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Cost Savings of Taxing Lower-Ranking, Non-Dependent Members Basic Allowance for Housing for Collocated Military Couples

December 2022

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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ABSTRACT

The U.S. federal deficit continues to grow yearly and is approximately \$1.719 trillion for fiscal year (FY) 2022, further increasing the national debt to approximately \$31.1 trillion. Our research examines possible cost-saving measures available within the Basic Allowance for Housing (BAH) program, specifically a tax on the BAH of the lower-ranking, non-dependent service members within military collocated couples. We utilized data from the Defense Manpower Data Center (DMDC) to define the population data for all military collocated couples for June 2022. Of the approximate \$25.6 billion in BAH paid to service members in FY22, our estimates indicate approximately \$1.25 billion is paid to the lower-ranking, non-dependent members of collocated military couples. Additionally, our estimates indicate that officers would pay a 15% higher amount in tax paid than enlisted. Our analysis suggests that potential cost savings of approximately \$284.5 million annually can be achieved by instituting a tax on these members' BAH allowances plus their base pay at a tax rate commensurate with the total of both. An alternative approach provides a cost savings of approximately \$151.4 million annually attained by taxing only these service members' BAH at a tax rate commensurate with the total of the BAH alone.



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LIST OF ACRONYMS AND ABBREVIATIONS

ACS	annual community survey
APT	apartment
BAH	Basic Allowance for Housing
BR	bedroom
CCG	county cost group
CONUS	continental United States
DFAS	Defense Financial Accounting Service
DMDC	Defense Manpower Data Center
DOD	Department Of Defense
DTMO	Defense Travel Management Office
FMR	fair market rent
FY	fiscal year
HUD	Housing And Urban Development
IRS	Internal Revenue Service
ME	member enlisted
MHA	military housing area
MHO	military housing office
MLS	multiple listing services
MO	member officer
MW	member warrant
OHA	overseas housing allowance
OMB	Office Of Management And Budget
OSD	Office Of The Secretary Of Defense
PCS	permanent change of station
PII	personal identifiable information
RDN	Robert D. Niehaus
RMC	regular military compensation
SFD	single family detached
TH	duplex
TIS	time in service
USC	United States code



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I. INTRODUCTION

The U.S. government continues to spend more money than it takes in, resulting in a growing national deficit and debt. The Fiscal Year (FY) 2022 federal deficit is approximately \$1.719 trillion and will continue to be in the trillions of dollars until 2031 (Office of Management and Budget [OMB], 2022). As a result, the national debt is growing at an unsustainable rate, and analyses by the Government Accountability Office (GAO) presents data from 2021 Congressional Budget Office (CBO), Office of Management and Budget (OMB), and U.S. Treasury reports that all concur that “current fiscal policy is unsustainable over the long term” (Government Accountability Office [GAO], 2022, p. 11).

The Department of Defense (DOD) continues to be targeted for budget cuts due to its discretionary nature. Discretionary defense spending accounted for 13.2% of overall federal outlays in FY22, totaling \$754 billion (OMB, 2022, p. 39). In comparison, Social Security, a mandatory spending program accounted for 21% of overall federal outlays, totaling \$1.196 trillion in FY22 (OMB, 2022, p. 39). With less federal outlays directed towards the DOD, individual programs within defense spending need to be analyzed.

Our analysis focuses on the Basic Allowance for Housing (BAH) program, a portion of discretionary defense spending. Our research examines the potential cost savings by taxing BAH for collocated military couples, specifically, the lower-ranking, non-dependent service members’ BAH. Our research focuses on these members because savings seem apparent because both service members are being paid BAH to live in the same housing accommodations. According to United States Code (USC), military personnel entitled to basic pay are entitled to BAH when they are not furnished government housing (Pay and Allowances of the Uniformed Services, 2022a). BAH is a tax-exempt military allowance for members who live in the continental United States (CONUS), Alaska, or Hawaii. Members living outside those areas are entitled to Overseas Housing Allowance (OHA), which will not be covered in this paper. According to the DOD, “an estimated \$25.6 billion will be paid to approximately one million service members” in FY22 (DOD, 2021a, para. 1).



To assess the potential cost savings, we used U.S. military personnel records from the Defense Manpower Data Center (DMDC) for June 2022 as our principal data source. The data described collocated military couples by rank, city, state, and zip code.

Our estimates indicate approximately \$1.25 billion paid yearly in BAH to the lower-ranking, non-dependent military members of collocated military couples. Our analysis suggests that potential cost savings of approximately \$284.5 million annually can be achieved by instituting a tax on these members' BAH allowances plus their base pay at a tax rate commensurate with the total of both. An alternative approach provides a cost savings of approximately \$151.4 million annually attained by taxing only these service members' BAH at a tax rate commensurate with the total of the BAH alone. The taxes paid by officers would be on average approximately 15% greater than for enlisted. These cost savings account for less than 2% of the FY22 total BAH federal outlay. Even so, our estimates provide congressional leadership an avenue for further cost savings within discretionary defense spending.



II. BACKGROUND DETAILS

There are two key background details that are used in the calculation of BAH, which are presented now prior to our cost-savings results. First, we discuss how the type of accommodation/housing profile for a service member is determined by paygrade and dependency status. Second, we discuss how the median costs of each housing profile are determined based off geographic location.

A. PAYGRADE AND DEPENDENCY STATUS

Local average rental rates are calculated from housing profiles or anchor points for different units to include apartments, townhouses, duplexes, and single-family detached house rentals (DOD, 2022). Housing profiles consist of varying bedroom sizes which are linked to specific paygrades. Table 1 lists the six different housing profiles used to derive the local average rental rate which in turn is used to calculate BAH for a given paygrade and dependency status.

Table 1. Housing Profiles. Adapted from DOD (2022, p. 2).

Housing Profile	Grade with Dependents	Grade without Dependents
1 Bedroom Apartment (APT)		E-4
2 Bedroom Apartment (APT)		O-1
2 Bedroom Townhouse (TH) / Duplex	E-5	O-1E
3 Bedroom Townhouse (TH) / Duplex	E-6	O-3E
3 Bedroom Single Family Detached (SFD) House	W-3	O-6
4 Bedroom Single Family Detached (SFD) House	O-5	

Paygrades in the military are correlated to what an equivalent civilian would typically pay for housing using an income-based, minimum housing standard to determine the specified housing profile (Defense Travel Management Office [DTMO], 2020). This income-based housing standard is determined using Regular Military Compensation



(RMC). RMC, as defined in law, is “the total of the following elements that a member of a uniformed service accrues or receives, directly or indirectly, in cash or in kind every payday: basic pay, basic allowance for housing, basic allowance for subsistence; and Federal tax advantage accruing to the aforementioned allowances because they are not subject to Federal income tax” (Pay and Allowances of the Uniformed Services, 2022b, Section 25). Simply put, RMC is an estimation of a military member’s equivalent civilian salary. RMC is the preferred source of compensation information over basic pay when comparing military and civilian compensation because it includes the analysis of standards of living (Kapp & Torreon, 2020). Thus, once RMC is known for a particular paygrade, the DOD uses that amount to correlate to a civilian equivalent’s salary which in turn defines the housing profile.

For those paygrades that do not have a corresponding housing profile, the local average rental rates are interpolated between housing profiles. The interpolation is calculated by first finding the difference between housing profile rental rates surrounding the service member’s paygrade. Second, a specified percentage is applied to that difference. The specified percentage for service members with dependents is in Table 2. Table 3 shows the specified percentages for service members without dependents. Lastly, the lower housing profile rental rate is added to that difference to compute the service member’s local average rental rate.

Table 2. BAH Housing Standards and Interpolation Amounts for Service Members with Dependents. Adapted from Ackerman et al. (2013, p. 8).

BAH with Dependents		
Paygrade	Housing Type	+ BAH Interpolation Percentage
E1 to E4	2-BR apartment	50%
E5	2-BR townhouse	0%
O1	2-BR townhouse	11%
O2	2-BR townhouse	98%
E6	3-BR townhouse	0%
W1	3-BR townhouse	1%
E7	3-BR townhouse	36%
O1E	3-BR townhouse	44%



BAH with Dependents		
Paygrade	Housing Type	+ BAH Interpolation Percentage
W2	3-BR townhouse	52%
E8	3-BR townhouse	75%
O2E	3-BR townhouse	93%
O3	3-BR townhouse	98%
W3	3-BR SFD home	0%
E9	3-BR SFD home	16%
W4	3-BR SFD home	22%
O3E	3-BR SFD home	26%
W5	3-BR SFD home	48%
O4	3-BR SFD home	58%
O5	4-BR SFD home	0%
O6	4-BR SFD home	1%
O7	4-BR SFD home	2%

Table 3. BAH Housing Standards and Interpolation Amounts for Service Members without Dependents. Adapted from Ackerman et al. (2013, p. 9).

BAH without Dependents		
Paygrade	Housing Type	+ BAH Interpolation Percentage
E1 to E4	1-BR apartment	0%
E5	1-BR apartment	67%
O1	2-BR apartment	0%
E6	2-BR apartment	7%
W1	2-BR apartment	31%
E7	2-BR apartment	53%
O2	2-BR apartment	83%
O1E	2-BR townhouse	0%
W2	2-BR townhouse	19%
E8	2-BR townhouse	20%
O2E	2-BR townhouse	44%
E9	2-BR townhouse	51%
W3	2-BR townhouse	54%
O3	2-BR townhouse	64%
O3E	3-BR townhouse	0%
W4	3-BR townhouse	9%
O4	3-BR townhouse	40%



BAH without Dependents		
Paygrade	Housing Type	+ BAH Interpolation Percentage
W5	3-BR townhouse	45%
O5	3-BR townhouse	63%
O6	3-BR SFD home	0%
O7	3-BR SFD home	2%

B. GEOGRAPHIC LOCATION

The collection of average rental cost data as well as utility cost data is conducted annually across the continental United States (CONUS), Alaska, and Hawaii. The Office of the Secretary of Defense (OSD) uses Robert D. Niehaus, Inc as the prime contractor for the data collection (Robert D. Niehaus, Inc [RDN], n.d.). The annual data collection is conducted during peak permanent change of station (PCS) season (spring and summer) due to the highest activity in the rental markets (DOD, 2022).

CONUS, Alaska, and Hawaii are divided into approximately 300 military housing areas (MHAs) (DOD, 2022). MHAs are groups of aggregated zip codes around duty stations or metropolitan areas. The intent of grouping MHAs around duty stations is to allow service members to live within a reasonable distance from their duty station. However, MHAs are assigned based on duty location and not preferences of where service members choose to live.

The rental housing market cost is used to “reflect and react to annual trends in rental markets, rather than to changes in Service member preferences or other non-housing related factors” (DOD, 2022, p. 1). Rental market trends would be inaccurately affected from service member reported rents. It is also important to separate out the home purchase market prices. Those prices are not included in BAH calculations due the complexity of calculating the monthly cash outlay due to “expected appreciation in the value of the residence, the amount of down payment, the opportunity costs of interest from down payments, settlement costs, and the tax savings due to the interest and tax payments deduction” (DTMO, 2020, Section 16).



Rental market cost data is crucial to the accurate calculation of BAH rates. Thus, a “checks and balance” approach is utilized to collect rental cost data samples (DOD, 2022). This “checks and balance” approach uses multiple sources of data to include “multiple listing services (MLS), subscription-based commercial rental housing datasets, real estate property management companies, and landlords” (DOD, 2022, p. 2). Furthermore, within each MHA, real estate professionals are consulted to verify rental market costs as well as base housing referral offices and base leadership to increase insight into service member concerns (DOD, 2022). The selection of properties from these data samples are then further screened and validated before being used to determine average rental rates in the MHA.

To further refine the data sample, a multi-tiered screening process is used to ensure the accuracy and reliability of the data. The screening process includes verifying the correct rent and address of every property by means of telephone. Every property is also mapped to ensure it lies within the boundaries of the MHA. Local military housing offices (MHOs) are also able to screen out areas that are in high-crime or undesirable neighborhoods. An income screening process is then completed to identify neighborhoods appropriate for specific paygrades. This ensures specific paygrade RMCs are aligned with equivalent civilian incomes. For example, where 3- and 4-bedroom SFD homes are available for officers and senior enlisted per Tables 2 and 3, their RMC is equivalent to the typical civilian income in that area (DTMO, 2020, Section 18). Simply put, typical civilian income in areas is comparable to the RMC of service members in that same area.

Following data collection and refinement, the target goal of the BAH program is to collect enough samples to “attain a 95% statistical confidence that the estimated median rent is within 10% of the true median rent in the local market” (DOD, 2022, p. 3). This equates to approximately 30 to 75 samples per housing profile within each MHA (DOD, 2022). However, in areas with reduced allowable rental properties, the number of samples is correspondingly reduced.

In areas of the country with a small military population or no military population, zip codes are aggregated into groups and designated as County Cost Groups (CCGs) (DOD, 2021b). Since BAH is required throughout CONUS, Hawaii, and Alaska, BAH must be defined in all locations in the event a service member becomes stationed somewhere that



does not fall within an MHA. Due to the cost required to collect housing cost data, it is financially irrational to collect it in areas with limited or no military population. In these situations, comparable housing costs are used from the Department of Housing and Urban Development (HUD) Fair Market Rent Documentation System (FMR) (DTMO, 2020). The HUD FMRs provide the local average rental rates to include utilities and are estimated yearly. The HUD FMR only identifies different number of bedrooms (efficiency, one-bedroom, two-bedroom, three-bedroom, and four-bedroom) and not the type of home. Therefore, in calculations from other studies, “estimates only use the number of bedrooms to determine rents for BAH anchor point [s]” (Ackerman et al., 2013, p. 100). In comparison to the approximate 300 MHAs, “there are 39 separate CCGs, each with similar housing cost. Each group includes a statistically sufficient quantity of cost data to calculate average housing costs by size and type of dwelling for that group of counties” (DTMO, 2020, Section 32). For perspective, approximately 50% of the United States counties are in CCGs and contain less than 2% of service members’ eligible for BAH.

The calculation of BAH also includes utilities: electricity, heating fuel, water, and sewer. This data is collected from the annual community survey (ACS) conducted by the Bureau of the Census (DOD, 2022, p. 3). These average utility costs are sensitive to different housing profiles, geographic location, and climate.

BAH rates can be set from the data collected from paygrade, dependency status, and location. The total housing cost for each of the six housing profiles within each MHA are equal to the local average rent plus local average utilities. The total housing cost is then applied across each paygrade from Table 2 and 3 to set separate BAH rates for the 27 distinct paygrades (DOD, 2022). It is of note to understand that BAH is authorized to all military personnel, regardless of rank. However, each service branch has requirements for certain ranks to live on base when they do not have dependents. Table 4 lists the requirements per military service.



Table 4. U.S. Military Ranks Required to Live on Base. Adapted from Military One Source (2020).

Service Branch	Ranks Required to Live on Base
Navy	E-4 and below
Marines	E-5 and below
Army	E-5 and below
Air Force	E-4 and below

C. CHANGES TO BAH

Today, BAH covers 95% of a service member’s total housing cost. This is due to the implementation of the 2015 National Defense Authorization Act (NDAA). The 2015 NDAA introduced a 1% out-of-pocket expense per year for five years (DOD, 2022). The out-of-pocket expense was capped at 5% in 2019, resulting in 95% of total housing costs being covered by BAH. Out-of-pocket expenses are nothing new to the BAH program and were implemented early “to limit Basic Allowance for Housing rates to a defined budget” (DTMO, 2020, Section 5). Out-of-pocket expenses were reduced from approximately 20% in 2000 to zero in 2005 to increase the quality of life of service members (Congressional Budget Office [CBO], 2018). However, in 2015, out-of-pocket expenses needed to be reintroduced to balance the increasing cost of military compensation. According to the DOD, the “out-of-pocket is administered using an absorption rate, which is computed to ensure members of a similar pay grade/dependency status pay the same amount out-of-pocket regardless of their location” (DOD, 2022, p. 7).



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III. METHODOLOGY AND DATA ANALYSIS

Throughout the data collection, controls were put in place so that the effects of the data collected and presented were not mis-represented. These controls allowed the data to be as objective as possible with as little subjectivity. To do this, the data questions were kept as close to yes or no questions rather than each couples-specific situation, i.e., with or without dependents and tax filing status. As for the large portion of our data on base pay and BAH, it did not require any controls since the only determining factors for pay amount would be paygrade, time in service, location, and whether they have dependents. Enlisted, warrant officer, and officer base pay in relation to time in service are reflected in Tables 5, 6, and 7, respectively. However, when it came to the filing status and exemptions of each couple, it was disregarded since filing jointly is the same as filing single, only multiplied by a factor of two for equivalency of a couple (Table 8). Also, the data did not change when disregarding this information since we were only looking at taxing the lower-ranking, non-dependent BAH of collocated military couples.



Table 5. Monthly Basic Pay Table for Member Enlisted (ME) Paygrades. Adapted from Defense Finance Accounting Service [DFAS] (2022).

TIS	ME01	ME02	ME03	ME04	ME05	ME06	ME07	ME08	ME09
2 or less	\$1,833.30	\$2,054.70	\$2,160.60	\$2,393.40	\$2,610.30	\$2,849.40	\$3,294.30		
Over 2	\$1,833.30	\$2,054.70	\$2,296.50	\$2,515.80	\$2,786.10	\$3,135.60	\$3,595.50		
Over 3	\$1,833.30	\$2,054.70	\$2,435.70	\$2,652.00	\$2,920.80	\$3,274.20	\$3,733.50		
Over 4	\$1,833.30	\$2,054.70	\$2,435.70	\$2,786.70	\$3,058.50	\$3,408.60	\$3,915.30		
Over 6	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,273.30	\$3,548.70	\$4,058.10		
Over 8	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,497.70	\$3,864.30	\$4,302.60	\$4,739.10	
Over 10	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,682.20	\$3,987.60	\$4,440.60	\$4,948.80	\$5,789.10
Over 12	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,225.50	\$4,685.10	\$5,078.40	\$5,920.50
Over 14	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,298.40	\$4,888.50	\$5,233.80	\$6,085.80
Over 16	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,351.20	\$5,027.40	\$5,402.40	\$6,279.90
Over 18	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,175.30	\$5,706.30	\$6,477.00
Over 20	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,232.60	\$5,860.50	\$6,790.50
Over 22	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,424.90	\$6,122.70	\$7,056.90



TIS	ME01	ME02	ME03	ME04	ME05	ME06	ME07	ME08	ME09
Over 24	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,528.10	\$6,268.20	\$7,336.20
Over 26	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,626.10	\$7,764.30
Over 28	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,626.10	\$7,764.30
Over 30	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,759.00	\$8,151.90
Over 32	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,759.00	\$8,151.90
Over 34	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,759.00	\$8,559.90
Over 36	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,759.00	\$8,559.90
Over 38	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,759.00	\$8,988.90
Over 40	\$1,833.30	\$2,054.70	\$2,435.70	\$2,905.50	\$3,704.40	\$4,413.30	\$5,921.10	\$6,759.00	\$8,988.90
Average Monthly	\$1,833.30	\$2,054.70	\$2,416.87	\$2,847.59	\$3,517.95	\$4,086.50	\$5,030.48	\$6,068.61	\$7,416.62
Average Yearly	\$21,999.60	\$24,656.40	\$29,002.42	\$34,171.04	\$42,215.40	\$49,038.05	\$60,365.78	\$72,823.34	\$88,999.43



Table 6. Monthly Basic Pay Table for Member Warrant Officer (MW)
Paygrades. Adapted from DFAS (2022).

TIS	MW01	MW02	MW03	MW04	MW05
2 or less	\$3,398.70	\$3,872.10	\$4,376.40	\$4,791.90	
Over 2	\$3,765.00	\$4,238.40	\$4,558.20	\$5,154.30	
Over 3	\$3,863.10	\$4,350.90	\$4,745.70	\$5,302.20	
Over 4	\$4,071.00	\$4,428.60	\$4,806.60	\$5,447.70	
Over 6	\$4,316.40	\$4,679.40	\$5,002.20	\$5,698.50	
Over 8	\$4,678.80	\$5,069.70	\$5,388.00	\$5,946.60	
Over 10	\$4,847.70	\$5,263.50	\$5,789.40	\$6,198.00	
Over 12	\$5,084.70	\$5,453.70	\$5,978.70	\$6,575.40	
Over 14	\$5,317.20	\$5,686.50	\$6,197.70	\$6,906.60	
Over 16	\$5,500.20	\$5,868.60	\$6,422.70	\$7,221.90	
Over 18	\$5,668.50	\$6,033.30	\$6,828.30	\$7,480.20	
Over 20	\$5,873.10	\$6,230.70	\$7,101.60	\$7,731.90	\$8,520.30
Over 22	\$5,873.10	\$6,360.30	\$7,265.40	\$8,101.20	\$8,952.30
Over 24	\$5,873.10	\$6,462.90	\$7,439.10	\$8,404.80	\$9,274.50
Over 26	\$5,873.10	\$6,462.90	\$7,676.40	\$8,751.00	\$9,630.30
Over 28	\$5,873.10	\$6,462.90	\$7,676.40	\$8,751.00	\$9,630.30
Over 30	\$5,873.10	\$6,462.90	\$7,676.40	\$8,925.60	\$10,112.70
Over 32	\$5,873.10	\$6,462.90	\$7,676.40	\$8,925.60	\$10,112.70
Over 34	\$5,873.10	\$6,462.90	\$7,676.40	\$8,925.60	\$10,617.60
Over 36	\$5,873.10	\$6,462.90	\$7,676.40	\$8,925.60	\$10,617.60
Over 38	\$5,873.10	\$6,462.90	\$7,676.40	\$8,925.60	\$11,149.50
Over 40	\$5,873.10	\$6,462.90	\$7,676.40	\$8,925.60	\$11,149.50
Average Monthly	\$5,232.52	\$5,713.72	\$6,514.15	\$7,364.40	\$9,978.85
Average Yearly	\$62,790.22	\$68,564.62	\$78,169.75	\$88,372.80	\$119,746.15



Table 7. Monthly Basic Pay Table for Member Officer (MO) Paygrades. Adapted from DFAS (2022).

TIS	MO01	MO02	MO03	MO04	MO05	MO06	MO07	MO08	MO09	MO10
2 or less	\$3,477.30	\$4,006.50	\$4,636.50	\$5,273.70	\$6,112.20	\$7,332.00	\$9,668.40	\$11,635.50		
Over 2	\$3,619.50	\$4,562.70	\$5,256.00	\$6,104.40	\$6,885.30	\$8,054.70	\$10,117.50	\$12,017.10		
Over 3	\$4,375.50	\$5,255.10	\$5,672.40	\$6,512.40	\$7,361.70	\$8,583.30	\$10,325.40	\$12,270.00		
Over 4	\$4,375.50	\$5,432.70	\$6,185.40	\$6,602.70	\$7,451.40	\$8,583.30	\$10,490.70	\$12,340.50		
Over 6	\$4,375.50	\$5,544.30	\$6,482.10	\$6,980.70	\$7,749.30	\$8,616.30	\$10,789.80	\$12,656.10		
Over 8	\$4,375.50	\$5,544.30	\$6,807.30	\$7,386.30	\$7,926.90	\$8,985.30	\$11,085.30	\$13,183.20		
Over 10	\$4,375.50	\$5,544.30	\$7,017.30	\$7,891.80	\$8,318.10	\$9,034.50	\$11,427.00	\$13,306.20		
Over 12	\$4,375.50	\$5,544.30	\$7,362.90	\$8,284.50	\$8,605.80	\$9,034.50	\$11,767.50	\$13,806.60		
Over 14	\$4,375.50	\$5,544.30	\$7,543.50	\$8,557.50	\$8,976.90	\$9,547.80	\$12,109.50	\$13,950.90		
Over 16	\$4,375.50	\$5,544.30	\$7,543.50	\$8,714.70	\$9,543.90	\$10,455.30	\$13,183.20	\$14,382.00		
Over 18	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$9,813.90	\$10,988.10	\$14,089.80	\$15,006.30		
Over 20	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,080.90	\$11,520.60	\$14,089.80	\$15,581.40	\$16,444.80	\$16,974.90
Over 22	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$11,823.60	\$14,089.80	\$15,965.70	\$16,682.40	\$16,974.90
Over 24	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,130.80	\$14,089.80	\$15,965.70	\$16,974.90	\$16,974.90
Over 26	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,725.40	\$14,162.10	\$15,965.70	\$16,974.90	\$16,974.90
Over 28	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,725.40	\$14,162.10	\$15,965.70	\$16,974.90	\$16,974.90
Over 30	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,979.50	\$14,445.60	\$16,365.60	\$16,974.90	\$16,974.90
Over 32	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,979.50	\$14,445.60	\$16,365.60	\$16,974.90	\$16,974.90
Over 34	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,979.50	\$14,445.60	\$16,774.20	\$16,974.90	\$16,974.90
Over 36	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,979.50	\$14,445.60	\$16,774.20	\$16,974.90	\$16,974.90



TIS	MO01	MO02	MO03	MO04	MO05	MO06	MO07	MO08	MO09	MO10
Over 38	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,979.50	\$14,445.60	\$16,774.20	\$16,974.90	\$16,974.90
Over 40	\$4,375.50	\$5,544.30	\$7,543.50	\$8,805.30	\$10,384.20	\$12,979.50	\$14,445.60	\$16,774.20	\$16,974.90	\$16,974.90
Average Monthly	\$4,300.31	\$5,411.56	\$7,046.77	\$8,089.65	\$9,212.20	\$10,819.00	\$12,832.79	\$14,719.39	\$16,900.12	\$16,974.90
Average Yearly	\$51,603.71	\$64,938.76	\$84,561.22	\$97,075.80	\$110,546.35	\$129,827.95	\$153,993.44	\$176,632.69	\$202,801.42	\$203,698.80



Table 8. Tax Brackets for Single and Joint Filers. Source: Internal Revenue Service [IRS] (n.d.).

Tax Rate	Single	Joint
10%	\$0 to \$10,275	\$0 to \$20,550
12%	\$10,275 to \$41,775	\$20,550 to \$83,550
22%	\$41,775 to \$89,075	\$83,550 to \$178,150
24%	\$89,075 to \$170,050	\$178,150 to \$340,100
32%	\$170,050 to \$215,950	\$340,100 to \$431,900
35%	\$215,950 to \$539,900	\$431,900 to \$647,850
37%	\$539,900 or more	\$647,850 or more

Other research data was obtained and provided by the Defense Manpower Data Center (DMDC), Defense Travel Management Office (DTMO), Defense Finance and Accounting Service (DFAS), and the Internal Revenue Service (IRS). DMDC serves as the world leader for DOD’s identity management as well as human resources for its members and their families (Defense Manpower Data Center [DMDC], n.d.). DMDC provided the data on all collocated military couples, their pay grade, and location, which focused on state, city, and zip code. DFAS provides all financial and accounting services to DOD members to include base pay, time in service, and BAH. DFAS provided the charts on base pay for all paygrades given their time in service at that paygrade (Table 5–7). The IRS provided the federal tax brackets for different filing status (Table 8). DTMO is the only point for commercial travel within the DOD; they provide oversight on all travel programs, policies, and their implementation of said duties. DTMO provided data on the total DOD BAH budget for FY22 as well as the information required to link the zip code to MHA. During the collection of this data, we made sure that we did not ask for or accept any personal identifiable information (PII) on military members. While reviewing the data, several irregularities were found, and some data fell outside of the parameters of our data requested. In these cases, to keep the data as pure as possible without making assumptions, the irregular data was taken out. Some examples of the data taken out were missing



locations to include state, city, zip codes, improper paygrade, missing information, and any data that fell outside of the parameters we requested.

All collocated military couples whose data fell into the irregularities and outside of the parameters were removed. The population data pulled on all military collocated members consisted of 62,951 couples. Of those couples, only 880 couples were removed from the data collection. This removal was less than 1.4% of the data received; overall 98.6% of the data was used for the study. After the removal of all irregular data, the data was then arranged by paygrade and dependency status with the lower-ranking military member without dependents put onto one side. Next, that data was then arranged based off location and this data now became the focus of the study. The corresponding spouses were then removed from the data set, and we were left with the final information used to determine the cost-savings analysis. We applied tax using two different methods. Method One was a tax on the annual base pay plus the annual BAH amount at the total combined tax rate. For Method Two, we taxed the annual BAH at its annual tax rate.

Once organized by paygrade and location, each individual paygrade was linked to the average time in those paygrade's monthly base pay. As for the location, zip codes were used to determine residency for everyone, which was then linked to the corresponding MHA to determine the average monthly BAH amount per that location. Table 9 shows a sampling of locations defined by their MHA. All monthly pay amounts for both base pay and BAH were then multiplied by 12 to determine the annual amount for each.

The tax brackets determined the amount to tax for each method. For example, Method One would be taxed as follows: if spouse "x" had an annual base pay of \$49,036 and an annual BAH of \$18,000, their combined annual income for both pays would be \$67,036. That combined income was then taxed at the tax bracket that it fell into, in this case it would be taxed at 22% equaling \$14,748. The 22% tax bracket has annual incomes that range from \$41,775–\$89,075 (Table 8). Method Two would be taxed as follows: if spouse "x" makes \$24,000 annually in BAH, that was the total income taxed. That total income was taxed directly at the tax bracket that it fell into, in this case it would be taxed at 12% equaling \$2,880. The 12% tax bracket has annual incomes that range between \$10,275–\$41,775 (Table 8).



Table 9. Military Housing Areas. Adapted from DTMO (n.d.).

MHA	MHA Name	MHA	MHA Name
AK400	KETCHIKAN, AK	CA420	EL CENTRO, CA
AK401	SITKA, AK	CA457	EDWARDS AFB/PALMDALE, CA
AK402	JUNEAU, AK	CO045	DENVER, CO
AK403	KODIAK ISLAND, AK	CO046	COLORADO SPRINGS, CO
AK404	ANCHORAGE, AK	CO047	FORT COLLINS, CO
AK405	FAIRBANKS, AK	CO422	BOULDER, CO
AL001	ANNISTON/FORT MCCLELLAN, AL	CT049	NEW LONDON, CT
AL002	FORT RUCKER, AL	CT050	HARTFORD, CT
AL003	HUNTSVILLE, AL	CT051	NEW HAVEN/FAIRFIELD, CT
AL004	MOBILE, AL	DC053	WASHINGTON, DC METRO AREA
AL005	MONTGOMERY, AL	DE054	DOVER AFB/REHOBOTH, DE
AL006	AUBURN, AL	FL056	EGLIN AFB, FL
AL007	BIRMINGHAM, AL	FL057	GAINESVILLE, FL
AR010	LITTLE ROCK, AR	FL058	JACKSONVILLE, FL
AR012	FORT CHAFFEE/FORT SMITH, AR	FL059	PATRICK AFB, FL
AR411	FAYETTEVILLE, AR	FL061	MIAMI/FORT LAUDERDALE, FL
AZ013	PHOENIX, AZ	FL062	ORLANDO, FL
AZ014	FORT HUACHUCA, AZ	FL063	PANAMA CITY, FL
AZ015	DAVIS-MONTHAN AFB, AZ	FL064	PENSACOLA, FL
AZ016	YUMA, AZ	FL065	TALLAHASSEE, FL
CA018	OAKLAND, CA	FL066	TAMPA, FL
CA019	SAN FRANCISCO, CA	FL067	WEST PALM BEACH, FL
CA021	CHINA LAKE, CA	FL068	OCALA, FL
CA022	FRESNO, CA	FL069	FLORIDA KEYS, FL
CA023	LEMOORE NAS, CA	FL070	VOLUSIA COUNTY, FL
CA024	CAMP PENDLETON, CA	FL423	FORT PIERCE, FL
CA025	VENTURA, CA	FL424	FT MYERS BCH, FL
CA026	VANDENBERG AFB, CA	GA071	ATLANTA, GA
CA027	MARIN/SONOMA, CA	GA072	ALBANY, GA
CA028	BARSTOW/FORT IRWIN, CA	GA073	FORT GORDON, GA
CA031	SAN BERNARDINO, CA	GA074	KINGS BAY/BRUNSWICK, GA
CA032	TWENTY NINE PALMS MCB, CA	GA075	FORT BENNING, GA
CA033	BEALE AFB, CA	GA076	ROBINS AFB, GA
CA034	SACRAMENTO, CA	GA077	SAVANNAH, GA
CA035	STOCKTON, CA	GA079	DAHLONEGA, GA
CA036	VALLEJO/TRAVIS AFB, CA	GA080	FORT STEWART, GA
CA037	LOS ANGELES, CA	GA081	MOODY AFB, GA
CA038	SAN DIEGO, CA	HI407	MAUI COUNTY, HI
CA039	MONTEREY, CA	HI408	HONOLULU COUNTY, HI
CA041	RIVERSIDE, CA	HI409	HAWAII COUNTY, HI



MHA	MHA Name	MHA	MHA Name
CA042	HUMBOLDT COUNTY, CA	HI414	KAUAI COUNTY, HI
CA044	SANTA CLARA COUNTY, CA	IA082	DES MOINES, IA
CA392	SAN LUIS OBISPO, CA	ID084	BOISE, ID
CA393	BRIDGEPORT, CA	ID086	MOUNTAIN HOME AFB, ID

This is a sampling of MHAs.

The last step was to take the total sum for each individual method and use that total number as the total cost-savings amount for taxing the lower-ranking, non-dependent BAH for collocated military couples. With the FY22 federal deficit sitting at \$1.719 trillion, the cost savings for Method One was \$284,565,917, a savings of 0.017% when compared to the deficit (Table 10). Method Two has a cost savings of \$151,467,309, a savings of 0.009% when compared to the deficit (Table 10). When comparing Method One vs Method Two for the total cost savings to the deficit, there is a \$133,098,608 difference, or 0.012%. Method One provides the larger cost savings to the deficit. In addition, the FY22 annual BAH amount is \$25.6 billion and the total reduction to the annual BAH using Method One and Method Two is 1.112% and .592%, respectively. Similarly, with the reduction to the total annual BAH outlay, Method One reduces the total amount more than Method Two by 0.520%.

Table 10. DOD Deficit, Method One, and Method Two Savings.

	Total Amount
DOD Deficit	\$1,719,000,000,000.00
Method One Savings	\$284,565,916.80
Method Two Savings	\$151,467,308.64

Splitting the population data into two groups, Group One being the enlisted members and Group Two being the officers, to include warrant officers, we were able to see who contributed the most towards the cost savings in comparison to the federal deficit. Of these two groups, there was a total of 23,744 enlisted members which accounted for 38.25% of the study and 38,327 officers which accounted for 61.75% of the study (Table



11). Of the total savings to the deficit for Method One, the enlisted members had an impact of \$120,215,664 which accounted for 42.25% of the savings, while the officers had an impact of \$164,350,252 which accounted for 57.75% of the savings (Table 12). Looking at Method Two, the enlisted members had savings of \$64,183,133 which accounted for 42.37% of the total savings and the officers had a savings of \$87,286,214 which accounted for 57.63% of the total saved (Table 13). In both methods, the officers contributed the most towards the savings to the deficit. Furthermore, we then looked to see at what paygrades for enlisted, warrant officers, and officers does the tax bracket increase the most during Methods One and Two, shown in Table 14 and Table 15, respectively. The tax bracket increase point was calculated using the minimum, maximum, and averages within each method.

Table 11. Total Population of Enlisted, Warrant, and Officers.

Total Population of Enlisted	Total Population of Warrant Officers and Officers
23,744	38,327
38.25%	61.75%

Table 12. Method One Total Savings from Enlisted and Officers.

	Total Amount	Percent to the Combined Total Saved Amount
Enlisted Savings	\$120,215,664.00	42.25%
Officer Savings	\$164,350,252.80	57.75%

Warrant officers are combined with officers.

Table 13. Method Two Total Savings from Enlisted and Officers.

	Total Amount	Percent to the Combined Total Saved Amount
Enlisted Savings	\$64,183,133.52	42.37%
Officer Savings	\$87,286,214.16	57.63%

Warrant officers are combined with officers.



Table 14. Method One Total Tax Burden on Enlisted, Warrant Officers, and Officers

Paygrade	Min	Tax Bracket	Average	Tax Bracket	Max	Tax Bracket
ME01	\$2,484.00	12%	\$3,329.59	12%	\$5,094.00	22%
ME02	\$2,706.00	12%	\$3,551.59	22%	\$5,316.00	22%
ME03	\$3,068.18	12%	\$3,913.77	22%	\$5,678.18	22%
ME04	\$3,499.00	22%	\$4,344.59	22%	\$6,109.00	22%
ME05	\$4,249.68	22%	\$5,199.22	22%	\$7,114.68	22%
ME06	\$5,025.36	22%	\$5,892.06	22%	\$8,037.36	24%
ME07	\$5,990.50	22%	\$6,929.57	22%	\$9,398.50	24%
ME08	\$7,061.59	22%	\$8,118.58	24%	\$10,892.59	24%
ME09	\$8,457.69	24%	\$9,531.99	24%	\$12,258.69	24%
MW01	\$6,189.52	22%	\$7,098.48	22%	\$9,423.52	24%
MW02	\$6,703.72	22%	\$7,759.38	24%	\$10,534.72	24%
MW03	\$7,561.15	24%	\$8,636.48	24%	\$11,359.15	24%
MW04	\$8,501.40	24%	\$9,604.31	24%	\$12,278.40	24%
MW05	\$11,151.85	24%	\$12,283.19	24%	\$14,985.85	32%
MO01	\$5,080.77	22%	\$6,074.90	22%	\$8,194.77	24%
MO02	\$6,374.36	22%	\$7,376.30	22%	\$10,058.36	24%
MO03	\$8,112.05	24%	\$9,192.39	24%	\$11,904.05	24%
MO04	\$9,250.55	24%	\$10,380.08	24%	\$13,078.55	24%
MO05	\$10,391.09	24%	\$11,550.15	24%	\$14,276.09	32%
MO06	\$12,031.14	24%	\$13,216.00	24%	\$15,955.14	32%
MO07	\$14,050.95	24%	\$15,256.92	32%	\$18,052.95	35%

Table 15. Method Two Total Tax Burden on Enlisted, Warrant Officers, and Officers

Paygrade	Min	Tax Bracket	Average	Tax Bracket	Max	Tax Bracket
ME01	\$651.00	10%	\$1,496.59	12%	\$3,261.00	12%
ME02	\$651.00	10%	\$1,496.59	12%	\$3,261.00	12%
ME03	\$651.00	10%	\$1,496.59	12%	\$3,261.00	12%
ME04	\$651.00	10%	\$1,496.59	12%	\$3,261.00	12%
ME05	\$732.00	10%	\$1,681.53	12%	\$3,597.00	22%
ME06	\$939.00	12%	\$1,805.69	12%	\$3,951.00	22%
ME07	\$960.00	12%	\$1,899.07	12%	\$4,368.00	22%



Paygrade	Min	Tax Bracket	Average	Tax Bracket	Max	Tax Bracket
ME08	\$993.00	12%	\$2,049.99	12%	\$4,824.00	22%
ME09	\$1,041.00	12%	\$2,115.31	12%	\$4,842.00	22%
MW01	\$957.00	12%	\$1,865.97	12%	\$4,191.00	22%
MW02	\$990.00	12%	\$2,045.66	12%	\$4,821.00	22%
MW03	\$1,047.00	12%	\$2,122.33	12%	\$4,845.00	22%
MW04	\$1,137.00	12%	\$2,239.91	12%	\$4,914.00	22%
MW05	\$1,173.00	12%	\$2,304.34	12%	\$5,007.00	22%
MO01	\$780.00	10%	\$1,774.13	12%	\$3,894.00	22%
MO02	\$963.00	12%	\$1,964.93	12%	\$4,647.00	22%
MO03	\$1,065.00	12%	\$2,145.34	12%	\$4,857.00	22%
MO04	\$1,161.00	12%	\$2,290.53	12%	\$4,989.00	22%
MO05	\$1,179.00	12%	\$2,338.06	12%	\$5,064.00	22%
MO06	\$1,212.00	12%	\$2,396.86	12%	\$5,136.00	22%
MO07	\$1,218.00	12%	\$2,423.97	12%	\$5,220.00	22%

All calculations made during our research were established to determine the total cost savings possible from taxing the lower-ranking, non-dependent BAH for collocated military couples. For this determination we used two different methods: Method One was to use the annual base pay plus BAH as the total taxable amount, and Method Two was to use just the annual BAH as the total taxable amount. By breaking the population data into two groups, we saw who was affected the most in this cost-savings analysis. The more senior in paygrade and the greater time in service the individual member was, resulted in higher taxes paid. Housing location also played a factor since some locations pay more in BAH than others. Similarly, taxes decreased the more junior the individual was in both paygrade and time in service.



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IV. CONCLUSION

This paper utilized data from the Defense Manpower Data Center (DMDC) to discover cost savings available by taxing the lower-ranking, non-dependent BAH for collocated military couples. We analyzed the population data from June 2022 and expanded our analysis to cover a year's time to compare to FY22 budget numbers. We presented two different estimates of cost savings that could be gained by instituting a tax on the BAH allowance for collocated military couples.

The first estimate in our analysis provides an approximate \$284.5 million annual cost savings when a tax is applied to the lower-ranking, non-dependent military members' annual BAH and annual base pay combined. An alternative approach provides an estimated cost savings of \$151.4 million annually if taxing these service members' annual BAH allowance alone. Of note, the estimates for savings are 15% more heavily applied towards officers than enlisted service members.

Our research provides congressional leadership options for cost savings within the federal government, further refined to the discretionary funding of the DOD. The U.S. continues to have greater outlays than revenue and the national debt will certainly not reduce if we continue to budget to a deficit. It is essential for programs within the federal government to scrutinize their budgets to find areas of cost savings. We recommend an extension of this study to the OHA for more cost-saving possibilities. Regardless of congressional leadership decisions implemented, the data, methodology, and estimates provide our policy makers cost savings available to reduce the federal deficit.



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