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2010 Post-Election Voting Survey of Local Election Officials

Statistical Methodology Report



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**2010 POST-ELECTION VOTING SURVEY OF
LOCAL ELECTION OFFICIALS:
STATISTICAL METHODOLOGY REPORT**

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DMDC's Personnel Survey Branch, under the guidance of David McGrath, Branch Chief, is responsible for HRSAP survey sampling, weighting, and imputation. The lead statistician on this survey was Timothy Markham with review from Eric Falk.

DMDC's Survey Technology Branch, under the guidance of Fred Licari, Branch Chief, is responsible for the distribution of datasets outside of DMDC and maintaining records on compliance with the Privacy Act and 32 CFR 219.

2010 POST-ELECTION VOTING SURVEY OF LOCAL ELECTION OFFICIALS: 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, federal civilian employees overseas, other 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 Local Election Officials (2010 LEO)*, which was designed to capture the attitudes and behaviors from the local election officials as well as voting information with the voting jurisdiction, concentrating on the absentee vote.

This report describes the sampling and weighting methodologies used in the *2010 LEO*. Calculation of response rates is described in the final section.

The population of interest for the *2010 LEO* consisted of the local election officials from the voting jurisdictions in the United States and the four territories. There were 7,296 voting jurisdictions covering the United States and the four territories.

The 2010 *LEO* survey was a census of voting jurisdictions with the LEO as the respondent. The survey administration period lasted from November 30, 2010 to February 16, 2011. There were 3,894 usable 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.

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 RR3 recommendations of the American Association of Public Opinion Researchers (2008). The location, completion, and response rates were 99%, 54%, and 53%, respectively.

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2010 POST-ELECTION VOTING SURVEY OF LOCAL ELECTION OFFICIALS: STATISTICAL METHODOLOGY REPORT

Introduction

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This report describes sampling and weighting methodologies for the *2010 LEO*. The first section describes the design and selection of the sample. The second and third sections describe the survey administration and weighting. The fourth section describes the calculation of response rates, location rates, and completion rates for the full sample and for population subgroups. The final three sections describe the editing, imputation, and variance estimation. Tabulated results of the survey are reported by DMDC (2011).

Sample Design and Selection

Target Population

The *2010 LEO* was designed to represent all local election officials from the voting jurisdictions in the United States and the four territories. The 2010 survey was a census of all 7,296 jurisdictions compared to a sample of 2,598 local election officials 2008 survey.

Sampling Frame

The sampling unit for this study is the local election voting jurisdiction, which are counties for most states, but were defined differently from state to state. For example, the state of Alaska is considered to be one voting jurisdiction, whereas, Michigan, Wisconsin and the New England states define voting jurisdiction by individual townships. The remaining states define voting jurisdictions as counties with the exception of Virginia, which defines voting jurisdiction by counties as well as some cities. DMDC developed the sampling frame from three sources; 1) a file provided by FVAP, 2) state election website research and 3) website research from the Overseas Vote Foundation (OVF). In total there are 7,296 unique voting jurisdictions determined.

Sample Design

The *2010 LEO* used a census design. All 7,296 jurisdictions were included in the sample with certainty.

Survey Administration

Information on survey administration can be found in the *2010 Post-Election Survey of Local Election Officials Administration, Datasets, and Codebook*.

Weighting

Since this survey was a census, all jurisdictions received a base weight of 1. Information on the creation of final weights can be found in the Nonresponse Adjustment and Final Weights section.

Case Dispositions

Final case dispositions for weighting were determined using information from 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 1. Execution of the weighting process and computation of response rates both depend on this classification.

Table 1.
Case Dispositions for Weighting

Case Disposition	Information Source	Conditions
Eligible, complete response	Item response rate	Item response is at least one item
Active refusal	SCS	Reason for refusal is “any;” ineligible reason is “other;” reason survey is blank is “refused-too long,” “ineligible-other,” “unreachable at this address,” “refused by current resident,” or “concerned about security/confidentiality.”
Blank return	SCS	No reason given.
PND	SCS	Postal non-delivery or original non-locatable.
Nonrespondent	Remainder	Remainder

This order is critical to resolving case dispositions. For example, suppose a jurisdiction 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 the SCS indicated that the survey was from an ineligible jurisdiction, the disposition would be “ineligible.”

Final case dispositions for the 2010 LEO are shown in Table 2. The total number of eligible cases for weighting is 3,894, the number of complete and eligible cases (disposition code 4).

Table 2.
Population Size by Case Disposition Categories

Case Disposition Category and (Code Value)	Sample Size
Eligible—complete response (4)	3,894
Active refusal—refused, deployed, other (8)	614
Blank return (9)	208
PND—postal non-deliverable (10)	85
Non-respondents (11)	2,495
Total	7,296

Nonresponse Adjustments and Final Weights

The 2010 LEO was a census with no record or frame ineligible cases and jurisdictions that returned a survey and that responded to at least one item were considered complete. As a result, no eligibility or completion adjustments were applied.

Not all jurisdictions responded to the survey, and thus analytic weights were created to allow for the estimation of population values by eligible survey respondents. To facilitate this representation, weights were created that reflected the different rates of response in the nine population subgroups (poststrata) shown in Table 3.

Table 3.
Counts by Poststratum

Poststratum	Jurisdiction Count	Complete Eligible Cases
Jurisdictions with less than 5,000 registered voters	4,200	2,167
Jurisdictions with 5,001–10,000 registered voters	829	436
Jurisdictions with 10,001–29,202 registered voters ^a	1,267	663
Jurisdictions with 29,203–40,000 registered voters	237	136
Jurisdictions with 40,001–75,000 registered voters	319	197
Jurisdictions with 75,001–100,000 registered voters	102	54
Jurisdictions with 100,001–200,000 registered voters	162	112
Jurisdictions with 200,001–360,000 registered voters	84	66
Jurisdictions with at least 360,001 registered voters	96	63

^aTo encourage response from large jurisdictions, the largest 1,000 jurisdictions, which included all jurisdictions with more than 29,202 registered voters, were called. To capture the effect of these calls on response propensity, the poststrata were created so that none of the largest 1,000 jurisdictions is in a poststratum with a jurisdiction that did not receive a call.

To create final weights, jurisdictions were divided into poststrata by the number of registered voters based on administrative data. The final weights were defined as the total number of jurisdictions in a poststratum divided by the number of respondents within that poststratum, shown in Table 4.

Table 4.
Final Weights by Poststratum

Poststratum	Final Weight
Jurisdictions with less than 5,000 registered voters	1.94
Jurisdictions with 5,001–10,000 registered voters	1.90
Jurisdictions with 10,001–29,202 registered voters ^a	1.91
Jurisdictions with 29,203–40,000 registered voters	1.74

Poststratum	Final Weight
Jurisdictions with 40,001-75,000 registered voters	1.62
Jurisdictions with 75,001-100,000 registered voters	1.89
Jurisdictions with 100,001-200,000 registered voters	1.45
Jurisdictions with 200,001-360,000 registered voters	1.27
Jurisdictions with at least 360,001 registered voters	1.52

^aTo encourage response from large jurisdictions, the largest 1,000 jurisdictions, which included all jurisdictions with more than 29,202 registered voters, were called. To capture the effect of these calls on response propensity, the poststrata were created so that none of the largest 1,000 jurisdictions is in a poststratum with a jurisdiction that did not receive a call.

Location, Completion, and Response Rates

Location, completion, and response rates were calculated in accordance with the 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, 2000), which estimates the proportion of eligible cases among cases of unknown eligibility.

Location, completion, and response rates were computed for the *2010 LEO* 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 5.

Table 5.
Disposition Codes for 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 ^a	2, 3

Note: Code values are from Table 2.

^a There were no self-report ineligibles for the survey.

Ineligibility Rate

The ineligibility rate (IR) is defined as:

$$IR = \text{Self Report Ineligible Cases} / \text{Eligible Determined Cases.}$$

Estimated Ineligible Postal Non-Deliverable/Not Located Rate

The estimated ineligible postal non-deliverable or not located (IPNDR) is defined as:

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

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:

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

Adjusted Completion Rate

The adjusted completion rate (ACR) is defined as:

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

Adjusted Response Rate

The adjusted response rate (ARR) is defined as:

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

Table 6.
Location, Completion, and Response Rates

Type of Rate	Computation	Observed Rates
Location	Adjusted located sample/Adjusted eligible sample	98.8%
Completion	Usable responses/Adjusted located sample	54.0%
Response	Usable responses/Adjusted eligible sample	53.4%

Table 7.
Rates by Poststratification Level

Poststratum	Location Rate	Completion Rate	Response Rate
Jurisdictions with less than 5,000 registered voters	98.6%	52.3%	51.6%
Jurisdictions with 5,001–10,000 registered voters	98.4%	53.4%	52.6%
Jurisdictions with 10,001–29,202 registered voters ^a	99.1%	52.8%	52.3%
Jurisdictions with 29,203–40,000 registered voters	100.0%	57.4%	57.4%
Jurisdictions with 40,001–75,000 registered voters	99.7%	61.9%	61.8%
Jurisdictions with 75,001–100,000 registered voters	100.0%	52.9%	52.9%
Jurisdictions with 100,001–200,000 registered voters	98.8%	70.0%	69.1%
Jurisdictions with 200,001–360,000 registered voters	98.8%	79.5%	78.6%
Jurisdictions with at least 360,001 registered voters	100.0%	65.6%	65.6%

^aTo encourage response from large jurisdictions, the largest 1,000 jurisdictions, which included all jurisdictions with more than 29,202 registered voters, were called. To capture the effect of these calls on response propensity, the poststrata were created so that none of the largest 1,000 jurisdictions is in a poststratum with a jurisdiction that did not receive a call.

Edit and Imputation Processes

To calculate estimated totals from the numeric survey data, edit and imputation processes were developed for the items with missing data. Without an edit and imputation process, the estimated totals will underrepresent the actual total. The edit process is the inspection of collected data, prior to statistical analysis. The goal of editing is to verify that the data have properties intended for the original design. An imputation process places an estimated answer into a data field for a record that previously had no data or had incorrect or implausible data.

Edit Process

Paper to Web Edits

In 2008, there were errors that occurred on paper surveys where respondents would fill in zeros for a numeric question, but would do so in a “sloppy” manner, causing the scanner to read in a “0” as a different number, such as “6.” To help alleviate this problem in 2010, a check box

was added to the paper survey only. Directions were provided to the respondent that if they wished to enter a zero for a question, they should mark the zero check box provided. Web surveys did not have this issue since a zero could be typed in. Once all paper surveys were scanned in, code was applied that if the zero check box was checked, a numeric response of “0” was entered on the numeric entry item. This kept the responses on the paper and Web standard.

Multiple Response Edits

On the paper survey, respondents had three ways they could respond to a numeric entry question: enter a number, check a box to indicate “0,” or check a box to indicate “Data not available.” On the Web survey, respondents had only two ways they could respond to a numeric entry question: enter a number or check a box to indicate “Data not available.” If a respondent chose to enter a numeric answer as well as check the “0” or “Data not available” boxes, their numeric answer was taken over any other response. For example, if a respondent entered “200” and also selected the box for “Data not available,” the “Data not available” option was edited to be unselected, therefore, eliminating the multiple responses to the item.

Data Validation Edits

A number of data validation checks and edits were performed on the numeric data entered in the 2010 LEO survey and are described below.

Creating Totals. If a respondent entered values in for Uniformed Service Members and Overseas Civilians but left the total of the two blank, a total was calculated for them by adding the responses provided. Both responses had to be present in order for a total to be calculated. For items that are in chart form, such as question 10, totals were also created for the columns if the total was missing and data was provided for the question subparts. For example, in question 10, respondents are asked to provide the number of unsuccessfully processed FPCAs, successfully processed FPCAs, and the total for Uniformed Service Members, Overseas Civilians, and the overall total population. If a respondent gave data for the number of unsuccessfully processed FPCAs and successfully processed FPCAs, but did not provide a total of all FPCAs processed, then a total was created.

Correcting Totals. If a respondent entered values in for Uniformed Service Members and Overseas Civilians and provided a total but the total was entered incorrectly, the total was corrected to be the sum of Uniformed Service Members and Overseas Civilians. For items that are in chart form, such as question 10, totals were also corrected for the columns if the total did not add up to the data entered for the question subparts. Using question 10 as the example again, if a respondent entered data for the number of unsuccessfully processed FPCAs, successfully processed FPCAs, and total FPCAs processed, but the total was entered incorrectly, the total was corrected to be the sum of the unsuccessfully processed FPCAs and successfully processed FPCAs.

Questions with Logical Relationships. Some questions in the LEO survey had logical relationships with each other where one question’s responses should be less than or equal to those of another question. For example, the number of FWABs counted (Q44) should be less than the number of FWABs that were submitted for counting (Q43). For this example, if the

number of FWABs counted was greater than the number of FWABs submitted for counting, the value entered for FWABs counted was set to be the value entered for FWABs submitted for counting. This alleviates the possibility of having a ratio that is over 100%, which is not possible.

Skip Edits

At the beginning of each large section of the survey there is a lead in question that serves as a skip for the section. For example, question 5 on the survey asked if respondents received any Federal Post Card Applications (FPCAs) from UOCAVA voters. If the respondent selected “Yes,” they were moved onto the next question in the section. If they selected “No” or “Don’t know,” they were skipped past the questions in the section. For those who chose “Don’t know,” their answers for the numeric items will stay as missing (not applicable per skip) and will be imputed during the imputation process. If the respondent selected “No,” their answers on the numeric entry items within that section were changed from missing (not applicable per skip) to the value of “0” since selecting no implied that they would have an answer of “0” to any question regarding that topic.

Edits for Outliers

Identification of data outliers was done for data on the number of registered voters (both record data and survey self-report data) and for number of voters who participated (survey self-report data). The outliers for registered voters were identified by comparing the values available from the sample file against values entered on the survey. For those jurisdictions where the values between record and survey data had a large enough difference to change the strata that jurisdiction was in by at least two strata, the data were edited for these items where applicable. Research was conducted by going to state Websites to locate their official registration and voting totals for the 2010 election to confirm the values for these jurisdictions. Based on this research the following edits were applied (in all of these cases, the original values were maintained and edits were made on edited versions of the variables):

- 1) The number of registered voters in record data was correct, and the survey data was incorrect. Edits were performed to set the survey data equal to the record data.
- 2) The number of registered voters in survey data was correct, and the record data was incorrect. Edits were performed to set the record data equal to the survey data.
- 3) The number of voters who participated in the election was off from the number posted on the state Websites. Edits were performed to update the survey data to be equal to the number provided on the Websites as the official voting totals.

The registration totals provided for the state of North Dakota on the survey were also edited. North Dakota is the only state where there is no registration. If data were provided on the survey, the values were edited to become a “0” since no registration exists in this state.

Imputation Process

After the edit process, the imputation process, which consisted of three steps, began. The first imputation procedure involved placing estimated values into data fields for questions with multiple numeric items that a jurisdiction answered incompletely. When the jurisdiction entered a value for either Uniformed Service Members or Overseas Civilians but not both, the value imputed into the unanswered sub-item was equal to the difference between the Total and the sub-item that was answered.

The next step in imputation involved questions where a jurisdiction provided values for Total, but neither Uniformed Service Members nor Overseas Civilians. To estimate values for these questions, unweighted totals for Uniformed Service Members and Overseas Civilians were created from all respondents who answered all sub-items of the question. These totals were used to create the proportions of each question that were allocated to each sub-item. These proportions were then applied to the jurisdictions that provided only a numeric response for Total to impute estimates for Uniformed Service Members and Overseas Civilians. After the proportional imputation was completed, errors were found in the data set due to illogical responses. As a result, the proportions changed by as much as two percent. The proportions prior to these edits were used to create estimates.

The final step of the imputation process was designed to produce estimates for respondents who did not provide a numeric value to any sub-item of a question. For this stage, a multiple weighted hot deck imputation procedure was used. For weighted hot deck imputation, the population was divided into subgroups of similar jurisdictions. For jurisdictions with missing data, donor jurisdictions were selected at random from within the same subgroup. No donor was selected more than three times.

Numeric items requiring imputation were collapsed into groups of correlated questions. For example, the number of regular absentee ballots submitted and number counted were analyzed together and all values imputed for these questions were selected from the same donor. For jurisdictions who answered some but not all of a group of questions, only the unanswered questions received imputed values. Only jurisdictions who had completely answered a group of questions were eligible to become donors for that group.

Because the number of complete cases varied by group of questions, different sets of variables were used to classify subgroups. Number of registered voters, as defined in the poststrata, was used for all groups of questions. In some cases, errors were found in the administrative variable used to create the poststrata. These errors were rectified and the updated information was used to reclassify groups based on number of registered voters. Jurisdiction type, collapsed into county and non-county, was used as well for one group. Geographic region was used in addition to the number of registered voters in several groups. For a limited number of question groups, the number of complete cases was small and required that only the number of registered voters be used to classify subgroups.

Variance Estimation

Values imputed through the hot deck method are only plausible values. In other words, the imputed information is a reasonable estimate, but likely does not perfectly capture the missing data. To treat these numbers as equal in certainty to reported values would underestimate variance. To account for this, five independent hot deck imputations were created. To get point estimates for totals, the values from the five separate imputations were averaged. The variance estimates are defined as the average of the within-imputation variances added to $(1+1/5)$ times the variance of the individual imputation variances, where $(1+1/5)$ is the coefficient used to inflate between-imputation variance based on the number of imputations used.

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