependents	$20 billion (BAH payments)	Cost of rolling BAH tax advantage into basic pay ($3–4 billion)	
Overseas Housing Allowances		52,000 service members receiving OHA plus those in military housing	$1.5 billion (OHA payments)	Depends on policy specifics	
Military meal programs	Food affordability, quality, demand	All service members receive BAS or SIK	$4.3 billion (BAS payments) plus SIK cost—several hundred million	Cost of rolling BAS tax advantage into basic pay ($750 million), also depends on what happens to SIK	Service member nutrition, health, ability to deploy

NOTE: MHPI = Military Housing Privatization Initiative. Potential cost change assumes that no mitigating policy changes are enacted.

setting appropriate levels of these pays is an important readiness issue. Also, these pays affect relatively large numbers of service members and have a substantial budgetary cost. Each will be affected by a move to a single-salary system because levels of these pays under current policy are typically set as a multiple of basic pay. Under current policy, the levels of these pays will increase under a single-salary system that raises basic pay. It will be important to study the potential impact on the levels and distributions of these payments and what policy changes may be needed to address implications to cost and readiness.

- *Continuation pay.* As mentioned in Chapter 4, continuation pay—a component of the new BRS—is a midcareer, one-time bonus paid to service members who have completed a minimum requirement for years of service and agree to serve for at least an additional three years. Continuation pay is tied to RMC because the amount is a multiple of service members' current basic pay. Approximately 64,000 service members with 12 years of service are eligible, though not all will receive the pay. While the multiple can vary, most of the services are setting the multiple at the lowest level of 2.5 times basic pay for active members and 0.5 for

reserve members at 12 years of service. Under a single-salary system, the cost of continuation pay would increase, which would be difficult to mitigate because the multiplier is already set at the lowest level. A change in law would be required to reduce the minimum.

- *Selective Reenlistment Bonus (SRB)*. This bonus is paid to provide incentives for the reenlistment of entitled service members in critical skill specialties with high training costs and/or demonstrated retention shortfalls.[6] For some services, the payments are linked to RMC because the bonus amount is a multiple of an eligible service member's basic pay (in the Air Force, Navy, and for some recipients in the Army). The services set maximum bonus amounts that apply to both a single bonus and a lifetime total of SRB payments. Approximately 96,000 service members per year receive SRB payments at a cost of over $1 billion. A single-salary system could increase these costs by $400 to $650 million. Changing the multiplier or moving to a flat dollar amount could mitigate these increases. The primary effect of changing SRB levels would be effects on retention of military personnel in occupations with personnel shortages.
- *Nondisability (Involuntary) Separation Pay.* This lump-sum payment is made to eligible active and reserve component service members who are to be involuntarily discharged or denied continuation of service for which they volunteered and who have completed at least 6 but less than 20 years of service. This pay is linked to RMC because the amount of the payment is a multiple of the service member's annual basic pay at discharge. The increase in basic pay that comes with a single-salary system could result in a $375 million increase in the cost of nondisability separation payments if no offsetting legislative or policy changes are enacted.[7] The increase in costs could be mitigated if the multiplier is changed or the payments become a flat dollar amount.
- *Voluntary Separation Pay.* Service members who agree voluntarily to separate from the active component and have completed at least 6 but less than 20 years of service may be offered Voluntary Separation Pay. This pay is an additional force-shaping tool to minimize involuntary separations. The link to RMC is more indirect since service secretaries have some discretion in setting payment levels, so it is unclear whether or how much these payments would necessarily increase under a single-salary system. But the maximum amount depends on the member's monthly basic pay rate.[8]

6. DoD, Under Secretary of Defense for Personnel and Readiness, 2018.
7. DoD, Office of the Under Secretary of Defense for Personnel and Readiness, 2018.
8. DoD, Office of the Under Secretary of Defense for Personnel and Readiness, 2018.

- *Disability Severance Pay.* This lump-sum payment is provided to service members who separate from active service because of physical disabilities that are substantial enough to impair their ability to perform military duties but not severe enough to seriously impair their civilian earning capacity. This payment is intended to assist such personnel in transitioning out of the military and into civilian life.[9] The pay is a multiple of the service member's monthly basic pay at the time of discharge; with no mitigating policy, payments would increase under a single-salary system.

The estimated effects of retention and separation pays are summarized in Table B.2.

Changes in the Dependency Ratio

Another potential high-priority effect of a single-salary system could be to change incentives for service members to marry and/or have children or dependents. Social science research shows that a person's family decisions (especially marriage) are sensitive to their financial situation and compensation level.[10] Because service members with dependents reenlist at higher rates, a change in the percentage of service members who are married or have dependents could have important effects on retention as well.[11] BAH provides incentives for service members to marry at younger ages than civilians because of the higher with-dependents rate; the differential between single and married members ranges from 4 to 20 percent depending on rank (averaging 1 percent for enlisted and 13 percent for officers). And research has shown that service members generally marry at younger ages and higher rates than civilians.[12]

This raises the possibility that a single-salary system that eliminates BAH and the with-dependents pay advantage could adversely affect retention rates by

9. DoD, Office of the Under Secretary of Defense for Personnel and Readiness, 2018; Department of Defense Financial Management Regulation 7000.14-R, 2017; Richard Buddin and Kanika Kapur, *An Analysis of Military Disability Compensation*, Santa Monica, Calif.: RAND Corporation, MG-369-OSD, 2005.

10. P. Ishizuka, "The Economic Foundations of Cohabiting Couples' Union Transitions," *Demography*, Vol. 55, No. 2, 2018, pp. 535–557; Christina J. Gibson-Davis, "Money, Marriage, and Children: Testing the Financial Expectations and Family Formation Theory," *Journal of Marriage and Family*, Vol. 71, No. 1, 2009, pp. 146–160; Daniel Schneider, "The Effects of the Great Recession on American Families," *Sociology Compass*, Vol. 11, No. 4, 2017; Jeffrey P. Dew, "Revisiting Financial Issues and Marriage," in Jing Jian Xiao, ed., *Handbook of Consumer Finance Research*, New York: Springer-Verlag, 2008, pp. 281–209.

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

12. Department of Defense, Office of the Under Secretary of Defense for Personnel and Readiness, *Population Representation in the Military Services—Fiscal Year 2017*, 2017.

Table B.2 Retention and Separation Pay Policies Affected by a Single-Salary System

Policy or Program	Second- and Third-Order Effects	Number of People Affected	Current Annual Cost	Potential Cost Change	Risk to Readiness
Continuation pay	Increase in payments	64,000 service members	$500 million	$300 million	Retention imbalance between officers and enlisted
Selective Reenlistment Bonus	Increase in bonuses	96,000 enlisted	$1 billion	$400 million to $650 million (upper bound)	Retention imbalance across enlisted occupations
Nondisability (Involuntary) Separation Pay	Increase in payments	17,000 service members	$570 million	$400 million	Ability to shape force—achieve appropriate separation levels
Voluntary Separation Pay	Unclear—service discretion		$71 million		
Disability Severance Pay	Increase in payments	7,500 service members	$220 million	$175 million	

NOTE: Potential cost change assumes that no mitigating policy changes are enacted.

lowering the marriage rate and reducing the proportion of service members with dependents—a topic revisited in Appendix D. Changes in marriage rates could also affect the demand for on-base or off-base housing or the attractiveness of Voluntary Separation Pay as a force-shaping tool. All these topics require further investigation.

Lower-Priority Effects

The other identified effects are considered to be of lower priority because they (1) affect relatively fewer service members, (2) have smaller budget implications, and/or (3) pose more limited risks to readiness. These pays and programs include other retention and separation pays, other housing policies, family and dependent benefits, income support benefits, and other potential effects. Table B.3 summarizes the estimated effects on these pays and programs of a move to a single-salary system.

- *Other retention and separation pays.* The most significant pay included in this category is the Combat Zone Tax Exclusion (CZTE), which service members are eligible for when they are either serving in a combat zone or providing direct

Table B.3 Other Policies and Programs Affected by a Single-Salary System

Policy or Program	Second- and Third-Order Effects	Number of People Affected	Current Annual Cost	Potential Cost Change	Risk to Readiness
Other Retention and Separation Pays					
Combat Zone Tax Exclusion (CZTE)	Possible change in exemption limit	2,500 to 3,000 officers	$30 million	Little or none of officers, if SEA pay changes are similar	Little or none
Pay of cadets and midshipmen	Increase in pay	12,800	$241 million	$140 million	None—number of cadets, midshipmen not likely to change
Accrued leave payment	Increase in payments	160,000 service members	$284 million	$200 million	Little—morale effects of change to pay formula
Active duty Contract Cancellation Pay	Increase in payments	Unknown number of reservists		Cost due to integrating tax advantage into basic pay[a]	Little—morale effects of change to formula
Other Housing Policies					
Family Separation Housing Allowance (FSHA)	Housing relevant part (type I) based on BAH without dependents	27,000 service members	$82 million	Depends how benefit will be set under single-salary system (if retained)	Little—program has small impact on family budgets
Post-9/11 GI Bill housing stipend	Stipend based on BAH with dependents for E-5s	Potentially large (several million service members, dependents, vets are eligible)	Difficult to estimate	Depends how benefit will be set under single-salary system (if retained)	Little—small recruiting, retention effects
Family and Dependent Benefits					
Support for dependents prior to divorce	Interim support depends on BAH, depends on how policy is reset	20,000 newly divorced service members annually, plus dependents	None to DoD	None to DoD	Hard to assess—morale, retention effects from uncertainty about dependent provision
Child support and alimony pay—garnishment/ involuntary allotment	Service members could be subject to larger garnishments	Difficult to estimate—some percent of divorced service members, unmarried service members, plus dependents	None to DoD	None to DoD	Some morale effects—some service members subject to higher garnishments, others receiving more support
Retirement pay for former spouses	Small—divorce case outcomes won't change much	20,000 former spouses per year	None to DoD	None to DoD	Little or none

Table B.3 Other Policies and Programs Affected by a Single-Salary System (continued)

Policy or Program	Second- and Third-Order Effects	Number of People Affected	Current Annual Cost	Potential Cost Change	Risk to Readiness
Survivor Benefit Plan	Maximum payment 55% of retired pay, depends on how retired pay reset	279,240 families receiving Nearly 1 million contributing	$3.7 billion in payments $1.5 billion in contributions	Depends on how retired pay set under single-salary system	Little or none
Advance Dependent Evacuation Allowance	Small—service members can be advanced basic pay, allowances		$678,000 requested (FY 2019)	Little or none	Little or none
Income Support Programs					
SNAP eligibility	Some service members may lose eligibility; in-kind housing does not count toward income limits	30,000 service members receiving	None to DoD (USDA program)	None to DoD, some reduced cost to federal government	Effects on service member nutrition—morale, retention effects (uncertainty about dependent provision)
FSSA	Some service members may lose eligibility	Probably very small	$50,000 to $100,000 (very small)	Small reduction	Small overall, impact on affected families
Unemployment Compensation for Ex Service Members	Depends on how basic pay is set under single-salary system—possibly little or none	34,000 new recipients (FY 2016)	$310 million (FY 2017)	Small if BAH, BAS, tax advantage fully integrated into basic pay	Little or none
Supplemental Security Income eligibility	Some service members could lose eligibility	17,000 (perhaps fewer)	None to DoD $140 million in payments to service members (at most)	None to DoD, small overall—payments to service members a small percentage of program budget	Little to none overall, larger impact on affected families
Fines and forfeitures under UCMJ	Possibly small; courts have discretion to set monetary punishments	Fewer than 5% of service members per year	None	None	Little or none

NOTE: UCMJ = Uniform Code of Military Justice. Potential cost change assumes that no mitigating policy changes are enacted.

[a] BAH and BAS are already included in contract cancellation pay for reservists.

support to military personnel serving in such an area.[13] CZTE is linked to RMC because the monthly exemption amount for officers is set at the highest rate of enlisted basic pay (that of senior enlisted advisors) plus the value of any hostile fire or imminent danger pay the officer earned in a given month. There is no upper limit to the monthly exemption amount for enlisted members or warrant officers.

While CZTE would increase with the increase in basic pay under a single-salary system, there likely would be no loss in tax revenue to the government or to individual service members for enlisted members and warrant officers because BAH and BAS were not taxed when paid as a separate allowance and the plus-up in pay to account for federal taxes would be recouped by the government in additional federal taxes. For senior commissioned officers, CZTE would potentially increase slightly in value (resulting in some additional loss of tax revenue) because the maximum exclusion amount would rise and officers would be able to exclude a greater portion of that part of their compensation that formerly constituted basic pay.

Other retention and separation pays with limited effect or for which effects could be easily mitigated include cadet and midshipman pay, accrued leave payment, and active duty Contract Cancellation Pay.

- *Other housing policies.* Other housing policies are Family Separation Housing Allowance (FSHA) and the Post-9/11 GI Bill housing stipend. FSHA is designed to partially reimburse service members who incur extra expenses because they are involuntarily separated from their dependents, and for type I, FSHA is equal to the BAH without-dependents rate for the member's pay grade. If BAH is eliminated under a single-salary system, these payments will have to be reset, if the policy is retained at all. Similarly, the Post-9/11 GI Bill housing stipend is based on the BAH rate for E-5s with dependents; this too would have to be reset if the policy is retained under a single-salary system.
- *Family and dependent benefits.* A single-salary system also may have implications for aspects of military compensation that affect a service member's family and dependents. These include required support levels for dependents during marital separation prior to divorce, child and spousal support arrangements (especially those involving pay garnishment or involuntary allotment), and the division of retirement pay between former service members and their former spouses. In addition, such policies as the Survivor Benefit Plan and Advance Dependent Evacuation Allowance are linked to RMC and may be affected by a conversion to a single-salary system.

13. Diana S. Lien, Molly F. McIntosh, and Darlene E. Stafford, *Combat Compensation and Continuation in the Active and Reserve Components*, Arlington, Va.: CNA, CRM D0024937.A5/1REV, 2011.

- *Income support programs.* The federal government and the states provide a number of income supplement programs for which service members or former service members may qualify under certain circumstances. In some cases, a move to a single-salary system that eliminates BAH and BAS and increases basic pay may affect eligibility for these programs because current program eligibility criteria may or may not include allowances.
- *Other potential effects.* Two other effects of a potential move to a single-salary system include possible increases in monetary punishments under the Uniform Code of Military Justice, which are loosely tied to basic pay, and the need to upgrade pay- and personnel-related information technology systems. Implementation of a single-salary system will almost certainly involve major changes to pay- and personnel-related information technology systems, which could be costly to update under a single-salary system.

Appendix C
Effects of a Single-Salary System on Privatized Military Housing

Implementation of a single-salary system would affect many aspects of military life, including the services' privatized family housing projects.[1] Since the Military Housing Privatization Initiative (MHPI) was adopted in 1996, the military has privatized almost all of its family housing in the United States. Altogether, there are currently about 200,000 units of privatized housing in roughly 90 public-private partnership agreements with about 20 different companies.[2] These projects are typically complex, long-term contractual agreements between the military, private developers, and lenders. All of these agreements contain provisions setting the maximum rents that can be charged to active duty families based on service members' BAH rates, which, under a single-salary system, would no longer be calculated. Without BAH, all current housing privatization agreements would require renegotiation.

Legal Ramifications

Representatives from the services' general counsel offices did not agree about how difficult it would be to renegotiate the privatized housing agreements. From the Army's view, renegotiation would be challenging but feasible within a reasonable period, with the most critical stakeholders being the lenders because they have the largest financial stake in the projects, and a single-salary system will affect their risk. The Army projects have a few large lenders and many smaller ones. If deals could be reached with the larger lenders, they could probably serve as a template for the others.

The Air Force representatives argued that a detailed renegotiation with all MHPI stakeholders would be necessary and that renegotiation would open up all provisions of the agreements—a more expansive task that presents risks. These simultaneous renegotiations could overwhelm their staff and financial resources. The Air Force is concerned that their ability to inject additional funds into most of their projects is limited but could be necessary under a single-salary system. The views of the Navy and Marine Corps fell in between these two perspectives—that renegotiation would be long and challenging but not impossible.

Moreover, eliminating BAH would affect more than privatized housing for members currently serving. As part of its educational benefits, the Post-9/11 GI Bill, administered

1. The research findings reported in this appendix are drawn from the supporting research paper Glenn H. Ackerman, S. Alexander Yellin, Robert W. Shuford, Susan Starcovic, and Jessica T. Fears, *How a Single-Salary Compensation System Could Affect Privatized Military Housing*, CNA, in Volume III of this report.
2. Office of the Assistant Secretary of Defense for Sustainment, "Facilities Management—Military Housing Privatization Initiative," webpage, 2020.

through the Department of Veterans Affairs, provides a housing benefit to students based on BAH rates for E-5s with dependents at the location where a student attends most of his or her classes. Most program beneficiaries qualify for a housing allowance, which accounts for the largest portion of expenditures. If BAH is eliminated with the adoption of a single-salary system, a substitute metric will be needed for Post-9/11 GI Bill beneficiaries as well.

Reduction in Rental Revenues

Unless federal outlays for military personnel are substantially increased, a single-salary system will result in lower total compensation for military families. To estimate the impact on rental revenues of a single-salary system, analysis conducted for the QRMC examined two estimates of family compensation changes under a single-salary system—both of which attempted to minimize income reduction to military families while keeping federal outlays constant. Nevertheless, these alternatives would result in 5- to 14-percent cuts in RMC for military families depending on pay grade and assignment location.

With reduced family incomes, military families, who are the intended customer base for privatized housing projects, would not be able to afford the same amount of rent. In turn, the housing projects would need to decrease rents to keep their current resident demographics, or military families would need to choose lower-priced, lower-quality housing in the community. If the latter occurs, the demographics in privatized housing could shift—most likely to more senior and single service members, along with more nonmilitary tenants. Analysis conducted for the QRMC suggests that the reduced rents, necessary to keep the current tenant demographics, would create aggregated annual losses to privatized housing projects of between $83 million to $210 million. This is a reduction of 2 to 6 percent, respectively, for privatized housing rental revenues from military tenants.

Policy Options

Implementing a single-salary system raises the question of how service member rents should be set for privatized housing in the absence of BAH and what goals the services want to achieve in making that decision.

Subject-matter experts in the services identified three policy options in response to elimination of BAH:

1. *Allow the projects to charge market rents for the privatized housing.* This choice maximizes project revenues, which helps ensure high-quality maintenance and financial stability. Without the BAH rent cap, projects could

charge more rent for these units, and more-vulnerable service member families, especially large, junior pay grade, and special-needs families, may no longer be able to afford their current housing.

2. *Require or provide some continued subsidies for junior pay grades and large or special-needs families.* The services are concerned about vulnerable families and suggested possibilities for providing targeted rent subsidies, such as capping rents for these families, as part of renegotiating project agreements or other subsidy mechanisms, such as rent-differential payments.
3. *Negotiate an alternative algorithm to replace BAH for setting rents as an alternative mechanism for ensuring affordable rents.*

These choices make very clear the trade-offs between maximizing project revenues and maintaining some type of subsidies, in the absence of BAH, to protect the most vulnerable service members and their families.

Historically Congress has been concerned about BAH rates and funding for privatized housing. When BAH rates were decreased by 5 percent between 2015 and 2019, Congress legislated that DoD must reimburse the projects. Moving to a single-salary system could trigger a similar intervention.

Appendix D Effects of a Single-Salary System on Marriage Rates and Retention

Another effect that the QRMC explored further was whether a move to a single-salary system would result in changes in service member retention driven by changes in marriage behavior.[1] Overall, the findings suggest that these effects are likely to be small, so there is little need for policymakers to be concerned about these effects when considering a change to a single-salary system.

This issue arises because a significant body of social science research has shown that service members, both enlisted and officers, are more likely to marry and tend to marry earlier than comparable civilians and, furthermore, that retention is higher among service members with dependents.[2] Retention effects associated with marriage tend to be larger for men than for women and larger early in a service member's career. Moreover, there is a positive association between pay and retention, which also appears to be strongest early in a service member's career.

Under the current RMC structure, BAH payments are higher for members with dependents (ranging from 10 to 31 percent higher depending on rank). In addition, marriage allows junior service members to move out of bachelor housing and begin receiving BAH, both of which offer incentives for junior service members to marry. Thus, moving to a single-salary system that eliminates BAH and the pay advantage service members with dependents receive could change service members' decisions to marry and/or have children or take on other dependent relatives. This, in turn, could have an impact on retention and force size—with implications for the experience level, quality, and cost of the force.

Analysis of the effects of a single-salary system on marriage rates and retention suggests only small effects on the percentage of the force that is married and on retention and force size. This occurs for the following reasons. Pay changes under a single-salary system will result in pay increases for some service members that offset the effect of pay reductions received by others. The effects of compensation on marriage behavior, and of marriage behavior on retention, are not equally strong for all service members: Male, junior enlisted are the most affected. In addition, the effects of compensation on marriage behavior and of marriage behavior on

1. The research findings reported in this appendix are drawn from the supporting research paper Thomas M. Geraghty, Gerald E. Cox, Jared M. Huff, Rachel Townsley, Lauren Malone, and Jacklyn Kambic, *Estimating the Effect of a Single-Salary System on Marriage Rates and Retention*, CNA, in Volume III of this report.
2. Ishizuka, 2018; Gibson-Davis, 2009; Schneider, 2017; Dew, 2008; Quester, Hattiangadi, and Shuford, 2006.

retention, when combined, result in a smaller overall effect on retention than might be anticipated when considering the magnitude of either of the individual effects in isolation.

It is noteworthy to mention that this analysis was not a comprehensive examination of the potential effects of a single-salary system on retention but instead on the retention effects induced by changes in marriage behavior. There may be other retention effects beyond those considered here.

Appendix E
Average Ability Results by Service for Time-in-Service Versus Time-in-Grade Pay Tables

As described in Chapter 5, the average performance of the entire force and those in the higher grades increases under a time-in-grade pay table. Table E.1 shows simulation results of overall gains in ability and gains in selected grades under a time-in-grade pay table compared with a time-in-service pay table for enlisted personnel and officers.

Table E.1 Simulated Average Ability Percentile, Time-in-Service Versus Time-in-Grade Pay Tables

	Time-in-Service Pay Table	Time-in-Grade Pay Table
Enlisted Personnel		
Army		
E-5	42.8	43.6
E-9	66.0	76.9
Overall	47.3	48.9
Navy		
E-5	44.4	44.8
E-9	69.5	76.6
Overall	48.6	49.5
Marine Corps		
E-5	46.0	45.9
E-9	72.6	74.6
Overall	50.3	50.3
Air Force		
E-5	43.0	43.4
E-9	65.8	71.4
Overall	47.1	48.1
Officers		
Army		
O-3	31.1	31.3
O-7	72.6	75.7
Overall	36.6	37.3

Table E.1 Simulated Average Ability Percentile, Time-in-Service Versus Time-in-Grade Pay Tables (continued)

	Time-in-Service Pay Table	Time-in-Grade Pay Table
Navy		
0-3	34.6	34.8
0-7	77.1	79.1
Overall	39.7	40.4
Marine Corps		
0-3	30.8	31.0
0-7	72.1	76.3
Overall	35.3	36.3
Air Force		
0-3	31.0	31.1
0-7	74.9	77.0
Overall	36.1	36.9

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Glossary

13th QRMC	Thirteenth Quadrennial Review of Military Compensation
AFQT	Armed Forces Qualification Test
BAH	basic allowance for housing
BAS	basic allowance for subsistence
BBCE	Broad-Based Categorical Eligibility
BRS	Blended Retirement System
CZTE	Combat Zone Tax Exclusion
DoD	Department of Defense
FSHA	Family Separation Housing Allowance
FSSA	Family Subsistence Supplemental Allowance
FY	fiscal year
MHPI	Military Housing Privatization Initiative
NDAA	National Defense Authorization Act
OHA	Overseas Housing Allowance
OSD	Office of the Secretary of Defense
PARIS	Public Assistance Reporting Information System
PDASD (M&RA)	Principal Deputy Assistant Secretary of Defense for Manpower and Reserve Affairs
QRMC	Quadrennial Review of Military Compensation
RMC	regular military compensation
SIK	subsistence in kind
SNAP	Supplemental Nutrition Assistance Program
SRB	Selective Reenlistment Bonus
TSP	Thrift Savings Plan

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