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## 2010 Workplace and Gender Relations Survey of Active Duty <br> Members

Statistical Methodology Report

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# 2010 WORKPLACE AND GENDER RELATIONS 

## SURVEY OF ACTIVE DUTY MEMBERS: STATISTICAL METHODOLOGY REPORT

## Acknowledgments

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DMDC's Personnel Survey Branch, under the guidance of David McGrath, Branch Chief is responsible for the data processing, sampling, and weighting methods used in the SOFS program. Fawzi al Nassir, SRA International, Inc., supervised the sampling and weighting processes, and provided consultations and overall process control. The lead statistician was Owen Hung, SRA International, Inc., who used the DMDC Sampling Tool to plan the sample. He also developed weights for this survey. Susan Reinhold and Carole Massey, provided the data processing support. Elizabeth Davis, DMDC, and Dorothy Kester Jackman, SRA International, Inc., assisted in formatting the report. Fawzi Al Nassir and Owen Hung wrote this methodology report.

# 2010 WORKPLACE AND GENDER RELATIONS SURVEY OF ACTIVE DUTY MEMBERS: STATISTICAL METHODOLOGY REPORT 

## Executive Summary

This report describes sample design, sample selection, weighting, and variance estimation procedures for the 2010 Workplace and Gender Relations Survey of Active Duty Members (2010 WGRA).

The sampling frame consisted of $1,424,304$ records drawn from the June 2009 Active Duty Master Edit File and DEERS File. The 2010 WGRA used a single-stage stratified sample design. The allocation was nonproportional, with over-sampling of small domains and population subgroups having low response rates. The total sample size was based on precision requirements for key reporting domains. The allocation was determined by an optimization algorithm that minimized the cost of the survey while meeting the precision requirements.

Analytic weights were created to account for unequal selection probabilities and varying response rates among population subgroups. First, sample records were classified for weighting according to eligibility for the survey and completion of the return. Second, the sampling weights (the inverse of the selection probabilities) were adjusted to account for sample members whose eligibility could not be determined. Third, the eligibility-adjusted weights were adjusted to account for eligible sample members who did not return usable questionnaires. Fourth, the adjusted weights were post-stratified to population totals. Finally, sampling strata were collapsed to create strata for variance estimation by Taylor series linearization.

Location, completion, and response rates were calculated for the sample and for population subgroups after the field closed and data were received. These rates were computed according to the R3 recommendations of the American Association of Public Opinion Researchers (AAPOR, 2008). The weighted location rate was $86.1 \%$, the weighted completion rate was $36.9 \%$, and the weighted response rate was $31.8 \%$.

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# 2010 WORKPLACE AND GENDER RELATIONS SURVEY OF ACTIVE DUTY MEMBERS: STATISTICAL METHODOLOGY REPORT 

## Introduction

This report describes the sample design, sample selection, weighting, and variance estimation procedures for the 2010 Workplace and Gender Relations Survey of Active Duty Members (2010 WGRA). The first section of this report presents the sample design and sample selection procedures. The second and third sections provide information regarding the processing of sample and frame files and the statistical methodology used for sample weighting.

Response rates for the 2010 WGRA have also been computed in accordance with the R3 recommendations of the American Association of Public Opinion Researchers (AAPOR, 2008). The response rates for the full sample and for subgroups and the computation methods are described in the last section of this report.

## Sample Design and Selection

## Target Population

The 2010 WGRA was designed to represent individuals meeting all of the following criteria:

1. Active Duty members in the Army, Navy, Marine Corps and Air Force as well as members of Active Coast Guard;
2. At least six months service at the scheduled beginning of the survey fielding period;
3. Up to and including paygrade O6.

Fielding of the survey began March 8, 2010 and ended on June 3, 2010.

## Sampling Frame

The sampling frame consisted of 1,424,304 records drawn from the June 2009 Active Duty Master Edit File (ADMF). Auxiliary information used to develop the frame was obtained from the July 2009 Defense Enrollment Eligibility Reporting System (DEERS) Point-in-Time Extracts (PITE), and June 2009 Contingency Tracking System (CTS) file.

## Sample Design

The 2010 WGRA used a single-stage stratified design. Five population characteristics defined the stratification dimensions: service, gender, paygrade, Race/ethnicity and deployed.

These are the first five variables shown in Table 1. The frame was partitioned into 279 strata, produced by cross-classification of the stratification variables. In some circumstances, levels were collapsed within dimensions. For example, minority deployed and not deployed was collapsed along with senior officers (O4-O6) to form a stratum representing female in the Army. Service and gender were preserved (not collapsed).

Within each stratum, individuals were selected with equal probability and without replacement. Because allocation of the sample was not proportional to the size of the strata, selection probabilities varied among strata, so individuals were not selected with equal probability overall. Nonproportional allocation was used to achieve adequate sample sizes for small subpopulations of analytic interest, the survey reporting domains. These domains included subpopulations defined by the stratification characteristics, as well as others: activation during the past 12 months, and region of residence. Key reporting domains variables are also shown in Table 1.

## Sample Allocation

The total sample size was based on precision requirements for key reporting domains. Given estimated variable survey costs and anticipated eligibility and response rates, an optimization algorithm determined the minimum-cost allocation that simultaneously satisfied the domain precision requirements. Anticipated eligibility and response rates were based on the 2006 Workplace and Gender Relations Survey of Active Duty Members (2006 WGRA).

The allocation was accomplished by means of the DMDC Sample Planning Tool, Version 2.1 (Dever and Mason, 2003). This application is based on the method originally developed by J. R. Chromy (1987), and is described in Mason, Wheeless, George, Dever, Riemer, and Elig (1995). The Tool defines domain variance equations in terms of unknown stratum sample sizes and user-specified precision constraints. A cost function is defined in terms of the unknown stratum sample sizes and per-unit costs of data collection, editing, and processing. The variance equations are solved simultaneously, subject to the constraints imposed, for the sample sizes that minimize the cost function. Eligibility rates modify the prevalence rates that are components of the variance equations, thus affecting the allocation; response rates inflate the allocation, thus affecting the final sample size.

Although 85 domains had been defined for the 2010 WGRA allocation, precision constraints were imposed only on those of primary interest. Generally, the precision requirement was that an estimated prevalence rate of 0.5 have a 95 percent confidence interval half-width no greater than 0.05 . Constraints were manipulated to produce an allocation that achieved satisfactory precision for the domains of interest at a particular sample size.

The total 2010 WGRA sample size was 90,391 . Sample sizes by Service are shown in Error! Reference source not found. for the levels of the stratification variables. The allocation solution by strata and by reporting domains are presented in Appendix A, Table A1, and Appendix B, Table B1 respectively.

Table 1.
Stratification and Key Reporting Domain Variables

| Variable | Categories |
| :---: | :---: |
| Service * | - Army <br> - Navy <br> - Marine Corps <br> - Air Force <br> - Coast Guard |
| Pay Grade * | - E1-E3/Unknown Enlisted <br> - E4 <br> - E5-E6 <br> - E7-E9 <br> - W1-W5 <br> - O1-O3/Unknown Officers <br> - O4-O6 |
| Sex* | - Male/Unknown <br> - Female |
| Race/Ethnicity ${ }^{*}$ | - Non-Minority/Unknown <br> - Minority |
| Deployed in the last 12 months | - None (Never Deployed) <br> - Yes <br> - No |
| Constructed DoD | - DOD <br> - Non-DOD |
| Pay Grade | - E1-E4 <br> - E5-E9 <br> - W1-W5 <br> - O1-O3 <br> - O4-O6 <br> - Unknown |
| Pay Grade Total Enlisted/Officer Code | - Enlisted <br> - Officer |
| Race | - White <br> - Black <br> - Hispanic <br> - Other Race |

Note. * denotes stratification variable.

Table 2.
Sample Size by Stratification Levels, Member Service

|  | Total | Army | Navy | Marine Corps | Air Force | Coast Guard |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total | 90,391 | 25,788 | 18,682 | 24,719 | 16,425 | 4,777 |
| Gender |  |  |  |  |  |  |
| Male/Unknown | 58,299 | 15,309 | 11,423 | 19,636 | 8,305 | 3,626 |
| Female | 32,092 | 10,479 | 7,259 | 5,083 | 8,120 | 1,151 |
| Paygrade |  |  |  |  |  |  |
| E1-E3 | 29,616 | 6,341 | 6,637 | 12,156 | 3,579 | 903 |
| E4 | 19,197 | 6,833 | 3,464 | 4,810 | 3,161 | 929 |
| E5-E6 | 18,321 | 4,437 | 4,477 | 3,986 | 4,386 | 1,035 |
| E7-E9 | 4,839 | 1,333 | 988 | 961 | 1,317 | 240 |
| W1-W5 | 4,044 | 2,949 | 347 | 394 | 0 | 354 |
| O1-O3 | 8,596 | 2,234 | 1,642 | 1,749 | 2,191 | 780 |
| O4-06 | 5,778 | 1,661 | 1,127 | 663 | 1,791 | 536 |
| Race |  |  |  |  |  |  |
| Non-minority/Unknown | 56,807 | 15,303 | 9,512 | 17,402 | 11,183 | 3,407 |
| Minority | 33,584 | 10,485 | 9,170 | 7,317 | 5,242 | 1,370 |
| Deployed |  |  |  |  |  |  |
| None | 40,593 | 8,062 | 8,586 | 12,359 | 7,175 | 4,411 |
| No | 35,944 | 12,793 | 8,165 | 8,208 | 6,458 | 320 |
| Yes | 13,854 | 4,933 | 1,931 | 1,152 | 2,792 | 46 |

## Weighting

Analytical weights for the 2010 Workplace and Gender Relations Survey of Active Duty Members were created to account for unequal probabilities of selection and varying response rates among population subgroups. Sampling weights were computed as the inverse of the selection probabilities and then adjusted for nonresponse. Nonresponse adjustments were accomplished in two phases, first the sampling weights were adjusted for eligibility then eligibility weights were adjusted for survey completion. The adjusted weights were poststratified to match the respective population totals and to reduce bias unaccounted for by the previous weighting steps.

## Case Dispositions

Final case dispositions for weighting were determined using information from administrative records, field operations (the Survey Control System or SCS), and returned surveys. No single source of information is both complete and accurate; inconsistencies among these sources were resolved according to the order of precedence shown in Table 3.

Table 3.
Case Dispositions for Weighting

| Case Disposition (Samp_DC) | Information Source | Conditions |
| :---: | :---: | :---: |
| 1 Record ineligible | Personnel record | Sample ineligible - deceased or no address available in DEERS. |
| 2 Ineligible by self- or proxyreport | Survey Control System (SCS) | "Retired," "No longer employed by DoD," or "Deceased." |
| 3 Ineligible by survey self report | First survey question | Active duty member retired or separated from military; Reservist no longer member of a Reserve Component |
| 4 Eligible, complete response | Item response rate | Item response is at least 50\%. |
| 5 Eligible, incomplete response | Item response rate | Survey isn't blank but item response is less than $50 \%$. |
| 6 Unknown eligibility, complete response | Personnel record, first survey question, item response rate | Incomplete personnel record and first survey item is missing and item response is at least $50 \%$; |
| 7 Unknown eligibility, incomplete response | Personnel record, first survey question, and item response rate | Incomplete personnel record AND first survey question is missing AND return is not blank AND item response is less than $50 \%$; |
| 8 Active refusal | SCS | Reason refused is any |
|  |  | Reason ineligible is "other" |
|  |  | Reason survey is blank is "refused-too long", "refusedinappropriate/intrusive", "refused-other", "ineligibleother", "unreachable at this address", "refused by current resident", "concerned about security/confidentiality." |
| 9 Blank return | SCS | No reason given. |
| 10 PND | SCS | Postal non-deliverable or original non-locatable. |
| 10 Non-respondent | Remainder | Remainder |

This order is critical to resolving case dispositions. For example, suppose a sample person refused the survey, with the reason that it was too long; in the absence of any other information, the disposition would be "eligible nonrespondent." If a proxy report was also given that the sample person had been hospitalized and was unable to complete the survey, the disposition would be "ineligible."

Case dispositions were assigned for weighting based on eligibility for the survey and completion of the return. Execution of the weighting process as well as computation of response rates both depend on this classification. Sample case disposition frequencies are reported in Table 4.

Table 4.
Description of 2010 WGRA Survey Control System Disposition Codes (SAMP_DC)

| SAMP_DC | Description | Sample <br> Cases | Percentage | Percentage <br> of Sum of <br> Sus <br> Base <br> Weights |  |
| ---: | :--- | ---: | ---: | ---: | ---: |
| 1 | Record ineligible | 3,092 | $3.42 \%$ | 44,626 | $3.13 \%$ |
| 2 Ineligble by self- or proxy-report | 142 | $0.16 \%$ | 2,564 | $0.18 \%$ |  |
| 3 | Ineligible by survey self report | 369 | $0.41 \%$ | 6,558 | $0.46 \%$ |
| 4 | Eligible - complete response | 26,505 | $29.32 \%$ | 431,053 | $30.26 \%$ |
| 5 | Eligible - incomplete response | 3,203 | $3.54 \%$ | 48,386 | $3.40 \%$ |
| 8 | Active refusal - refused, deployed, other | 965 | $1.07 \%$ | 15,484 | $1.09 \%$ |
| 9 | Blank return | 588 | $0.65 \%$ | 9,445 | $0.66 \%$ |
| 10 | PND - postal non-deliverable | 13,096 | $14.49 \%$ | 191,846 | $13.47 \%$ |
| 11 | Non-respondents | 42,431 | $46.94 \%$ | 674,343 | $47.35 \%$ |
|  | Total | 90,391 | $100.00 \%$ | $1,424,304$ | $100.00 \%$ |

## Eligible Completed Cases

The total number of eligible complete cases for weighting is shown in Table 5.

Table 5.

## Complete Eligible Respondents by Service and Paygrade

| Service by Paygrade | Total | Army | Navy | Marine <br> Corps | Air Force | Coast Guard |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Paygrade | 26,505 | 6,703 | 5,330 | 5,033 | 6,963 | 2,476 |
| E1-E3 | 4,339 | 650 | 932 | 1,237 | 1,253 | 267 |
| E4 | 4,012 | 1,069 | 718 | 831 | 1,016 | 378 |
| E5-E6 | 6,432 | 1,304 | 1,508 | 1,171 | 1,914 | 535 |
| E7-E9 | 2,505 | 661 | 553 | 476 | 656 | 159 |
| W1-W5 | 1,895 | 1,214 | 213 | 215 | 0 | 253 |
| O1-O3 | 3,981 | 856 | 772 | 744 | 1,090 | 519 |
| O4-O6 | 3,341 | 949 | 634 | 359 | 1,034 | 365 |

## Nonresponse Adjustments and Poststratification

After case dispositions were resolved, the sampling weights were adjusted for nonresponse. First, the sampling weights for cases of known eligibility (samp_dc values 2, 3, 4, or 5) were adjusted to account for cases of unknown eligibility (samp_dc values 8,910 , or 11). Next, the eligibility-adjusted weights for eligible, complete respondents (value 4) were adjusted
to account for eligible sample members who had not returned a completed survey (value 5). Note that record ineligibles (value 1) were excluded from these weighting adjustments.

Finally, the weights were poststratified to match population totals and to reduce bias unaccounted for by the previous weighting adjustments. Poststratification cells were defined by the cross-classification of service branch, gender, paygrade and race. Within each poststratification cell, the nonresponse-adjusted weights for eligible respondents (value 4) and self-reported ineligibles (value 2 or 3 ) were adjusted to match population counts. Final weights for record ineligibles (value 1) were set to zero. A summary of final weights by service is provided in Table 6.

Table 6.
Final Weights by Service and Paygrade

| Service by Paygrade | Army | Navy | Marine Corps | Air Force | Coast Guard |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Paygrade | 536,931 | 321,835 | 199,189 | 324,582 | 41,766 |
| E1-E3 | 113,173 | 74,556 | 82,696 | 65,221 | 6,575 |
| E4 | 130,204 | 49,829 | 36,381 | 51,277 | 7,691 |
| E5-E6 | 148,081 | 115,249 | 45,845 | 109,571 | 14,853 |
| E7-E9 | 56,091 | 30,264 | 13,610 | 33,665 | 4,357 |
| W1-W5 | 14,824 | 1,738 | 2,002 | 0 | 1,800 |
| O1-O3 | 44,616 | 30,077 | 12,361 | 37,302 | 4,003 |
| O4-O6 | 29,942 | 20,122 | 6,294 | 27,546 | 2,487 |

## Variance Estimation

Analysis of the WGRA2010 data required a variance estimation procedure that accounted for the complex sample design. The final step of the weighting process was to define strata for variance estimation by Taylor series linearization. The WGRA2010 survey variance estimation strata corresponded closely to the design strata; however, it was necessary to collapse some sampling strata containing fewer than 25 cases with non-zero final weights with similar strata. Ninety-one variance estimation strata were defined for the WGRA2010 survey.

## Location, Completion, and Response Rates

Location, completion, and response rates were calculated in accordance with the R3 recommendations of (AAPOR, 2008), which estimates the proportion of eligible respondents among cases of unknown eligibility.

Location, completion, and response rates were computed for the WGRA2010 as follows:
The location rate (LR) is defined as

$$
L R=\frac{\text { adjusted located sample }}{\text { adjusted eligible sample }}=\frac{N_{L}}{N_{E}} .
$$

The completion rate ( CR ) is defined as

$$
C R=\frac{\text { usable responses }}{\text { adjusted located sample }}=\frac{N_{R}}{N_{L}} .
$$

The response rate ( RR ) is defined as

$$
R R=\frac{\text { usable responses }}{\text { adjusted eligible sample }}=\frac{N_{R}}{N_{E}} .
$$

where

- $\quad N_{L}=$ Adjusted located sample
- $N_{E}=$ Adjusted eligible sample
- $N_{R}=$ Usable responses.

To identify cases that contribute to the components of LR, CR, and RR, the disposition codes were grouped as shown in Error! Reference source not found.. Record Ineligibles were excluded from calculation of the eligibility rate because it was assumed that all ADMF ineligibles had been identified.

Table 7.
Disposition Codes for CASRO Response Rates

| Response Category | SAMP_DC Values |
| :--- | ---: |
| Eligible Sample | $4,5,8,9,10,11$ |
| Located Sample | $4,5,8,9,11$ |
| Eligible Response | 4 |
| No Return | 11 |
| Eligibility Determined | $2,3,4,5,8,9$ |
| Self Report Ineligible | 2,3 |

## Ineligibility Rate

The ineligibility rate (IR) is defined as

> IR = Self Report Ineligible Cases / Eligible Determined Cases.

## Estimated Ineligible Postal Non-Deliverable/Not Located Rate

The estimated ineligible postal non-deliverable or not located (IPNDR) is defined as IPNDR $=($ Eligible Sample - Located Sample $) *$ IR.

## Estimated Ineligible Nonresponse

The estimated ineligible nonresponse (EINR) is defined as

$$
\text { EINR }=(\text { Not Returned }) * \text { IR. }
$$

## Adjusted Location Rate

The adjusted location rate (ALR) is defined as

$$
\text { ALR }=(\text { Located Sample }- \text { EINR }) /(\text { Eligible Sample }- \text { IPNDR - EINR }) .
$$

## Adjusted Completion Rate

The adjusted completion rate (ACR) is defined as

$$
\text { ACR = (Eligible Response) / (Located Sample - EINR }) .
$$

## Adjusted Response Rate

The adjusted response rate (ARR) is defined as

$$
\text { ARR }=(\text { Eligible Response }) /(\text { Eligible Sample - IPNDR }- \text { EINR }) .
$$

Unweighted and weighted sample counts used to compute the overall response rates are shown in Table 8. Weighted rates were computed using the sampling weights. The final response rate is the product of the location rate and completion rate. Weighted and Unweighted (observed) location, completion, and response rates for the 2010 WGRA are shown in Table 9. Both weighted and unweighted location, completion, and response rates for the 2010 WGRA survey are shown in Table 10. Weighted rates were computed using the sampling weights.

Table 8.
Comparison of the Final Sample Relative to the Drawn Sample

| Case Disposition Categories | Sample Counts |  | Weighted Estimates |  |
| :---: | :---: | :---: | :---: | :---: |
|  | n | \% | n | \% |
| Drawn sample \& Population | 90,391 |  | 1,424,304 |  |
|  |  |  |  |  |
| Ineligible on master files | -3092 | 3.42\% | -44,626 | 3.13\% |
| Self-reported ineligible | -511 | 0.57\% | -9,122 | 0.64\% |
| Total: Ineligible | -3,603 | 3.99\% | -53,748 | 3.77\% |
|  |  |  |  |  |
| Eligible sample | 86,788 | 96.01\% | 1,370,556 | 96.23\% |
|  |  |  |  |  |
| Not located (estimated ineligible) | -211 | 0.23\% | -3408 | 0.24\% |
| Not located (estimated eligible) | -12,885 | 14.26\% | -188,438 | 13.23\% |
| Total not located | -13,096 | 14.49\% | -191,846 | 13.47\% |
|  |  |  |  |  |
| Located sample | 73,692 | 81.53\% | 1,178,710 | 82.76\% |
|  |  |  |  |  |
|  | -965 | 1.07\% | -15,484 | 1.09\% |
| Returned blank | -588 | 0.65\% | -9,445 | 0.66\% |
| Skipped key questions | -3203 | 3.54\% | -48,386 | 3.40\% |
| Did not return a survey (estimated ineligible) | -682 | 0.75\% | -11,979 | 0.84\% |
| Did not return a survey (estimated eligible) | -41,749 | 46.19\% | -662,363 | 46.50\% |
| Total: Nonresponse | -47,187 | 52.20\% | -747,657 | 52.49\% |
|  |  |  |  |  |
| Usable responses | 26,505 | 29.32\% | 431,053 | 30.26\% |

Notes:

1. The categories labeled 'Not located . . .' and 'Did not return a survey . . .' have been broken down into additional subcategories labeled '(estimated ineligible)' and '(estimated eligible)'. The ineligible counts are based on an ineligible rate = Self-report ineligibles / (Eligible Respondents + Unusable responses + Self-reported ineligibles). Unusable responses include sample members who 'Requested removal,' 'Returned blank surveys,' or 'Skipped key questions.' The eligible counts are the complement of the ineligible count.
2. The observed counts of the various response categories are somewhat skewed by the oversampling employed in the sample design. Consequently, weighted counts are also provided because they are more representative of response propensity in the entire population.

A total of 3,603 sample members (3.99\%) were lost from the final sample through classification as ineligible. Elimination of ineligibles resulted in decreasing the sample to
$96.01 \%(\mathrm{~N}=86,788)$ of its original size. Because of the address update procedure, less than $14.49 \%$ of the drawn sample ( 13,096 of 90,391 ) was lost because the sample members could not be located. Losses attributable to either ineligibility or unlocatability resulted in a sample that was $81.53 \%$ of the drawn sample. Nonrespondents included the following groups: sample members who contacted the operations contractor (by mail, fax, e-mail, Web, or telephone) and asked to have their names removed from the survey mailing list, and 42,431 sample members who did not return a survey. At the conclusion of the survey fielding, 26,505 eligible, locatable sample members had returned usable surveys.

Table 9.
Location, Completion, and Response Rates

| Type of Rate | Computation | Observed Rates | Weighted Rates |
| :---: | :---: | :---: | :---: |
| Location | Adjusted located sample / Adjusted eligible sample | $85.0 \%$ | $86.1 \%$ |
| Completion | Usable responses / Adjusted located sample | $36.3 \%$ | $36.9 \%$ |
| Response | Usable responses / Adjusted eligible sample | $30.9 \%$ | $31.8 \%$ |

Table 10.
Rates for Full Sample and Stratification Level

| Stratification/ Domain Variable | Stratification /Domain Variable Levels | Sample | Usable <br> Responses | Sum of Weights | Eligibility <br> Adjusted <br> Response $\qquad$ | Weighted Location Rate | Weighted Completion Rate | Weighted Response Rate |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sample | Sample | 90,391 | 26,505 | 1,424,304 | $31.9 \pm 0.4$ | 86.1\% | 36.9\% | 31.8\% |
| Service | Army | 25,788 | 6,703 | 536,958 | $26.3 \pm 0.7$ | 82.1\% | 31.8\% | 26.1\% |
|  | Navy | 18,682 | 5,330 | 321,844 | $32.7 \pm 0.8$ | 85.3\% | 38.3\% | 32.7\% |
|  | Marine Corps | 24,719 | 5,033 | 199,171 | $22.4 \pm 0.5$ | 82.9\% | 26.9\% | 22.3\% |
|  | Air Force | 16,425 | 6,963 | 324,582 | $43.6 \pm 0.9$ | 94.2\% | 46.2\% | 43.5\% |
|  | Coast Guard | 4,777 | 2,476 | 41,749 | $51.8 \pm 1.6$ | 95.3\% | 54.2\% | 51.7\% |
| Pay Group | E1-E3 | 29,616 | 4,339 | 342,221 | $14.9 \pm 0.4$ | 74.4\% | 19.9\% | 14.8\% |
|  | E4 | 19,197 | 4,012 | 275,382 | $19.6 \pm 0.7$ | 79.9\% | 24.4\% | 19.5\% |
|  | E5-E6 | 18,321 | 6,432 | 433,599 | $35.6 \pm 0.8$ | 90.9\% | 39.0\% | 35.5\% |
|  | E7-E9 | 4,839 | 2,505 | 137,987 | $55.3 \pm 1.8$ | 97.1\% | 56.7\% | 55.0\% |
|  | W1-W5 | 4,044 | 1,895 | 20,365 | $49.1 \pm 1.4$ | 95.4\% | 51.3\% | 48.9\% |
|  | O1-O3 | 8,596 | 3,981 | 128,359 | $44.5 \pm 1.2$ | 93.0\% | 47.9\% | 44.5\% |
|  | O4-O6 | 5,778 | 3,341 | 86,391 | $59.8 \pm 1.4$ | 97.7\% | 61.1\% | 59.7\% |
| Gender | Male | 58,299 | 15,865 | 1,222,464 | $31.0 \pm 0.4$ | 85.8\% | 36.0\% | 30.9\% |
|  | Female | 32,092 | 10,640 | 201,840 | $37.5 \pm 0.6$ | 87.7\% | 42.7\% | 37.4\% |
| Race | Non-minority/ Unknown | 56,807 | 17,570 | 945,472 | $33.7 \pm 0.5$ | 86.9\% | 38.7\% | 33.6\% |
|  | Minority | 33,584 | 8,935 | 478,832 | $28.3 \pm 0.6$ | 84.6\% | 33.4\% | 28.3\% |
| Deploy | Non-match to CTS file | 40,593 | 10,628 | 591,239 | $28.5 \pm 0.5$ | 82.6\% | 34.4\% | 28.4\% |
|  | No | 35,944 | 11,909 | 698,230 | $35.1 \pm 0.6$ | 89.1\% | 39.3\% | 35.0\% |
|  | Yes | 13,854 | 3,968 | 134,835 | $30.3 \pm 1.2$ | 85.9\% | 35.1\% | 30.2\% |
| Constructed DoD | Non-DOD | 4,777 | 2,476 | 41,749 | $51.8 \pm 1.6$ | 95.3\% | 54.2\% | 51.7\% |
|  | DOD | 85,614 | 24,029 | 1,382,555 | $31.3 \pm 0.4$ | 85.8\% | 36.4\% | 31.2\% |
| Pay Group <br> Total <br> Enlisted/ Officers | Enlisted | 71,973 | 17,288 | 1,189,189 | $28.2 \pm 0.4$ | 84.3\% | 33.3\% | 28.1\% |
|  | Officer | 18,418 | 9,217 | 235,115 | $50.5 \pm 0.8$ | 94.9\% | 53.1\% | 50.4\% |
| Race/ Ethnicity | White/ Unknown | 56,798 | 17,565 | 945,302 | $33.7 \pm 0.5$ | 86.9\% | 38.7\% | 33.6\% |
|  | Black | 15,912 | 4,129 | 230,436 | $28.1 \pm 1.0$ | 85.0\% | $32.9 \%$ | 28.0\% |
|  | Hispanic | 10,821 | 2,790 | 152,338 | $27.6 \pm 1.1$ | 83.7\% | 32.9\% | 27.5\% |
|  | Other | 6,860 | 2,021 | 96,228 | $30.2 \pm 1.4$ | 85.0\% | 35.4\% | 30.1\% |

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Appendix A. Sample Allocation

Table A1.
Sample Allocation

| Stratum | Stratum Size | Allocation | Sample Size | \% <br> Sampled | Label |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 51,004 | 171 | 1,789 | 3.5 | 001Army_Male_E1-E3_Non-Minority_non |
| 2 | 14,541 | 42 | 601 | 4.1 | 002Army_Male_E1-E3_Non-Minority_No |
| 3 | 3,050 | 9 | 135 | 4.4 | 003Army_Male_E1-E3_Non-Minority_Yes |
| 4 | 21,614 | 72 | 757 | 3.5 | 004Army_Male_E1-E3_Minoritynon |
| 5 | 6,100 | 18 | 257 | 4.2 | 005Army_Male_E1-E3_Minority_No |
| 6 | 1,129 | 4 | 60 | 5.3 | 006Army_Male_E1-E3_Minority_Yes |
| 7 | 17,702 | 87 | 421 | 2.4 | 007Army_Male_E4_Non-Minority_non |
| 8 | 48,103 | 195 | 1,386 | 2.9 | 008Army_Male_E4_Non-Minority_No |
| 9 | 11,869 | 47 | 360 | 3.0 | 009Army_Male_E4_Non-Minority_Yes |
| 10 | 8,391 | 37 | 222 | 2.6 | 010Army_Male_E4_Minority_non |
| 11 | 21,554 | 79 | 699 | 3.2 | 011Army_Male_E4_Minority_No |
| 12 | 4,911 | 18 | 172 | 3.5 | 012Army_Male_E4_Minority_Yes |
| 13 | 7,372 | 49 | 128 | 1.7 | 013Army_Male_E5-E6_Non-Minority_non |
| 14 | 62,310 | 376 | 1,192 | 1.9 | 014Army_Male_E5-E6_Non-Minority_No |
| 15 | 11,097 | 67 | 217 | 2.0 | 015Army_Male_E5-E6_Non-Minority_Yes |
| 16 | 4,549 | 29 | 84 | 1.8 | 016Army_Male_E5-E6_Minority_non |
| 17 | 37,997 | 218 | 767 | 2.0 | 017Army_Male_E5-E6_Minority_No |
| 18 | 6,360 | 36 | 130 | 2.0 | 018Army_Male_E5-E6_Minority_Yes |
| 19 | 3,746 | 32 | 53 | 1.4 | 019Army_Male_E7-E9_Non-Minority_non |
| 20 | 22,065 | 179 | 315 | 1.4 | 020Army_Male_E7-E9_Non-Minority_No |
| 21 | 3,396 | 28 | 47 | 1.4 | 021Army_Male_E7-E9_Non-Minority_Yes |
| 22 | 3,162 | 25 | 47 | 1.5 | 022Army_Male_E7-E9_Minority_non |
| 23 | 15,311 | 117 | 234 | 1.5 | 023Army_Male_E7-E9_Minority_No |
| 24 | 2,318 | 18 | 36 | 1.6 | 024Army_Male_E7-E9_Minority_Yes |
| 25 | 8,973 | 151 | 323 | 3.6 | 025Army_Male_O1-O3_Non-Minority_non |
| 26 | 16,070 | 260 | 600 | 3.7 | 026Army_Male_O1-O3_Non-Minority_No |
| 27 | 2,903 | 43 | 119 | 4.1 | 027Army_Male_O1-O3_Non-Minority_Yes |
| 28 | 2,290 | 37 | 90 | 3.9 | 028Army_Male_O1-O3_Minority_non |
| 29 | 4,828 | 73 | 196 | 4.1 | 029Army_Male_O1-O3_Minority_No |
| 30 | 831 | 12 | 38 | 4.6 | 030Army_Male_O1-O3_Minority_Yes |
| 31 | 3,581 | 100 | 149 | 4.2 | 031Army_Male_O4-O6_Non-Minority_non |
| 32 | 15,501 | 420 | 657 | 4.2 | 032Army_Male_O4-O6_Non-Minority_No |
| 33 | 2,239 | 58 | 102 | 4.6 | 033Army_Male_O4-O6_Non-Minority_Yes |
| 34 | 854 | 22 | 39 | 4.6 | 034Army_Male_O4-O6_Minority_non |
| 35 | 3,318 | 84 | 152 | 4.6 | 035Army_Male_O4-O6_Minority_No |
| 36 | 476 | 12 | 26 | 5.5 | 036Army_Male_O4-O6_Minority_Yes |
| 37 | 6,675 | 196 | 961 | 14.4 | 037Army_Female_E1-E3_Non-Minority_non |
| 38 | 1,069 | 28 | 182 | 17.0 | 038Army_Female_E1-E3_Non-Minority_No |
| 39 | 214 | 25 | 173 | 80.8 | 039Army_Female_E1-E3_Non-Minority_Yes |
| 40 | 6,434 | 172 | 1,013 | 15.7 | 040Army_Female_E1-E3_Minority_non |
| 41 | 1,107 | 26 | 205 | 18.5 | 041Army_Female_E1-E3_Minority_No |
| 42 | 236 | 25 | 208 | 88.1 | 042Army_Female_E1-E3_Minority_Yes |
| 43 | 3,530 | 128 | 412 | 11.7 | 043Army_Female_E4_Non-Minority_non |


| 44 | 3,779 | 116 | 522 | 13.8 | 044Army_Female_E4_Non-Minority_No |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 45 | 836 | 110 | 561 | 67.1 | 045Army_Female_E4_Non-Minority_Yes |
| 46 | 3,975 | 119 | 561 | 14.1 | 046Army_Female_E4_Minority_non |
| 47 | 4,604 | 122 | 741 | 16.1 | 047Army_Female_E4_Minority_No |
| 48 | 950 | 103 | 776 | 81.7 | 048Army_Female_E4_Minority_Yes |
| 49 | 1,547 | 41 | 85 | 5.5 | 049Army_Female_E5-E6_Non-Minority_non |
| 50 | 4,293 | 104 | 255 | 5.9 | 050Army_Female_E5-E6_Non-Minority_No |
| 51 | 646 | 117 | 302 | 46.7 | 051Army_Female_E5-E6_Non-Minority_Yes |
| 52 | 2,675 | 63 | 165 | 6.2 | 052Army_Female_E5-E6_Minority_non |
| 53 | 8,128 | 179 | 531 | 6.5 | 053Army_Female_E5-E6_Minority_No |
| 54 | 1,107 | 177 | 581 | 52.5 | 054Army_Female_E5-E6_Minority_Yes |
| 55 | 536 | 17 | 26 | 4.9 | 055Army_Female_E7-E9_Non-Minority_non |
| 56 | 1,245 | 140 | 228 | 18.3 | 056Army_Female_E7-E9_Non-Minority_No/Yes |
| 57 | 1,354 | 38 | 72 | 5.3 | 057Army_Female_E7-E9_Minority_non |
| 58 | 2,643 | 71 | 143 | 5.4 | 058Army_Female_E7-E9_Minority_No |
| 59 | 315 | 64 | 132 | 41.9 | 059Army_Female_E7-E9_Minority_Yes |
| 60 | 2,701 | 85 | 166 | 6.1 | 060Army_Female_O1-O3_Non-Minority_non |
| 61 | 2,339 | 73 | 145 | 6.2 | 061Army_Female_O1-O3_Non-Minority_No |
| 62 | 412 | 76 | 192 | 46.6 | 062Army_Female_O1-O3_Non-Minority_Yes |
| 63 | 1,309 | 37 | 92 | 7.0 | 063Army_Female_O1-O3_Minority_non |
| 64 | 1,671 | 47 | 119 | 7.1 | 064Army_Female_O1-O3_Minority_No |
| 65 | 289 | 46 | 154 | 53.3 | 065Army_Female_O1-O3_Minority_Yes |
| 66 | 906 | 37 | 56 | 6.2 | 066Army_Female_O4-O6_Non-Minority_non |
| 67 | 1,632 | 171 | 264 | 16.2 | 067Army_Female_O4-O6_Non-Minority_No/Yes |
| 68 | 476 | 17 | 33 | 6.9 | 068Army_Female_O4-O6_Minority_non |
| 69 | 959 | 92 | 183 | 19.1 | 069Army_Female_O4-O6_Minority_No/Yes |
| 70 | 22,442 | 118 | 1,357 | 6.0 | 070Navy_Male_E1-E3_Non-Minority_non |
| 71 | 4,198 | 22 | 277 | 6.6 | 071Navy_Male_E1-E3_Non-Minority_No |
| 72 | 1,036 | 6 | 81 | 7.8 | 072Navy_Male_E1-E3_Non-Minority_Yes |
| 73 | 25,246 | 136 | 1,490 | 5.9 | 073Navy_Male_E1-E3_Minority_non |
| 74 | 5,855 | 30 | 372 | 6.4 | 074Navy_Male_E1-E3_Minority_No |
| 75 | 1,352 | 7 | 89 | 6.6 | 075Navy_Male_E1-E3_Minority_Yes |
| 76 | 10,332 | 85 | 395 | 3.8 | 076Navy_Male_E4_Non-Minority_non |
| 77 | 9,132 | 68 | 396 | 4.3 | 077Navy_Male_E4_Non-Minority_No |
| 78 | 1,482 | 11 | 67 | 4.5 | 078Navy_Male_E4_Non-Minority_Yes |
| 79 | 8,679 | 66 | 362 | 4.2 | 079Navy_Male_E4_Minority_non |
| 80 | 10,251 | 70 | 481 | 4.7 | 080Navy_Male_E4_Minority_No |
| 81 | 1,358 | 10 | 72 | 5.3 | 081Navy_Male_E4_Minority_Yes |
| 82 | 16,099 | 169 | 481 | 3.0 | 082Navy_Male_E5-E6_Non-Minority_non |
| 83 | 36,188 | 372 | 1,099 | 3.0 | 083Navy_Male_E5-E6_Non-Minority_No |
| 84 | 3,556 | 36 | 110 | 3.1 | 084Navy_Male_E5-E6_Non-Minority_Yes |
| 85 | 10,118 | 102 | 313 | 3.1 | 085Navy_Male_E5-E6_Minority_non |
| 86 | 30,925 | 303 | 985 | 3.2 | 086Navy_Male_E5-E6_Minority_No |
| 87 | 2,625 | 26 | 85 | 3.2 | 087Navy_Male_E5-E6_Minority_Yes |
| 88 | 4,944 | 64 | 122 | 2.5 | 088Navy_Male_E7-E9_Non-Minority_non |
| 89 | 12,039 | 156 | 290 | 2.4 | 089Navy_Male_E7-E9_Non-Minority_No |
| 90 | 1,083 | 15 | 28 | 2.6 | 090Navy_Male_E7-E9_Non-Minority_Yes |
| 91 | 2,296 | 28 | 60 | 2.6 | 091Navy_Male_E7-E9_Minority_non |


| 92 | 7,174 | 88 | 183 | 2.6 | 092Navy_Male_E7-E9_Minority_No |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 93 | 494 | 7 | 14 | 2.8 | 093Navy_Male_E7-E9_Minority_Yes |
| 94 | 9,577 | 188 | 391 | 4.1 | 094Navy_Male_O1-O3_Non-Minority_non |
| 95 | 9,038 | 175 | 374 | 4.1 | 095Navy_Male_O1-O3_Non-Minority_No |
| 96 | 1,138 | 22 | 50 | 4.4 | 096Navy_Male_O1-O3_Non-Minority_Yes |
| 97 | 2,242 | 42 | 96 | 4.3 | 097Navy_Male_O1-O3_Minority_non |
| 98 | 2,569 | 48 | 112 | 4.4 | 098Navy_Male_O1-O3_Minority_No |
| 99 | 251 | 5 | 13 | 5.2 | 099Navy_Male_O1-O3_Minority_Yes |
| 100 | 4,682 | 134 | 219 | 4.7 | 100Navy_Male_O4-O6_Non-Minority_non |
| 101 | 9,381 | 265 | 447 | 4.8 | 101Navy_Male_O4-O6_Non-Minority_No |
| 102 | 686 | 19 | 34 | 5.0 | 102Navy_Male_O4-O6_Non-Minority_Yes |
| 103 | 826 | 22 | 42 | 5.1 | 103Navy_Male_O4-O6_Minority_non |
| 104 | 1,948 | 51 | 101 | 5.2 | 104Navy_Male_O4-O6_Minority_No/Yes |
| 105 | 4,199 | 112 | 666 | 15.9 | 105Navy_Female_E1-E3_Non-Minority_non |
| 106 | 829 | 60 | 416 | 50.2 | 106Navy_Female_E1-E3_Non-Minority_No/Yes |
| 107 | 7,590 | 188 | 1,295 | 17.1 | 107Navy_Female_E1-E3_Minority_non |
| 108 | 1,414 | 33 | 256 | 18.1 | 108Navy_Female_E1-E3_Minority_No |
| 109 | 395 | 42 | 338 | 85.6 | 109Navy_Female_E1-E3_Minority_Yes |
| 110 | 1,905 | 67 | 234 | 12.3 | 110Navy_Female_E4_Non-Minority_non |
| 111 | 1,438 | 106 | 461 | 32.1 | 111Navy_Female_E4_Non-Minority_No/Yes |
| 112 | 2,620 | 78 | 377 | 14.4 | 112Navy_Female_E4_Minority_non |
| 113 | 2,296 | 62 | 363 | 15.8 | 113Navy_Female_E4_Minority_No |
| 114 | 336 | 40 | 256 | 76.2 | 114Navy_Female_E4_Minority_Yes |
| 115 | 2,053 | 52 | 115 | 5.6 | 115Navy_Female_E5-E6_Non-Minority_non |
| 116 | 3,891 | 92 | 238 | 6.1 | 116Navy_Female_E5-E6_Non-Minority_No |
| 117 | 350 | 62 | 165 | 47.1 | 117Navy_Female_E5-E6_Non-Minority_Yes |
| 118 | 2,728 | 60 | 182 | 6.7 | 118Navy_Female_E5-E6_Minority_non |
| 119 | 6,181 | 131 | 420 | 6.8 | 119Navy_Female_E5-E6_Minority_No |
| 120 | 535 | 86 | 284 | 53.1 | 120Navy_Female_E5-E6_Minority_Yes |
| 121 | 290 | 9 | 17 | 5.9 | 121Navy_Female_E7-E9_Non-Minority_non |
| 122 | 812 | 66 | 121 | 14.9 | 122Navy_Female_E7-E9_Non-Minority_No/Yes |
| 123 | 292 | 8 | 19 | 6.5 | 123Navy_Female_E7-E9_Minority_non |
| 124 | 840 | 58 | 134 | 16.0 | 124Navy_Female_E7-E9_Minority_No/Yes |
| 125 | 2,191 | 67 | 137 | 6.3 | 125Navy_Female_O1-O3_Non-Minority_non |
| 126 | 1,563 | 133 | 288 | 18.4 | 126Navy_Female_O1-O3_Non-Minority_No/Yes |
| 127 | 904 | 25 | 64 | 7.1 | 127Navy_Female_O1-O3_Minority_non |
| 128 | 604 | 44 | 117 | 19.4 | 128Navy_Female_O1-O3_Minority_No/Yes |
| 129 | 1,021 | 39 | 67 | 6.6 | 129Navy_Female_O4-O6_Non-Minority_non |
| 130 | 967 | 79 | 141 | 14.6 | 130Navy_Female_O4-O6_Non-Minority_No/Yes |
| 131 | 294 | 10 | 24 | 8.2 | 131Navy_Female_O4-O6_Minority_non |
| 132 | 317 | 22 | 52 | 16.4 | 132Navy_Female_O4-O6_Minority_No/Yes |
| 133 | 46,301 | 469 | 5,876 | 12.7 | 133Marine Corps_Male_E1-E3_Non-Minority_non |
| 134 | 7,427 | 68 | 1,057 | 14.2 | 134Marine Corps_Male_E1-E3_Non-Minority_No |
| 135 | 6,259 | 56 | 928 | 14.8 | 135Marine Corps_Male_E1-E3_Non-Minority_Yes |
| 136 | 13,768 | 142 | 1,724 | 12.5 | 136Marine Corps_Male_E1-E3_Minority_non |
| 137 | 1,977 | 19 | 289 | 14.6 | 137Marine Corps_Male_E1-E3_Minority_No |
| 138 | 1,915 | 18 | 286 | 14.9 | 138Marine Corps_Male_E1-E3_Minority_Yes |
| 139 | 7,586 | 108 | 693 | 9.1 | 139Marine Corps_Male_E4_Non-Minority_non |


| 140 | 11,113 | 132 | 1,209 | 10.9 | 140Marine Corps_Male_E4_Non-Minority_No |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 141 | 6,324 | 74 | 712 | 11.3 | 141Marine Corps_Male_E4_Non-Minority_Yes |
| 142 | 2,792 | 36 | 280 | 10.0 | 142Marine Corps_Male_E4_Minority_non |
| 143 | 3,901 | 43 | 470 | 12.0 | 143Marine Corps_Male_E4_Minority_No |
| 144 | 2,012 | 22 | 256 | 12.7 | 144Marine Corps_Male_E4_Minority_Yes |
| 145 | 3,932 | 70 | 285 | 7.2 | 145Marine Corps_Male_E5-E6_Non-Minority_non |
| 146 | 19,203 | 320 | 1,473 | 7.7 | 146Marine Corps_Male_E5-E6_Non-Minority_No |
| 147 | 4,827 | 78 | 385 | 8.0 | 147Marine Corps_Male_E5-E6_Non-Minority_Yes |
| 148 | 2,421 | 41 | 184 | 7.6 | 148Marine Corps_Male_E5-E6_Minority_non |
| 149 | 10,247 | 160 | 845 | 8.2 | 149Marine Corps_Male_E5-E6_Minority_No |
| 150 | 2,362 | 37 | 200 | 8.5 | 150Marine Corps_Male_E5-E6_Minority_Yes |
| 151 | 1,147 | 26 | 66 | 5.8 | 151Marine Corps_Male_E7-E9_Non-Minority_non |
| 152 | 5,478 | 121 | 319 | 5.8 | 152Marine Corps_Male_E7-E9_Non-Minority_No |
| 153 | 1,240 | 28 | 74 | 6.0 | 153Marine Corps_Male_E7-E9_Non-Minority_Yes |
| 154 | 979 | 21 | 62 | 6.3 | 154Marine Corps_Male_E7-E9_Minority_non |
| 155 | 3,289 | 68 | 209 | 6.4 | 155Marine Corps_Male_E7-E9_Minority_No |
| 156 | 757 | 16 | 49 | 6.5 | 156Marine Corps_Male_E7-E9_Minority_Yes |
| 157 | 4,003 | 99 | 290 | 7.2 | 157Marine Corps_Male_O1-O3_Non-Minority_non |
| 158 | 4,066 | 96 | 305 | 7.5 | 158Marine Corps_Male_O1-O3_Non-Minority_No |
| 159 | 1,580 | 34 | 130 | 8.2 | 159Marine Corps_Male_O1-O3_Non-Minority_Yes |
| 160 | 650 | 15 | 50 | 7.7 | 160Marine Corps_Male_O1-O3_Minority_non |
| 161 | 904 | 21 | 74 | 8.2 | 161Marine Corps_Male_O1-O3_Minority_No |
| 162 | 284 | 6 | 26 | 9.2 | 162Marine Corps_Male_O1-O3_Minority_Yes |
| 163 | 516 | 17 | 37 | 7.2 | 163Marine Corps_Male_O4-O6_Non-Minority_non |
| 164 | 3,818 | 121 | 279 | 7.3 | 164Marine Corps_Male_O4-O6_Non-Minority_No |
| 165 | 827 | 25 | 66 | 8.0 | 165Marine Corps_Male_O4-O6_Non-Minority_Yes |
| 166 | 929 | 27 | 77 | 8.3 | 166Marine Corps_Male_O4-O6_Minority_All |
| 167 | 3,054 | 164 | 968 | 31.7 | 167Marine Corps_Female_E1-E3_Non-Minority_non |
| 168 | 278 | 30 | 219 | 78.8 | 168Marine Corps_Female_E1-E3_Non-Minority_ |
| 169 | 1,717 | 93 | 809 | 47.1 | 169Marine Corps_Female_E1-E3_Minority_All |
| 170 | 896 | 57 | 247 | 27.6 | 170Marine Corps_Female_E4_Non-Minority_non |
| 171 | 416 | 23 | 134 | 32.2 | 171Marine Corps_Female_E4_Non-Minority_No |
| 172 | 315 | 40 | 258 | 81.9 | 172Marine Corps_Female_E4_Non-Minority_Yes |
| 173 | 553 | 30 | 186 | 33.6 | 173Marine Corps_Female_E4_Minority_non |
| 174 | 473 | 42 | 365 | 77.2 | 174Marine Corps_Female_E4_Minority_No/Yes |
| 175 | 522 | 12 | 38 | 7.3 | 175Marine Corps_Female_E5-E6_Non-Minority_non |
| 176 | 698 | 14 | 52 | 7.4 | 176Marine Corps_Female_E5-E6_Non-Minority_No |
| 177 | 218 | 33 | 128 | 58.7 | 177Marine Corps_Female_E5-E6_Non-Minority_Yes |
| 178 | 512 | 10 | 41 | 8.0 | 178Marine Corps_Female_E5-E6_Minority_non |
| 179 | 903 | 73 | 355 | 39.3 | 179Marine Corps_Female_E5-E6_Minority_No/Yes |
| 180 | 311 | 32 | 76 | 24.4 | 180Marine Corps_Female_E7-E9_Non-Minority_All |
| 181 | 409 | 33 | 106 | 25.9 | 181Marine Corps_Female_E7-E9_Minority_All |
| 182 | 313 | 247 | 313 | 100.0 | 182Marine Corps_Female_O1-O3_Non-Minority_non |
| 183 | 348 | 272 | 348 | 100.0 | 183Marine Corps_Female_O1-O3_NonMinority_No/Yes |
| 184 | 213 | 147 | 213 | 100.0 | 184Marine Corps_Female_O1-O3_Minority_All |
| 185 | 204 | 174 | 204 | 100.0 | 185Marine Corps_Female_O4-O6_All_All |
| 186 | 33,884 | 234 | 1,111 | 3.3 | 186Air Force_Male_E1-E3_Non-Minority_non |
| 187 | 3,764 | 26 | 125 | 3.3 | 187Air Force_Male_E1-E3_Non-Minority_No |


| 188 | 1,960 | 14 | 67 | 3.4 | 188Air Force_Male_E1-E3_Non-Minority_Yes |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 189 | 10,258 | 70 | 342 | 3.3 | 189Air Force_Male_E1-E3_Minority_non |
| 190 | 1,200 | 9 | 44 | 3.7 | 190Air Force_Male_E1-E3_Minority_No |
| 191 | 619 | 5 | 25 | 4.0 | 191Air Force_Male_E1-E3_Minority_Yes |
| 192 | 12,838 | 100 | 378 | 2.9 | 192Air Force_Male_E4_Non-Minority_non |
| 193 | 13,212 | 97 | 411 | 3.1 | 193Air Force_Male_E4_Non-Minority_No |
| 194 | 4,234 | 31 | 133 | 3.1 | 194Air Force_Male_E4_Non-Minority_Yes |
| 195 | 4,124 | 29 | 136 | 3.3 | 195Air Force_Male_E4_Minority_non |
| 196 | 4,797 | 32 | 168 | 3.5 | 196Air Force_Male_E4_Minority_No |
| 197 | 1,374 | 9 | 48 | 3.5 | 197Air Force_Male_E4_Minority_Yes |
| 198 | 15,396 | 139 | 386 | 2.5 | 198Air Force_Male_E5-E6_Non-Minority_non |
| 199 | 41,009 | 373 | 1,009 | 2.5 | 199Air Force_Male_E5-E6_Non-Minority_No |
| 200 | 6,839 | 63 | 170 | 2.5 | 200Air Force_Male_E5-E6_Non-Minority_Yes |
| 201 | 5,606 | 48 | 152 | 2.7 | 201Air Force_Male_E5-E6_Minority_non |
| 202 | 15,758 | 135 | 413 | 2.6 | 202Air Force_Male_E5-E6_Minority_No |
| 203 | 2,423 | 21 | 64 | 2.6 | 203Air Force_Male_E5-E6_Minority_Yes |
| 204 | 6,663 | 69 | 148 | 2.2 | 204Air Force_Male_E7-E9_Non-Minority_non |
| 205 | 13,441 | 144 | 282 | 2.1 | 205Air Force_Male_E7-E9_Non-Minority_No |
| 206 | 1,823 | 20 | 38 | 2.1 | 206Air Force_Male_E7-E9_Non-Minority_Yes |
| 207 | 2,294 | 22 | 57 | 2.5 | 207Air Force_Male_E7-E9_Minority_non |
| 208 | 4,124 | 41 | 95 | 2.3 | 208Air Force_Male_E7-E9_Minority_No |
| 209 | 583 | 6 | 14 | 2.4 | 209Air Force_Male_E7-E9_Minority_Yes |
| 210 | 13,637 | 229 | 578 | 4.2 | 210Air Force_Male_O1-O3_Non-Minority_non |
| 211 | 9,307 | 156 | 398 | 4.3 | 211Air Force_Male_O1-O3_Non-Minority_No |
| 212 | 2,550 | 42 | 112 | 4.4 | 212Air Force_Male_O1-O3_Non-Minority_Yes |
| 213 | 2,005 | 32 | 95 | 4.7 | 213Air Force_Male_O1-O3_Minority_non |
| 214 | 1,610 | 25 | 75 | 4.7 | 214Air Force_Male_O1-O3_Minority_No |
| 215 | 348 | 6 | 19 | 5.5 | 215Air Force_Male_O1-O3_Minority_Yes |
| 216 | 6,823 | 171 | 346 | 5.1 | 216Air Force_Male_O4-O6_Non-Minority_non |
| 217 | 12,421 | 310 | 631 | 5.1 | 217Air Force_Male_O4-O6_Non-Minority_No |
| 218 | 1,535 | 38 | 79 | 5.1 | 218Air Force_Male_O4-O6_Non-Minority_Yes |
| 219 | 957 | 22 | 57 | 6.0 | 219Air Force_Male_O4-O6_Minority_non |
| 220 | 1,493 | 33 | 86 | 5.8 | 220Air Force_Male_O4-O6_Minority_No |
| 221 | 218 | 5 | 13 | 6.0 | 221Air Force_Male_O4-O6_Minority_Yes |
| 222 | 8,057 | 295 | 920 | 11.4 | 222Air Force_Female_E1-E3_Non-Minority_non |
| 223 | 565 | 21 | 66 | 11.7 | 223Air Force_Female_E1-E3_Non-Minority_No |
| 224 | 273 | 45 | 145 | 53.1 | 224Air Force_Female_E1-E3_Non-Minority_Yes |
| 225 | 4,173 | 140 | 525 | 12.6 | 225Air Force_Female_E1-E3_Minority_non |
| 226 | 468 | 55 | 209 | 44.7 | 226Air Force_Female_E1-E3_Minority_No/Yes |
| 227 | 3,805 | 137 | 446 | 11.7 | 227Air Force_Female_E4_Non-Minority_non |
| 228 | 2,276 | 79 | 282 | 12.4 | 228Air Force_Female_E4_Non-Minority_No |
| 229 | 678 | 103 | 387 | 57.1 | 229Air Force_Female_E4_Non-Minority_Yes |
| 230 | 2,144 | 64 | 305 | 14.2 | 230Air Force_Female_E4_Minority_non |
| 231 | 1,436 | 41 | 212 | 14.8 | 231Air Force_Female_E4_Minority_No |
| 232 | 359 | 46 | 255 | 71.0 | 232Air Force_Female_E4_Minority_Yes |
| 233 | 4,685 | 109 | 289 | 6.2 | 233Air Force_Female_E5-E6_Non-Minority_non |
| 234 | 6,984 | 163 | 430 | 6.2 | 234Air Force_Female_E5-E6_Non-Minority_No |
| 235 | 877 | 157 | 413 | 47.1 | 235Air Force_Female_E5-E6_Non-Minority_Yes |


| 236 | 3,546 | 72 | 253 | 7.1 | 236Air Force_Female_E5-E6_Minority_non |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 237 | 5,702 | 116 | 404 | 7.1 | 237Air Force_Female_E5-E6_Minority_No |
| 238 | 746 | 117 | 403 | 54.0 | 238Air Force_Female_E5-E6_Minority_Yes |
| 239 | 1,198 | 31 | 71 | 5.9 | 239Air Force_Female_E7-E9_Non-Minority_non |
| 240 | 1,705 | 170 | 320 | 18.8 | 240Air Force_Female_E7-E9_Non-Minority_No/Yes |
| 241 | 810 | 18 | 58 | 7.2 | 241Air Force_Female_E7-E9_Minority_non |
| 242 | 1,024 | 79 | 234 | 22.9 | 242Air Force_Female_E7-E9_Minority_No/Yes |
| 243 | 3,974 | 109 | 283 | 7.1 | 243Air Force_Female_O1-O3_Non-Minority_non |
| 244 | 1,796 | 52 | 123 | 6.8 | 244Air Force_Female_O1-O3_Non-Minority_No |
| 245 | 380 | 65 | 192 | 50.5 | 245Air Force_Female_O1-O3_Non-Minority_Yes |
| 246 | 1,021 | 23 | 88 | 8.6 | 246Air Force_Female_O1-O3_Minority_non |
| 247 | 674 | 59 | 228 | 33.8 | 247Air Force_Female_O1-O3_Minority_No/Yes |
| 248 | 1,486 | 52 | 109 | 7.3 | 248Air Force_Female_O4-O6_Non-Minority_non |
| 249 | 1,727 | 169 | 305 | 17.7 | 249Air Force_Female_O4-O6_Non-Minority_No/Yes |
| 250 | 428 | 11 | 42 | 9.8 | 250Air Force_Female_O4-O6_Minority_non |
| 251 | 458 | 32 | 123 | 26.9 | 251Air Force_Female_O4-O6_Minority_No/Yes |
| 252 | 3,524 | 78 | 415 | 11.8 | 252Coast Guard_Male_E1-E3_Non-Minority_All |
| 253 | 1,981 | 44 | 239 | 12.1 | 253Coast Guard_Male_E1-E3_Minority_All |
| 254 | 4,184 | 112 | 407 | 9.7 | 254Coast Guard_Male_E4_Non-Minority_non |
| 255 | 242 | 7 | 28 | 11.6 | 255Coast Guard_Male_E4_Non-Minority_No/Yes |
| 256 | 2,274 | 55 | 251 | 11.0 | 256Coast Guard_Male_E4_Minority_All |
| 257 | 8,734 | 158 | 456 | 5.2 | 257Coast Guard_Male_E5-E6_Non-Minority_non |
| 258 | 1,035 | 20 | 53 | 5.1 | 258Coast Guard_Male_E5-E6_Non-Minority_No/Yes |
| 259 | 3,070 | 51 | 177 | 5.8 | 259Coast Guard_Male_E5-E6_Minority_non |
| 260 | 393 | 7 | 23 | 5.9 | 260Coast Guard_Male_E5-E6_Minority_No/Yes |
| 261 | 3,042 | 63 | 143 | 4.7 | 261Coast Guard_Male_E7-E9_Non-Minority_non |
| 262 | 326 | 8 | 16 | 4.9 | 262Coast Guard_Male_E7-E9_Non-Minority_No/Yes |
| 263 | 700 | 15 | 31 | 4.4 | 263Coast Guard_Male_E7-E9_Minority_All |
| 264 | 2,193 | 181 | 404 | 18.4 | 264Coast Guard_Male_O1-O3_Non-Minority_non |
| 265 | 291 | 28 | 47 | 16.2 | 265Coast Guard_Male_O1-O3_NonMinority_No/Yes |
| 266 | 654 | 50 | 134 | 20.5 | 266Coast Guard_Male_O1-O3_Minority_All |
| 267 | 1,894 | 259 | 388 | 20.5 | 267Coast Guard_Male_O4-O6_Non-Minority_All |
| 268 | 304 | 36 | 75 | 24.7 | 268Coast Guard_Male_O4-O6_Minority_All |
| 269 | 714 | 56 | 160 | 22.4 | 269Coast Guard_Female_E1-E3_Non-Minority_All |
| 270 | 356 | 25 | 89 | 25.0 | 270Coast Guard_Female_E1-E3_Minority_All |
| 271 | 679 | 53 | 155 | 22.8 | 271Coast Guard_Female_E4_Non-Minority_All |
| 272 | 312 | 20 | 88 | 28.2 | 272Coast Guard_Female_E4_Minority_All |
| 273 | 1,131 | 94 | 217 | 19.2 | 273Coast Guard_Female_E5-E6_Non-Minority_All |
| 274 | 490 | 36 | 109 | 22.2 | 274Coast Guard_Female_E5-E6_Minority_All |
| 275 | 289 | 27 | 50 | 17.3 | 275Coast Guard_Female_E7-E9_All_All |
| 276 | 659 | 95 | 134 | 20.3 | 276Coast Guard_Female_O1-O3_Non-Minority_All |
| 277 | 206 | 21 | 61 | 29.6 | 277Coast Guard_Female_O1-O3_Minority_All |
| 278 | 289 | 50 | 73 | 25.3 | 278Coast Guard_Female_O4-O6_All_All |
| 279 | 20,365 | 1,987 | 4,044 | 19.9 | 279Warrant Officer |

Appendix B. Allocation Solution for Reporting Domains

Table B1.
Allocation Solution for Reporting Domains

| Domain | Label | Population | HWCI- <br> Out | Allocation | Estimated <br> n | Percent <br> Sampled | Design effect |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | All Domains | 1,424,304 | 0.01 | 24,116 | 89,931 | 6.35 | 2.03 |
| 2 | DoD | 1,382,681 | 0.01 | 22,305 | 85,207 | 6.19 | 1.97 |
| 3 | Army | 537,123 | 0.02 | 7,552 | 25,666 | 4.81 | 2.40 |
| 4 | Navy | 321,773 | 0.02 | 4,961 | 18,580 | 5.80 | 1.55 |
| 5 | Marine Corps | 199,203 | 0.02 | 4,357 | 24,632 | 12.41 | 1.61 |
| 6 | Air Force | 324,582 | 0.02 | 5,436 | 16,349 | 5.06 | 1.56 |
| 7 | Enlisted*DoD | 1,155,713 | 0.01 | 14,195 | 68,566 | 5.96 | 1.70 |
| 8 | E1-E4*DoD | 603,328 | 0.02 | 6,714 | 46,831 | 7.79 | 1.86 |
| 9 | E1-E3*DoD | 335,646 | 0.02 | 3,515 | 28,654 | 8.55 | 1.82 |
| 10 | E4*DoD | 267,691 | 0.02 | 3,199 | 18,184 | 6.82 | 1.90 |
| 11 | E5-E9*DoD | 552,376 | 0.01 | 7,481 | 21,762 | 3.96 | 1.44 |
| 12 | E5-E6*DoD | 418,746 | 0.02 | 5,308 | 17,217 | 4.13 | 1.40 |
| 13 | E7-E9*DoD | 133,630 | 0.03 | 2,173 | 4,550 | 3.44 | 1.50 |
| 14 | Officer*DoD | 226,968 | 0.01 | 8,110 | 16,629 | 7.39 | 1.50 |
| 15 | O1-O3*DoD | 124,356 | 0.02 | 3,424 | 7,768 | 6.29 | 1.42 |
| 16 | O4-O6*DoD | 83,904 | 0.02 | 2,861 | 5,184 | 6.25 | 1.19 |
| 17 | Deployed in last 12 <br> Months*DoD | 134,270 | 0.03 | 3,342 | 13,738 | 10.28 | 3.06 |
| 18 | Not Deployed in last 12 Months*DoD | 695,255 | 0.01 | 11,095 | 35,416 | 5.12 | 1.90 |
| 19 | Non-minority*DoD | 914,752 | 0.01 | 14,965 | 53,082 | 5.83 | 1.97 |
| 20 | Minority*DoD | 467,929 | 0.02 | 7,341 | 32,127 | 6.90 | 1.97 |
| 21 | Black*DoD | 228,592 | 0.03 | 3,846 | 15,614 | 6.86 | 3.08 |
| 22 | Hispanic*DoD | 147,460 | 0.04 | 2,121 | 10,248 | 6.98 | 3.14 |
| 23 | Female*DoD | 196,788 | 0.01 | 8,999 | 30,776 | 15.74 | 1.45 |
| 24 | Army*Female | 71,946 | 0.02 | 2,994 | 10,428 | 14.61 | 1.34 |
| 25 | Navy*Female | 48,926 | 0.03 | 1,838 | 7,221 | 14.84 | 1.27 |
| 26 | Marine Corps*Female | 12,461 | 0.04 | 1,537 | 5,057 | 40.78 | 2.28 |
| 27 | Air Force*Female | 63,455 | 0.02 | 2,630 | 8,074 | 12.80 | 1.34 |
| 28 | Enlisted*Female*DoD | 161,678 | 0.01 | 6,337 | 25,661 | 15.96 | 1.30 |
| 29 | E1-E4*Female*DoD | 88,364 | 0.02 | 3,463 | 17,840 | 20.27 | 1.16 |
| 30 | E5-E9*Female*DoD | 73,311 | 0.02 | 2,874 | 7,831 | 10.76 | 1.48 |
| 31 | Officer*Female*DoD | 35,110 | 0.03 | 2,662 | 5,116 | 14.72 | 1.89 |
| 32 | O1-O3*Female*DoD | 22,700 | 0.03 | 1,607 | 3,236 | 14.37 | 2.04 |
| 33 | O4-O6*Female*DoD | 10,875 | 0.04 | 905 | 1,580 | 14.74 | 1.46 |
| 34 | Deployed in last 12 <br> Months*Female*DoD | 13,430 | 0.02 | 1,966 | 7,358 | 55.16 | 1.27 |
| 35 | Not Deployed in last 12 Months*Female*DoD | 81,681 | 0.02 | 3,544 | 10,460 | 12.90 | 1.47 |
| 36 | Army*Enlisted*Female | 57,898 | 0.02 | 2,181 | 8,777 | 15.26 | 1.28 |
| 37 | Army*E1-E4*Female | 33,409 | 0.03 | 1,170 | 6,283 | 18.90 | 1.13 |
| 38 | Army*Officer*Female | 14,048 | 0.04 | 813 | 1,653 | 11.91 | 1.44 |
| 39 | Navy*Enlisted*Female | 40,994 | 0.03 | 1,412 | 6,327 | 15.51 | 1.24 |
| 40 | Navy*E1-E4*Female | 23,020 | 0.04 | 788 | 4,644 | 20.25 | 1.15 |
| 41 | Navy*Officer*Female | 7,932 | 0.05 | 426 | 895 | 11.40 | 1.22 |


| 42 | Marine Corps*Enlisted*Female | 11,275 | 0.04 | 686 | 3,964 | 35.32 | 1.22 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 43 | Marine Corps*E1E4*Female | 7,702 | 0.04 | 479 | 3,175 | 41.37 | 1.00 |
| 44 | Marine Corps*Officer*Female | 1,186 | 0.05 | 851 | 1,089 | 92.70 | 2.44 |
| 45 | Air Force*Enlisted*Female | 51,511 | 0.02 | 2,058 | 6,594 | 12.87 | 1.33 |
| 46 | Air Force*E1-E4*Female | 24,233 | 0.03 | 1,026 | 3,738 | 15.48 | 1.13 |
| 47 | Air Force*Officer*Female | 11,944 | 0.05 | 572 | 1,480 | 12.50 | 1.36 |
| 48 | Male*DoD | 1,185,893 | 0.01 | 13,307 | 54,404 | 4.61 | 1.54 |
| 49 | Army*Male | 465,177 | 0.02 | 4,558 | 15,225 | 3.29 | 1.88 |
| 50 | Navy*Male | 272,847 | 0.02 | 3,123 | 11,355 | 4.18 | 1.29 |
| 51 | Marine Corps*Male | 186,742 | 0.02 | 2,820 | 19,572 | 10.52 | 1.17 |
| 52 | Air Force*Male | 261,127 | 0.02 | 2,806 | 8,268 | 3.18 | 1.16 |
| 53 | Enlisted*Male*DoD | 994,035 | 0.01 | 7,858 | 42,885 | 4.33 | 1.23 |
| 54 | E1-E4*Male*DoD | 514,964 | 0.02 | 3,251 | 28,978 | 5.64 | 1.20 |
| 55 | E5-E9*Male*DoD | 479,065 | 0.02 | 4,607 | 13,923 | 2.92 | 1.12 |
| 56 | Officer*Male*DoD | 191,858 | 0.02 | 5,449 | 11,507 | 6.05 | 1.28 |
| 57 | O1-O3*Male*DoD | 101,646 | 0.02 | 1,817 | 4,528 | 4.48 | 1.01 |
| 58 | O4-O6*Male*DoD | 73,029 | 0.02 | 1,956 | 3,601 | 4.98 | 1.00 |
| 59 | Deployed in last 12 <br> Months*Male*DoD | 120,840 | 0.03 | 1,375 | 6,369 | 5.30 | 1.54 |
| 60 | Not Deployed in last 12 Months*Male*DoD | 613,574 | 0.01 | 7,552 | 24,946 | 4.09 | 1.61 |
| 61 | Army*Enlisted*Male | 389,651 | 0.02 | 1,953 | 10,059 | 2.59 | 1.11 |
| 62 | Army*E1-E4*Male | 209,968 | 0.04 | 779 | 6,834 | 3.27 | 1.02 |
| 63 | Army*Officer*Male | 75,526 | 0.02 | 2,605 | 5,152 | 6.89 | 1.54 |
| 64 | Navy*Enlisted*Male | 228,904 | 0.02 | 1,995 | 9,173 | 4.02 | 1.10 |
| 65 | Navy*E1-E4*Male | 101,359 | 0.04 | 629 | 5,424 | 5.37 | 1.03 |
| 66 | Navy*Officer*Male | 43,943 | 0.03 | 1,128 | 2,181 | 5.00 | 1.12 |
| 67 | Marine Corps*Enlisted*Male | 167,257 | 0.02 | 2,173 | 17,873 | 10.72 | 1.07 |
| 68 | Marine Corps*E1E4*Male | 111,375 | 0.03 | 1,187 | 13,747 | 12.37 | 1.01 |
| 69 | Marine Corps*Officer*Male | 19,485 | 0.04 | 647 | 1,700 | 8.79 | 1.21 |
| 70 | Air Force*Enlisted*Male | 208,223 | 0.02 | 1,737 | 5,794 | 2.79 | 1.02 |
| 71 | Air Force*E1-E4*Male | 92,262 | 0.04 | 656 | 2,980 | 3.24 | 1.00 |
| 72 | Air Force*Officer*Male | 52,904 | 0.03 | 1,069 | 2,472 | 4.70 | 1.03 |
| 73 | Coast Guard | 41,623 | 0.03 | 1,811 | 4,721 | 11.42 | 1.64 |
| 74 | Coast Guard*Enlisted | 33,476 | 0.04 | 929 | 3,090 | 9.28 | 1.22 |
| 75 | Coast Guard*E1-E4 | 14,264 | 0.05 | 450 | 1,825 | 12.84 | 1.16 |
| 76 | Coast Guard*E5-E9 | 19,210 | 0.05 | 479 | 1,266 | 6.64 | 1.24 |
| 77 | Coast Guard*Officer | 8,147 | 0.04 | 882 | 1,628 | 20.19 | 1.16 |
| 78 | Coast Guard*O1-O3 | 4,002 | 0.05 | 375 | 774 | 19.49 | 0.97 |
| 79 | Coast Guard*O4-O6 | 2,487 | 0.05 | 345 | 529 | 21.55 | 0.89 |
| 80 | Coast Guard*Female | 5,216 | 0.04 | 486 | 1,145 | 22.13 | 1.01 |
| 81 | Coast Guard*Female*Enlisted | 3,971 | 0.05 | 311 | 862 | 21.86 | 0.94 |


| 82 | Coast <br> Guard*Female*Officer | 1,245 | 0.07 | 175 | 283 | 22.98 | 1.01 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 83 | Coast Guard*Male | 36,407 | 0.03 | 1,325 | 3,576 | 9.88 | 1.51 |
| 84 | Coast <br> Guard*Male*Enlisted | 29,505 | 0.04 | 618 | 2,227 | 7.59 | 1.01 |
| 85 | Coast <br> Guard*Male*Officer | 6,902 | 0.04 | 707 | 1,345 | 19.69 | 1.16 |


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## 14. ABSTRACT

The 2010 Workplace and Gender Relations Survey of Active Duty Members Statistical Methodology Report describes the survey's sample design and selection, weighting, location, completion and response rate.
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