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2010 Post-Election Voting Survey of Unit Voting Assistance Officers

Statistical Methodology Report



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**2010 POST-ELECTION VOTING SURVEY OF UNIT
VOTING ASSISTANCE OFFICERS:
STATISTICAL METHODOLOGY REPORT**

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Acknowledgments

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DMDC's Personnel Survey Branch, under the guidance of David McGrath, Branch Chief, is responsible for HRSAP survey sampling, weighting, database construction, and report writing. The lead statistician on this survey was Eric Falk, supported by Jeff Schneider, DMDC. Susan Reinhold provided programming support for the frame development and sampling tasks. Dorothy Kester Jackman provided formatting assistance.

2010 POST-ELECTION VOTING SURVEY OF UNIT VOTING ASSISTANCE OFFICERS: STATISTICAL METHODOLOGY REPORT

Executive Summary

The Uniformed and Overseas Citizens Absentee Voting Act of 1986 (UOCAVA), 42 USC 1973ff, permits members of the Uniformed Services and Merchant Marine, and their eligible family members and all citizens residing outside the United States who are absent from the United States and its territories to vote in the general election for federal offices. These groups include:

- Members of the Uniformed Services (including Army, Navy, Air Force, Marine Corps, Coast Guard)
- U.S. citizens employed by the Federal Government residing outside the U.S., and
- All other private U.S. citizens residing outside the U.S.

The Federal Voting Assistance Program (FVAP), under the guidance of USD(P&R), is charged with implementing the UOCAVA and evaluating the effectiveness of its programs. The FVAP Office asked DMDC to design, administer, and analyze post-election surveys on Uniformed Services voter participation, overseas nonmilitary voter participation, and local election officials. Without such surveys, the Department will not be able to assess and improve voter access. In addition, such surveys fulfill 1988 Executive Order 12642 that names the Secretary of Defense as the “Presidential designee” for administering the UOCAVA and requires surveys to evaluate the effectiveness of the program in presidential election years.

The objectives of the 2010 post-election surveys are: (1) to gauge participation in the electoral process by citizens covered by UOCAVA, (2) to assess the impact of the FVAP’s efforts to simplify and ease the process of voting absentee, (3) to evaluate other progress made to facilitate voting participation, and (4) to identify any remaining obstacles to voting by these citizens. Surveys were done of military members, spouses of military members, U.S. citizens overseas, voting assistance personnel, and local election officials in the U.S.

This report focuses on the *2010 Post-Election Voting Survey of Unit Voting Assistance Offices (2010 PEV4)*, which was designed to capture the attitudes and behaviors of Armed Forces Unit Voting Assistance Officers (UVAOs). This report describes the sampling and weighting methodologies used in the *2010 PEV4*. Calculation of response rates is described in the final section.

The population of interest for the *2010 PEV4* consisted of the Unit Voting Assistance Officers (UVAOs) in the Department of Defense, Army, Navy, Marine Corps, and Air Force, as well as the Coast Guard from the Department of Homeland Security.

According to Directive 1000.04, Section 5.2.1.4.2, each unit with 25 or more permanently assigned active members would designate a UVAO. A frame containing all units with 25 or more permanently assigned active members was used to capture the population of interest.

The *2010 PEV4* was a census of all units with 25 or more permanently assigned active members. The total size was 9,914 units. The survey administration period lasted from December 3, 2010, to February 11, 2011. There were 1,964 complete eligible questionnaires.

After the determination of eligibility for the survey and completion of a survey, analytic weights were created to account for varying response rates among population subgroups. First, the sampling weights (the inverse of the selection probabilities) were computed. Since the *2010 PEV4* was a census, the initial weight equals 1.0. Second, the base weights were adjusted to account for survey nonresponse.

Location, completion, and response rates are provided in the final section of this report for both the full sample and for population subgroups. These rates were computed according to the recommendations of the Council of American Survey Research Organizations (1982) and the American Association for Public Opinion Research (AAPOR, 2008). The location, completion, and response rates among UVAOs were 78.1%, 25.4%, and 19.8%. Because a UVAO could be responsible for more than one unit, respondents were asked for information on units served.

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2010 POST-ELECTION VOTING SURVEY OF UNIT VOTING ASSISTANCE OFFICERS: STATISTICAL METHODOLOGY REPORT

Introduction

The Uniformed and Overseas Citizens Absentee Voting Act of 1986 (UOCAVA), 42 USC 1973ff, permits members of the Uniformed Services and Merchant Marine, and their eligible family members and all citizens residing outside the United States who are absent from the United States and its territories to vote in the general election for federal offices. These groups include:

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This report focuses on the *2010 Post-Election Voting Survey of Unit Voting Assistance Offices (2010 PEV4)* which was designed to capture the attitudes and behaviors of Armed Forces Unit Voting Assistance Officers (UVAOs). This report describes the sampling and weighting methodologies used in the *2010 PEV4*. Calculation of response rates is described in the final section. Tabulated results of the survey are reported by DMDC (2011).

The population of interest for the *2010 PEV4* consisted of the Unit Voting Assistance Officers (UVAOs) in the Department of Defense, Army, Navy, Marine Corps, and Air Force, as well as the Coast Guard from the Department of Homeland Security.

Sample Design and Selection

Target Population

According to Directive 1000.04, Section 5.2.1.4.2, each unit with 25 or more permanently assigned active members would designate a UVAO. The *2010 PEV4* survey was a census that was designed to represent all uniformed voting assistance officers from units consisting of 25 or more permanently active members.

Sampling Frame

A frame containing all units with 25 or more permanently assigned active members was used to capture the population of interest.

The sampling frame was built from the June 2010 Active Duty Master Edit File (ADMF). The frame consisted of 1,492,665 personnel records. After excluding members with unknown status, in hospitals or confinement, there were 1,464,539 records resulting in 25,559 unique unit identification codes or UICs. There were 15,645 UICs that had fewer than 25 active duty members; so, the final eligible sample was 9,914 UICs.

The frame development for the *2010 PEV4* survey was similar to the frame development for the *2008 UVAO* survey.

Sample Design

The *2010 PEV4* was a census of all Unit Voting Assistance Officers which was defined by units with 25 or more active duty members. In total all 9,914 UVAOs were surveyed and the breakdown of the number is shown in Table 2.

Sample Allocation

Since this was a census of all units with 25 or more permanently assigned active members, all units were automatically included in the sample. The total sample size was 9,914 units. The anticipated response rate was estimated to be 30% from all units in the survey. The estimated response rate was based on the *2008 PEV4* survey. Please note that the estimated response rate at the UVAO level could be higher than the response rate at the unit level since there may be fewer UVAOs than the number of units. Table 1 shows several key variables contained on the population frame file that were used for non-response adjustments (discussed later). Population distributions are shown in Table 2 for the levels of the variables used in the weighting process.

Table 1.
Variables on the Frame File

Variable	Categories
Service Branch*	<ul style="list-style-type: none"> • Army • Navy • Marine Corps • Air Force • Coast Guard
Geography*	<ul style="list-style-type: none"> • Continental United States (CONUS) & Alaska and Hawaii (OCONUS) • Overseas & Unknown
UIC Size*	<ul style="list-style-type: none"> • Less than 100 active duty members • 101 – 250 active duty members • 251 or more active duty members
UIC	<ul style="list-style-type: none"> • Unit Identification Code

Note. * denotes stratification variable.

Table 2.
Variables Used in Weighting Process

Stratification Variable Geography by Size of Unit		Total	Army	Navy	Marine Corps	Air Force	Coast Guard
Total		9,914	4,879	1,755	504	2,348	428
United States	25-100 members	4,891	2,445	817	108	1,199	322
	101-250 members	2,844	1,676	446	142	498	82
	≥ 251 members	970	180	293	228	253	16
Overseas & Other	25-100 members	741	381	124	5	226	5
	101-250 members	353	186	42	10	112	3
	≥ 251 members	115	11	33	11	60	0

Unit Voting Assistant Officers for More than One UIC

During the data collection period, UVAOs responsible for more than one UIC would receive more than one survey. One reason for a UVAO to be responsible for more than one UIC is to centralize the distribution of materials. For example, if the installation is reorganizing its structure, then it may be efficient to have one UVAO. There was an announcement at the beginning of the survey asking the UVAOs to complete only one survey and to incorporate all the units and people under their responsibility in that one survey. Question 10 on the survey asks

how many units of 25 active duty members or more the UVAO serves. Question 11 asks how many people were in those units.

Weighting

Analytical weights for the 2010 PEV4 were created to account for varying response rates among population subgroups (Table 2). First sampling weights were computed to account for selection probability as the inverse of the selection probabilities. Since the 2010 PEV4 was a census, the initial weight is 1.0. After determining case dispositions, the base weights are adjusted to account for nonresponse.

Case Dispositions

Case dispositions were assigned for weighting based on eligibility for the survey and completion of the return survey. Execution of the weighting process and computation of response rates both depend on this classification.

Final case dispositions for weighting were determined using information from personnel records, field operations (the Survey Control System or SCS), and returned surveys. No single source of information is both complete and correct; 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.
2 Ineligible by self- or proxy-report	Survey Control System (SCS)	"Person who was Unit Voting Assistance Officer on November 2, 2010 is no longer available."
3 Ineligible by survey self- report	First survey question	"Not a Unit Voting Assistance Officer on November 2, 2010."
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", "refused-inappropriate/intrusive", "refused-other", "ineligible-other", "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.
11 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.”

Final case dispositions for the 2010 PEV4 are shown in Table 4.

Table 4.
Sample Size by Case Disposition Categories

Case Disposition Category and (Code Value)	Sample Size
Total	9,914
Record Ineligible (1)	0
Ineligible Response	
Self/Proxy-report (2)	2
Survey Self report (3)	0
Eligible Response	
Complete (4)	1,964
Incomplete (5)	50
Unknown Eligibility Response	
Complete (6)	0
Incomplete (7)	0
Refused/Deployed/Other (8)	27
Blank (9)	266
Postal Non-Delivery (10)	2,169
Non-respondents (11)	5,436

Eligible Completed Cases

The total number of cases where the eligibility is known (eligible and not eligible) for weighting is shown in Table 5.

Table 5.
Usable Cases by Service, Geography, and Size

Stratification Variable							
Geography by Size of Unit		Total	Army	Navy	Marine Corps	Air Force	Coast Guard
Total		1,966	544	492	129	676	125
United States	25-100 members	975	281	220	37	347	90
	101-250 members	534	181	122	45	160	26
	≥ 251 members	243	28	84	41	86	4
Overseas & Other	25-100	117	40	35	1	37	4
	101-250	58	12	13	4	28	1
	≥ 251 members	39	2	18	1	18	0

Nonresponse Adjustments and Final Weights

After the determination of completion of a survey, analytic weights were created to account for varying response rates among population subgroups. The weighting of responses for UVAO is straightforward. As the sample was a census, the base weight for all cases is 1.0. The nonresponse adjustment was computed in weighting classes defined by Service, geography, and UIC size. Final weights by Service, geography, and UIC size are shown in Table 6.

Table 6.
Final Weights by Service, Geography, and Size

Geography by Size of Unit		Army	Navy	Marine Corps	Air Force	Coast Guard
United States	25-100 members	8.70	3.71	2.97	3.46	3.58
	101-250 members	9.26	3.66	3.10	3.11	3.03
	≥ 251 members	6.43	3.49	5.69	2.94	
Overseas	25-100 members	10.70	3.54	2.97	6.11	3.58
	101-250 members		2.42	3.10	3.74	3.03
	≥ 251 members			5.69		

Note. The cells for Marine Corps and Coast Guard were collapsed within the geography variable identifying the United States and Overseas due to insufficient number of completed eligible cases for the size of unit variable.

Variance Estimation

Analysis of the *2010 PEV4* data requires a variance estimation procedure that accounts for the weighting procedures. The final step of the weighting process was to define strata for variance estimation by Taylor series linearization. The *2010 PEV4* variance estimation strata correspond to the service, UIC size, and geographic regions. At least one of the original strata within all services and Coast Guard were collapsed either by geography or UIC size since there were fewer than 25 cases with non-zero final weights in a stratum. Nineteen variance estimation strata were defined for the *2010 PEV4*.

Location, Completion, and Response Rates

Location, completion, and response rates were calculated in accordance with guidelines established by The Council of American Survey Research Organizations (CASRO). The procedure is based on recommendations for Sample Type II response rates (Council of American Survey Research Organizations, 1982). This definition corresponds to the American Association for Public Opinion Research (AAPOR) RR3 (AAPOR, 2008), which estimates the proportion of eligibles among cases of unknown eligibility.

Location, completion, and response rates were computed for *2010 PEV4* as follows:

The location rate (LR) is defined as

$$LR = \frac{\text{adjusted located sample}}{\text{adjusted eligible sample}} = \frac{N_L}{N_E}.$$

The completion rate (CR) is defined as

$$CR = \frac{\text{usable responses}}{\text{adjusted located sample}} = \frac{N_R}{N_L}.$$

The response rate (RR) is defined as

$$RR = \frac{\text{usable responses}}{\text{adjusted eligible sample}} = \frac{N_R}{N_E}.$$

where

- N_L = Adjusted located sample
- N_E = Adjusted eligible sample
- N_R = Usable responses.

To identify the cases that contribute to the components of LR, CR, and RR, the disposition codes were grouped as shown in Table 7. Record ineligible were excluded from calculation of the eligibility rate because it was assumed that all ADMF ineligible had been identified.

Table 7.
Disposition Codes for CASRO Response Rates

Case Disposition Category	Code Value
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

Note. Code values are from Table 5.

Ineligibility Rate

The ineligibility rate (IR) is defined as

$$IR = \frac{\text{self report ineligible cases}}{\text{eligible determined cases}}.$$

Estimated Ineligible Postal Non-Deliverable/Not Located Rate

The estimated ineligible postal non-deliverable/not located rate (IPNDR) is defined as

$$IPNDR = (\text{Eligible Sample} - \text{Located Sample}) * IR.$$

Estimated Ineligible Nonresponse

The estimated ineligible nonresponse (EINR) is defined as

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

Adjusted Location Rate

The adjusted location rate (ALR) is defined as

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

Adjusted Completion Rate

The adjusted completion rate (ACR) is defined as

$$ACR = \frac{(\text{Eligible response})}{(\text{Located Sample} - EINR)}.$$

Adjusted Response Rate

The adjusted response rate (ARR) is defined as

$$ARR = \frac{(\text{Eligible response})}{(\text{Eligible Sample} - \text{IPNDR} - \text{EINR})}$$

Unweighted and weighted sample counts used to compute the overall response rates are shown in Table 8.

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

Case Disposition Categories	Sample Counts		Weighted Estimates of Population	
	Total	%	Total	%
Drawn sample and population	9,916	100	9,916	100
Total: Ineligible	-2	0	-2	0
Ineligible on master files	0	0	0	0
Self-reported ineligible	-2	0	-2	0
Eligible sample	9,914	100	9,914	100
Total: Not located ^a	-2,169	22	-2,169	22
Not located (estimated ineligible)	-2	0	-2	0
Not located (estimated eligible)	-2,167	22	-2,167	22
Located sample	7,745	78	7,745	78
Total Nonresponse	-5,779	58	-5,779	58
Requested removal from survey mailings	-27	0	-27	0
Returned blank	-266	3	-266	3
Skipped key questions	-50	0	-50	0
Did not return a survey (estimated ineligible)	-5	0	-5	0
Did not return a survey (estimated eligible)	-5,431	55	-5,431	55
Usable responses from sample	1,964	20	1,964	20

Note. The observed counts are the same as the weighted count since a census was taken of units with 25 or more permanently assigned active duty members.

^aThe 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.

Weighted location, completion, and response rates for selected 2010 PEV4 domains are shown in Table 9.

Table 9.
Weighted Location, Completion, and Response Rates by Service, Geography, and Size of Unit

Domain	Sample Size	Usable Responses	Sum of Weights	Location Rate (%)	Completion Rate (%)	Response Rate (%)
Sample	9,914	1,964	9,914	78.10	25.40	19.80
Service						
Army	4,879	544	4,879	69.01	16.16	11.15
Navy	1,755	492	1,755	83.70	33.49	28.03
Marine Corps	504	129	504	83.53	30.64	25.60
Air Force	2,348	674	2,348	89.27	32.24	28.78
Coast Guard	428	125	428	91.59	31.89	29.21
Geography						
CONUS	8,705	1,750	8,705	79.75	25.23	20.12
Overseas	1,209	214	1,209	66.42	26.65	17.70
Size of Unit						
Less than 100 members	5,632	1,090	5,632	76.14	25.46	19.38
101 to 250 members	3,197	592	3,197	79.73	23.22	18.52
More than 251 members	1,085	282	1,085	83.69	31.06	25.99

Note. For the geography item, the United States CONUS includes Alaska and Hawaii.

References

- American Association for Public Opinion Research. (2011). *Standard definitions: Final dispositions of case codes and outcome rates for surveys*. 7th edition, AAPOR.
- Council of American Survey Research Organizations. (1982). *On the definition of response rates* (special report of the CASRO task force on completion rates, Lester R Frankel, Chair). Port Jefferson, NY: Author.
- DMDC. (2009). *November 2008 Post-Election Voting Survey of Unit Voting Assistance Officers: Administration, datasets, and codebook* (Report No. 2009-015). Arlington, VA: Author.
- DMDC. (2011). *November 2010 Post-Election Voting Survey of Unit Voting Assistance Officers: Tabulations of Responses* (Report No. 2009-014). Arlington, VA: Author.

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