FVAP RESEARCH NOTE

Data Standardization and the *UOCAVA* Voting Pipeline

Introduction

Pursuant to the *Uniformed and Overseas Citizens Absentee Voting Act* (*UOCAVA*), the mission of the Federal Voting Assistance Program (FVAP) is to help ensure that active duty military (ADM), their families, and U.S. citizens living abroad are aware of their right to vote and have the tools and resources needed to do so successfully. With this mission in mind, FVAP continues collecting information to better understand the *UOCAVA* population's needs and help them successfully complete the voting process.

Since 2015, FVAP has been working with The Council of State Governments (CSG) Overseas Voting Initiative (OVI) to develop an election data standard that captures transactional-level data about *UOCAVA* voters in the Election Administration and Voting Survey Section B (ESB) Data Standard. The standardization portion of this project helps to overcome differences in how states and localities collect (and sometimes report) election data, making it difficult to merge and interpret at the national level.

Another virtue of the ESB Data Standard is that collecting data at the transactional level makes it possible to trace each voter's journey through the voting process and examine how the path taken may have influenced how far along the process they traveled. Unlike more traditional survey-based or aggregate data sets, transactional data can better identify individual voting behaviors and the challenges voters face in the voting process.

The ESB Data Standard was first used by a group of state and counties in conjunction with the 2016 General Election.[1] The ESB Data Standard was updated for the 2018 General Election to resolve limitations identified in 2016 while maintaining comparability across years and enabling returning participants to successfully adhere to the standard. The 2018 updates involved minimal changes to the data fields and options within each field such that the overall structure did not change drastically. The 2018 ESB Data Standard includes a total of nine participating states and five jurisdictions.

The 2018 ESB Data Standard Participants

The states of Alabama, Colorado, New Jersey, New York, North Carolina, South Carolina, Texas, Washington, and Wisconsin and the jurisdictions of Escambia County (FL), Ingham County (MI), Los Angeles County (CA), Orange County (CA), and Richmond County (GA) participated in the 2018 ESB Data Standard. They reported a total of 256,428 ballot requests, which accounts for roughly one-third of all *UOCAVA* absentee ballot requests received nationwide for the 2018 General Election.

The transactional nature of the data and the availability of dates on which each transaction was recorded by the election office provide a reliable and valid snapshot of how and when *UOCAVA*

[1] For more information on the 2016 ESB Data Standard findings see: Federal Voting Assistance Program (2018). "Data Standardization and the Impact of Ballot Transmission timing and Mode on *UOCAVA* Voting." Available at https://www.fvap.gov/uploads/FVAP/Reports/609-ResearchNote11_DataStd_FINAL.pdf

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voters complete steps of the voting process. This research note takes advantage of that data to explore the *UOCAVA* voter journey. It uses the analogy of a pipeline to identify where in the voting process there are "leaks" (or voters dropping out of the process) and what factors are associated with successful completion of the absentee voting process.

Exploring which steps of the voting process seem more challenging to *UOCAVA* voters and if those challenges are associated with particular decisions on how to complete the voting process (e.g., the timing of the ballot request, the ballot transmission mode) allows FVAP to tailor programmatic and outreach efforts to voters and states to improve their chances of success in completing the voting process.

This research note is organized into the following sections:

- Key Research Questions
- The *UOCAVA* Voting Pipeline Framework
- Methodology
- The 2018 *UOCAVA* Voting Pipeline
- The Voting Journey: Ballot Request, Transmission, and Return
- Conclusions

To provide a structure for addressing the research questions, the voter pipeline framework is applied to the *UOCAVA* voting process. The methodology section details the data from the ESB Data Standard used in this research note, how data were cleaned, exclusion criteria, and the methods used to conduct analyses. The voter pipeline framework is then applied to data from the 2018 General Election to identify the steps in the *UOCAVA* voting process that account for the largest voter drop offs. After the application of the voter pipeline framework, each of the three main steps in the *UOCAVA* voting process—ballot request, ballot transmission, and ballot return—are described and analyzed. These analyses focus on how the timing and methods used by voters to complete each step may be associated with successfully completing the voting process (i.e., having their ballot counted). Finally, the findings of the analyses are summarized, and the implications and future directions are discussed.

The analyses in this research note find that:

- Ballot Return is the step of the *UOCAVA* voting process that accounts for the largest drop-off of *UOCAVA* voters; however, the magnitude of drop-off was heavily dependent on when the ballot request was submitted. Ballot requests filed before 2018 had a return rate of 33.1%, compared with election year requests, which had a 60.0% return rate.
- The high return rate among those requesting a ballot during the current election year was consistent even for ballot requests that were filed in weeks immediately before Election Day. This suggests that ballot request timing is a strong indicator of how the voting process will develop and that ballot return is influenced less by obstacles to voting and more by a voter's level of engagement.
- No matter when the initial request was submitted, ballots requested via Federal Post Card Application (FPCA) tend to have higher return rates than those requested via state application.
- When a ballot is requested within 45 days of an election, chances of the ballot being returned and counted increase when the ballot is transmitted electronically.
- Overseas citizens and ADM differ in when and how they request ballots. ADM tend to request ballots earlier than overseas citizens, with 62.0% of ADM requesting a ballot by the 45-day deadline and only 53.0% of overseas citizens requesting a ballot by that date. Additionally, a larger proportion of ADM ballots (85.3%) than overseas citizen ballots (56.6%) were transmitted by mail.

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Key Research Questions

This research note addresses the following research questions:

- What factors are associated with successfully completing the *UOCAVA* voting process (i.e., having a vote counted)?
- How does the timing and method of ballot request influence the likelihood of absentee ballot return?
- How do voting behaviors differ between active duty military and overseas citizens?

The *UOCAVA* Voting Pipeline Framework

UOCAVA voters must complete multiple steps to successfully cast a ballot in a federal election: register and request a ballot by a deadline, complete the ballot correctly, and return it so that their election office receives it by a deadline. For each step, the deadline and the precise process can vary depending on the state or jurisdiction in which one is voting as well as the individual preferences or needs of the voter. Most steps can be accomplished two or more ways. For example, *UOCAVA* voters can register and request a ballot by completing and submitting an FPCA through FVAP.gov or by following a process created by their state. They may choose to have an absentee ballot transmitted to them by mail or electronically and, in some states, choose among different modes of ballot return.

Although there are options available at each phase, the *UOCAVA* voting process can be broken down into three basic steps: ballot request, blank ballot transmission, and voted ballot return (a returned ballot is then processed by the election office, and is either counted or rejected because a procedural requirement has not been met). However, the likelihood of successfully completing the process and the obstacles faced may vary depending on the individual's environment (e.g., infrastructure and conditions in host country), what state they vote in, or what path through the process they take. Rather than focus on discrete barriers to voting that are consistent regardless of voting jurisdiction or path, it is useful to take a more holistic view of the *UOCAVA* voting process, conceptualizing it as a pipeline.[2]

The pipeline begins with registering and requesting an absentee ballot and concludes with returning a ballot and having it counted. Along the way, there are many potential drop-out points. A ballot request submitted by a voter may not be received by the election office, or it may be received and then rejected because the application or voter does not meet a requirement. If a ballot request is successful, a blank ballot transmitted to the voter, by mail or through some electronic means, may not make it to the voter or may arrive too late to be completed and returned by election deadlines. If a voter does receive a blank ballot, they may decide not to participate in the election, thus dropping out of the voting process; if they decide to participate, they may make an error in completing or returning their ballot to the election office, or it may be delayed in transit, resulting in a returned ballot not being received by the election office or arriving after the return deadline, or it may be rejected for some other reason.

[2] The voting pipeline was first used to understand the lost-vote problem in the context of Election Day voting (Caltech/MIT Voting Technology Project, 2001) and was then applied by Stewart (2010) to by-mail voting. This research note adopts this analogy but applies it uniquely to the *UOCAVA* absentee voting process.

Data Standardization and the *UOCAVA* Voting Pipeline

This research note examines the *UOCAVA* voting process from a holistic perspective, recognizing that successfully completing the voting process and the obstacles to doing so that are faced by voters are influenced by a variety of interactive and path-dependent factors. Using data from the 2018 ESB Data Standard, we trace the voting journey across the *UOCAVA* pipeline, examining how voter behavior, including when and how actions are taken at each phase and the policy or procedural context in which behavior occurs, relates to successful outcomes.

First, we examine the 2018 *UOCAVA* voting pipeline and describe the three basic steps in the *UOCAVA* voting process: ballot request, ballot transmission, and ballot return. After identifying where in the pipeline *UOCAVA* voters face the greatest obstacles, we take a closer look at each step, assessing how factors like timing, mode, and voter type relate to success rates in completing the process and having a vote successfully counted.

Methodology

Data for this research note were collected from nine states and five jurisdictions that used the ESB Data Standard template to report transactional data. In this research note, transactional data refers to individual pieces of information showing when and how any transaction between a voter and the election office occurred across the *UOCAVA* voting pipeline. In addition to information about the voting transactions, the ESB Data Standard template collects information on voter type (i.e., overseas citizen or ADM), country of residence, and voting jurisdiction.[3] In total, after a cleaning process to ensure the data provided by participating states and jurisdictions matched the ESB Data Standard, the final data set contained transactional-level data for 256,428 *UOCAVA* voters.[4]

Within the data set, there were some cases associated with multiple observations. Among the reasons an observation may be duplicated are a voter starting the voting process several times (e.g., sent a second ballot request because the first one was rejected), another step in the process being repeated (e.g., a ballot was transmitted by regular mail and by email, creating two records for ballot transmission), or an otherwise unique record being duplicated in the system (i.e., all information is identical for different observations for the same voter). We identified records that were fully duplicate and kept only one observation per voter to avoid double counting (1,103 observations were kept and 1,120 were dropped). Because there is not a consistent rule that can be used to merge the rest of duplicate observations or select which cases should be kept in the data set, 8,686 observations were excluded from analyses to avoid over-representation of these voters (see Appendix A for more details). After this process, a total of 246,622 individual observations were included in analyses.[5]

The analyses use a descriptive approach and focus on the potential impact of factors like ballot request timing and ballot transmission type in the success of the voting process. Because the ESB Data Standard is a census of all *UOCAVA* transactions in participating jurisdictions, analyses are not

[3] Each transaction is assigned a random alphanumerical reference number for individual transactions to identify the lifecycle of the ballot transaction without collecting personal information.

[4] Data were representative of exported data sets by localities by June 22, 2018. Because this data set includes those who, at some point, submitted an absentee ballot request indicating their UCOAVA status as either a military member, military family, or overseas citizen, the unit of analysis represents *UOCAVA* ballot requestors.

[5] See Appendix B for a complete tabulation of the 2018 ESB data by variable.

weighted; however, they are only representative of participating states and localities with valid data. Each analysis used a specific set of variables from the ESB Data Standard. To lose as little information as possible, observations are excluded from an analysis on a case-by-case basis. This means that observations that are missing data or have quality issues on particular variables are excluded only from analyses involving those variables; they are not excluded from the whole data set and are used in other analyses for which data on the target variables are available. For example, Texas did not provide information on voter type, so observations from Texas are excluded in analyses of differences between ADM and overseas citizens, but Texas is included in other analyses where voter type was not a variable of interest.[6]

In addition to case-by-case exclusions, other steps were taken to include as much information as possible while maintaining data quality.[7] In particular, since the ESB Data Standard collects information on when and how each ballot transaction took place but in some cases participating states or jurisdictions did not provide information for both, a ballot transaction was considered to have occurred if either date or mode information was available. For example, if an observation does not include a ballot transmission date but identifies fax as the mode of transmission, this is interpreted to indicate that a ballot was transmitted to a voter, despite not knowing when this transaction occurred. Thus, in analyses where the focus is on whether a ballot was transmitted to a voter, these observations would be included despite not having complete information about the transaction.

The ESB Data Standard collects information about ballot request date in three separate fields: ballot request receipt date, ballot request processing date, and ballot request postmark date; rarely does an observation contain data on all three fields.[8] Ballot request receipt date was the most complete ballot request date field, with 16.3% observations missing, compared to 56.9% observations missing for processing date and 77.9% observations missing for postmark date.[9] For the purposes of the analyses, a new ballot request date variable was created by capturing the most complete ballot request date field within each state or jurisdiction.[10] Since the three dates are highly correlated, this approach allows data to be synthesized into a single variable with minimal loss of information. The new variable includes ballot request date information for over 99.9% of the observations.

Because the ESB Data Standard does not have a field reporting if a ballot was ultimately counted, for the purposes of this research note a ballot was considered to be counted if it was returned (i.e., there is information in the ballot return date and/or mode fields) and was not marked as rejected. It is also important to note that even though the ESB Data Standard refers to ballots sent back to election offices as "ballots returned," these transactions are only indicative of returned ballots that were received by an election office. The ballot returned variable cannot capture cases in which a ballot was returned by the voter but was never received by election office.

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[6] See Appendix C for detailed missingness by variable.

[7] When additional "case-by-case exclusions" are present in a particular analysis, they are flagged and the rationale behind the exclusion is discussed.

[8] Only Los Angeles County, CA included data for the three ballot request fields.

[9] These three fields are consolidated in the 2020 refinement of the ESB Data Standard.

[10] The new variable reflects the data on receipt date for all states and jurisdictions except for South Carolina and Escambia County (FL), which instead report data on processing date, and Texas and Richmond County (GA), which report data on postmark date.

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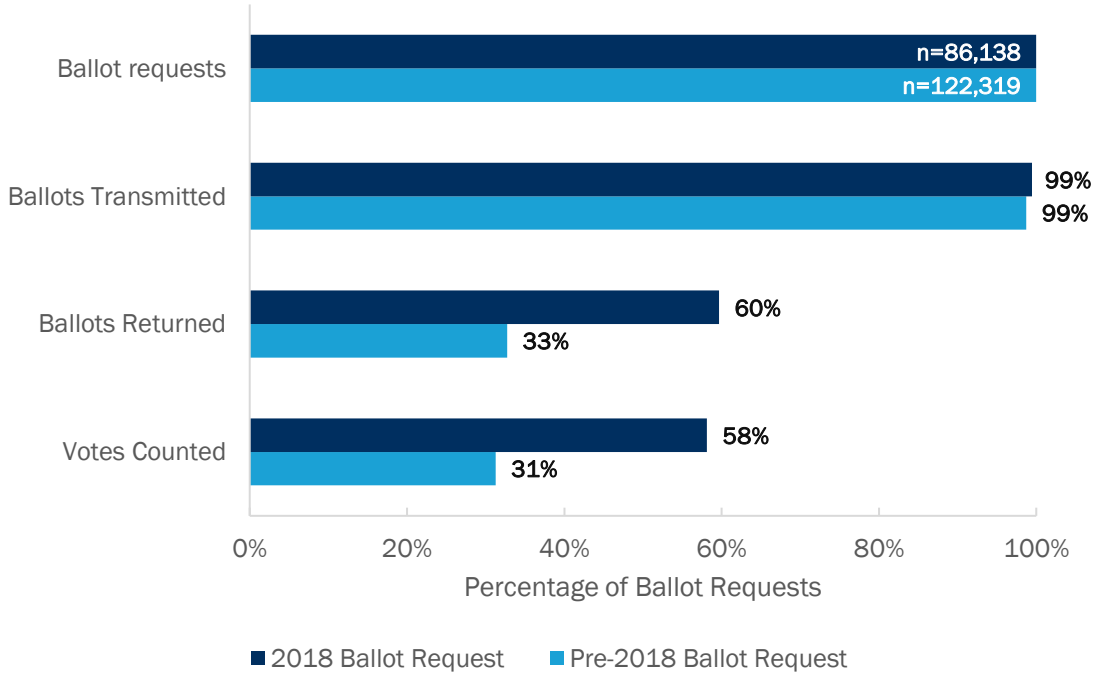
The 2018 *UOCAVA* Voting Pipeline

The pipeline begins with a request for an absentee ballot and ends with a returned ballot being successfully counted. However, there are many potential drop-out points along the pipeline that may prevent a voter from continuing to later phases in the voting process. Figure 1 shows the basic *UOCAVA* voting pipeline using the 2018 ESB data, specifically the number of voters identified at each phase. In the figure, *UOCAVA* voters are divided into two groups: those who submitted an absentee ballot request during the 2018 Midterm Election year and those who had requested an absentee ballot before 2018. In total, there were 246,622 unique ballot requestors in the 2018 ESB data set. Of those, 116,693 (47.3%) requests were made in 2018, and 122,545 (49.7%) in earlier years.[11]

Figure 1. *UOCAVA* Voting Pipeline—Largest Drop-off Occurs Between Ballot Transmission to Voters and Ballot Return to Election Officials[12]



Election offices transmitted ballots to 98.7% of those from whom a ballot request was received.[13] Overall, less than 0.01% of all ballot requests (175 ballot requests) were rejected. The most frequent reason for rejection of ballot requests was due to the request being cancelled (28.6%) or duplicated (16.6%). Overall, most voters who enter the *UOCAVA* voting pipeline by submitting a

[11] There were 7,384 (3.0%) observations with ballot requests dated after the year 2018.

[12] This figure excludes states that reported implausible return rates of over 95% and includes ballot requests filed up to Election Day.

[13] Nationally, approximately 2.0% of ballot requests made using an FPCA were rejected according to data reported in the 2018 Election Administration and Voting Survey.

ballot request successfully complete this phase in the process and move on to have a blank ballot transmitted to them by their local election office.

The greatest drop-off occurred between ballot transmission and ballot return, when close to half of ballots (49.1%) drop out of the process. Although ESB data shows 243,410 absentee ballots were transmitted in 2018, only 125,607 returned ballots were received by election offices.[14] Because ESB data only provides information about transactions recorded by the election office, it cannot be used to determine *why* ballots were not returned. Some proportion of ballots may not have been returned for reasons related to voter inaction (e.g., the voter was not interested in voting in the election or did not get around to returning the ballot), while the other proportion of non-returns is due to obstacles in transmission to the voter (i.e., the ballot never made it to the voter or arrived too late) or obstacles in returning a completed ballot to the election office (i.e., the returned ballot was never received by the election office or was not received until well past the voting deadline).

For voters who did successfully return an absentee ballot, nearly all made it to the end of the pipeline and had their returned ballot counted. ESB data shows that 97.5% of returned ballots were ultimately counted. Ballot requests received during the year of the election are associated with a higher ballot return rate.

The Voting Journey: Ballot Request, Transmission, and Return

Although the basic *UOCAVA* voting process is consistent—composed of ballot request, transmission, and return—the paths taken by voters to complete each step vary substantially. These differences, particularly in when and how voters complete each required step, influence how likely they are to complete the process and have their absentee ballot counted. This section more closely examines how voters navigate each phase in the *UOCAVA* voting pipeline and how those differing paths relate to voting outcomes.

Ballot Requests: Carryover, New, and Late

The first steps in the voting process are registering to vote and requesting an absentee ballot. For *UOCAVA* voters, these two processes may be completed at the same time using an FPCA, which is accepted by all states as both a registration and absentee ballot request form. Absentee ballots may also be requested using state ballot request forms or other procedures, which may or may not offer the same protections as using an FPCA.[15] States differ in requirements for ballot requests, particularly in how often this step needs to be completed, with some states requiring that a new request be submitted for every election and others continuing to recognize a ballot request as valid until the voter moves or cancels their request.

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[14] This number includes both regular absentee ballots and Federal Write-in Absentee Ballots (FWABs), which can be used as a back-up ballot used in place of a regular absentee ballot, effectively overriding drop-off associated with ballot transmission issues. In some states, the FWAB may be used even if a *UOCAVA* voter does not first submit an absentee ballot request. Overall, 483 voters used the FWAB for absentee ballot return. For 218 of these voters, the FWAB was both the ballot request and returned ballot type.

[15] FVAP (2018) Post Election Voting Survey of State Election Officials Technical Report. https://www.fvap.gov/uploads/FVAP/Surveys/FVAP_SEO_Technical_Report_2018.pdf

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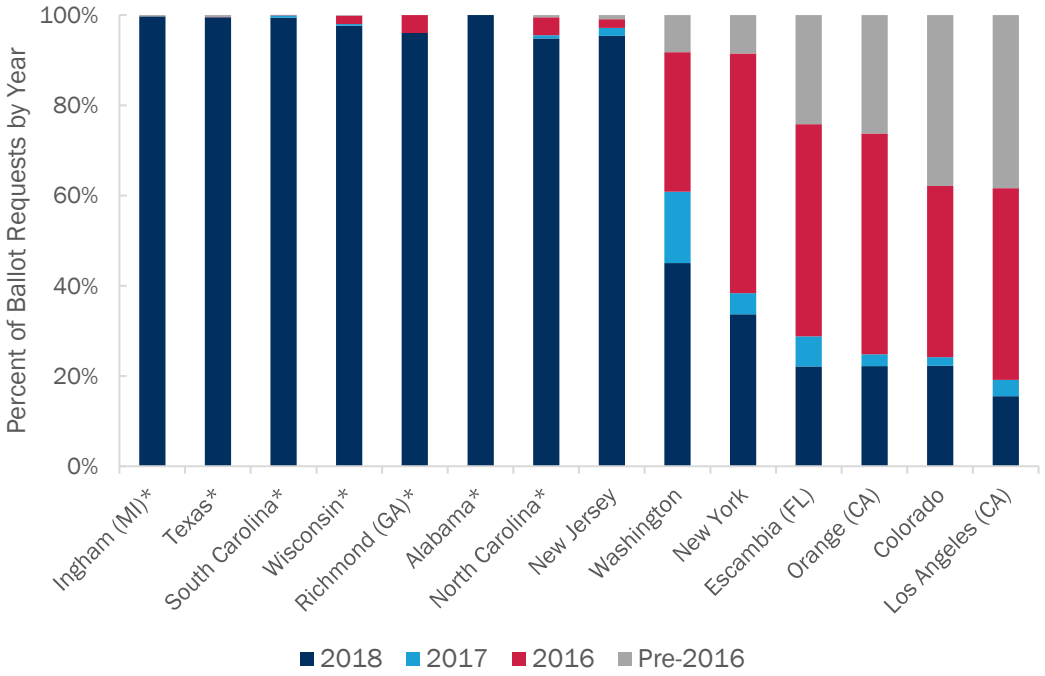
Even for this initial step, voters differ substantially in how and when they engage. Figure 2 shows the year in which participating states and jurisdictions received *UOCAVA* ballot requests that were recognized for the 2018 General Election. Overall, almost half (49.7%) of ballot requests were made before 2018. In this graph, states and jurisdictions where FPCAs are valid as ballot requests only for one year or one election cycle are flagged with an asterisk.[16] As expected, these states report receiving almost all of their ballot requests during the 2018 election year. Among states that do not require *UOCAVA* voters to send a ballot request every election cycle, a large portion of ballot requests for the 2018 Midterm Election were originally received in 2016. This is particularly true in some participating states and jurisdictions like Colorado, New York, Escambia County (FL), Los Angeles County (CA) and Orange County (CA), which report more ballot requests dated in 2016 than during the 2018 election year. This "carryover" of ballot requests from one general election to the next does not seem to have such a large impact during a presidential election year. By comparison, the majority of ballot requests reported in the 2016 ESB data were received during that year, with few carrying over from the previous 2014 Midterm Election, independent of a state's policy on duration of ballot request validity.

Figure 2. *UOCAVA* Ballot Requests by Year—Many Ballot Requestors for 2018 Originally Requested A Ballot for the 2016 Presidential Election[17]



* FPCA is valid as ballot request for one year or one election cycle according to state's policy.

[16] Information on states' policy on FPCA validity period was obtained from EAC's Policy Survey. Election Assistance Commission (2019). "Election Administration and Voting Survey." 117–152. Available at: https://www.eac.gov/assets/1/6/2018_EAVS_Report.pdf

[17] New Jersey reported in the 2018 EAC Policy Survey that FPCAs are valid as a ballot request until the voter changes their address but reported in ESB that most of their ballot requests were received during the election year.

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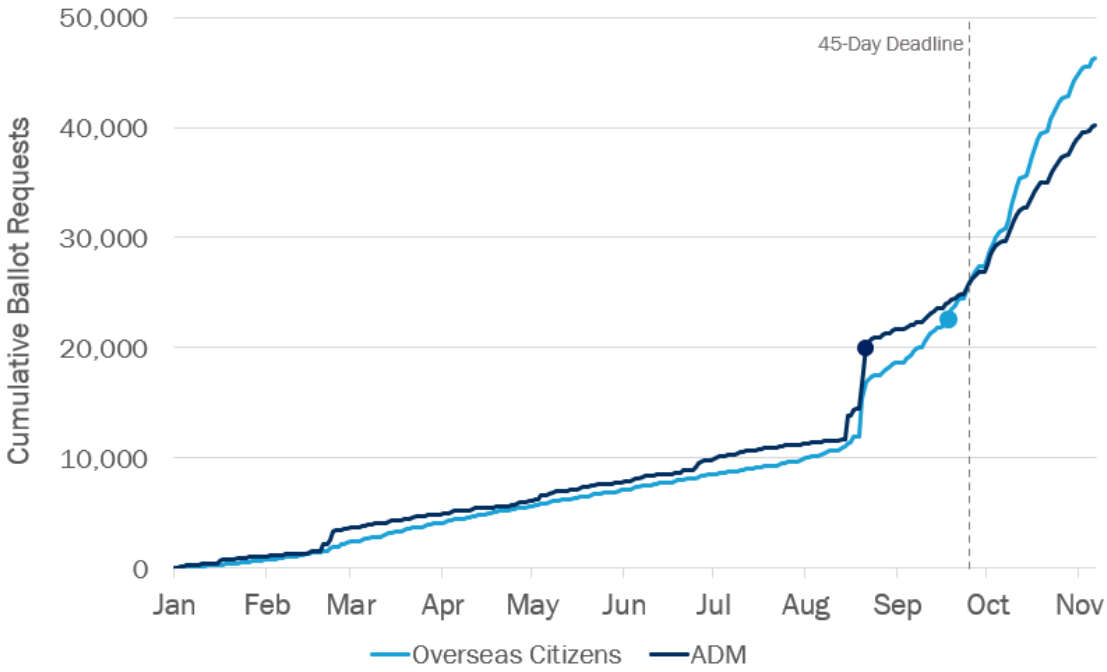
The 2018 ballot requests can be divided into timely (i.e., received by the 45-day deadline for states to transmit ballots to *UOCAVA* voters before the election) and later than recommended (i.e., received past the 45-day deadline). Overall, 116,693 ballot requests (47.3% of all requests represented in the 2018 ESB data) were received during calendar year 2018; of those, 53.3% were received by the 45-day deadline of September 22, 2018 and 46.7% were received after that deadline. Figure 3 shows the cumulative number of ballot requests received in 2018 until Election Day broken down by voter type (i.e., overseas citizens and ADM). The dots in the graph show the point at which 50% of requests have been received for each group. For ADM, 50% of absentee ballot requests received in 2018 arrived on or before August 21. For overseas citizens, the 50% point was reached almost a month later (September 19), meaning that almost half of absentee ballot requests from overseas citizens in 2018 were received less than 45 days before Election Day.

Figure 3. Timing of 2018 *UOCAVA* Ballot Requests—Many 2018 Ballot Requests Were Received Close to Election Day



*Dots indicate the point at which 50% of ballot requests from each population had been received.

There was a slow, yet steady, stream of ballot requests throughout 2018, with the rate of requests from both ADM and overseas citizens increasing rapidly closer to the election. Overseas citizens lagged behind ADM in ballot requests until September 27, at which point their ballot requests rapidly overtook those submitted by ADM.[18] Although many *UOCAVA* voters submitted an absentee

[18] The mid-August spike observed among both populations is largely driven by the state of Washington, which reported 10,134 ballot requests between August 20 and 21. Smoothing out this spike does not change the overall pattern, which shows ADM ballot requests coming in at a relatively steady pace throughout the year, and outnumbering overseas citizen requests until late-September, when the volume of overseas citizen requests increases rapidly through Election Day. Because the state of Texas did not provide information on whether voters were overseas citizens or ADM, they were excluded from this graph.

ballot request long before 2018, those who submitted in 2018 waited until close to the election, leaving less time to complete the subsequent steps of receiving and returning their absentee ballot.

Several factors may influence these patterns of request timing across groups. First, institutional factors may enable or encourage ADM to take actions sooner. ADM have immediate access to DoD resources such as Voting Assistance Officers (VAOs) and Installation Voting Assistance (IVA) Offices to assist with voting related activities. They may also encounter more messages from FVAP or other sources informing them of the absentee ballot request process and recommended schedules for completing election-related activities. Such awareness and familiarity could explain why ADM submit absentee ballot requests earlier than other *UOCAVA* voters who receive less direct outreach and support in the absentee voting process.[19] It is also important to recognize that ESB data shows the timing of receipt or processing of an absentee ballot request by an election office. Observed differences in ballot request timing between ADM and overseas citizens may reflect some variability in the amount of time it takes for ballot requests to arrive at an election office.

Both the timing and method of absentee ballot request are related to the likelihood of completing subsequent steps in the absentee voting process, particularly absentee ballot return. The FPCA is unique to *UOCAVA* voters, allowing them to both register and request an absentee ballot, and ensuring that they are given the special protections offered by *UOCAVA* and the *Military and Overseas Voter Empowerment (MOVE) Act*, which require that a ballot be transmitted at least 45 days before an election and that at least one electronic mode of blank ballot transmission be available to voters. Voters who use an FPCA to request an absentee ballot tend to return their ballots at slightly higher rates than those using state forms. Figure 4 shows the absentee ballot return rate by request year and method for both 2018 and 2016.

No matter the year in which a ballot request originated, those using an FPCA are more likely than other ballot requestors to return their absentee ballot. This relationship may reflect greater *UOCAVA* protections for those using an FPCA or differences in the voters who use this form versus other methods of ballot request (e.g., voters using an FPCA may be more knowledgeable than others about *UOCAVA* voting).[20]

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[19] While FVAP does direct outreach to overseas citizens, coordinates with other federal agencies and the State Department, and works with other organizations to disseminate voting related information, overseas citizens are a harder to reach audience with fewer direct lines of communication than ADM. Although the 2018 Overseas Citizen Population Analysis (OCPA) shows that overseas ballot requestor familiarity with FVAP increased from 29% in 2014 to 36% in 2018, this lags behind the 46.9% of ADM who reported awareness of FVAP assistance resources in the ADM 2018 Technical Report.

[20] As part of integrated marketing and outreach efforts, FVAP promotes the FPCA as the preferred method of absentee ballot request for *UOCAVA* voters and encourages voters to submit this form each January or no later than August 1 of each election year.

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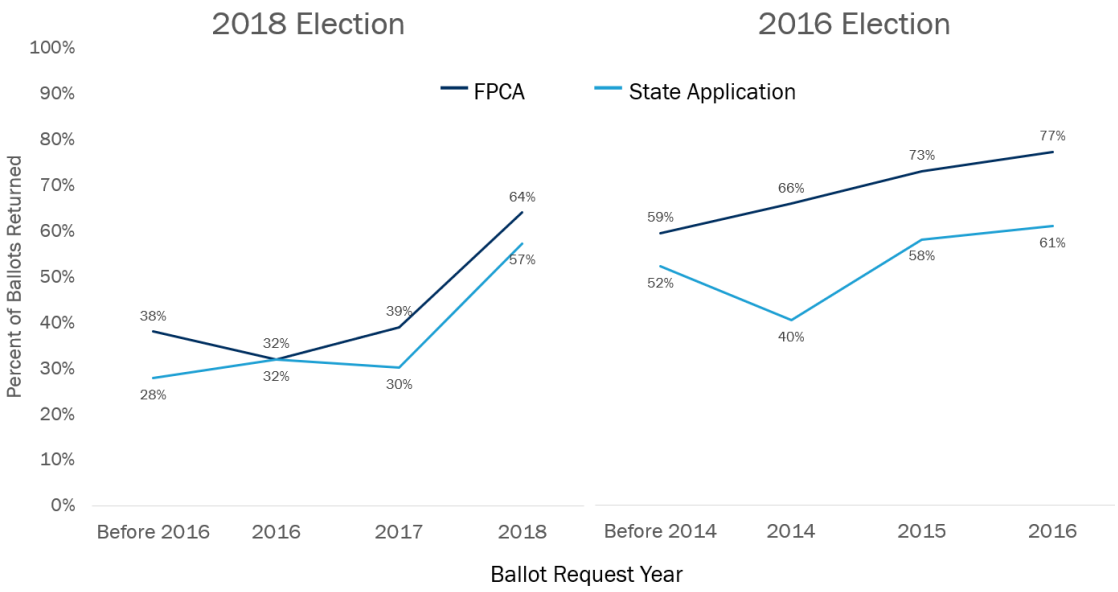
Figure 4. Ballot Return Rate by Request Type and Year—Highest Ballot Return Rate Among Absentee Ballot Requestors Using an FPCA and Those Submitting A Request in The Current Election Year[21]



Impact of Ballot Request Timing on Voting Process Completion

UOCAVA voters who submitted an absentee ballot request in 2018 tended to do so relatively close to Election Day, yet they also returned their ballots at higher rates than those who had requested a ballot earlier. These ballot request timing factors may impact subsequent steps in the *UOCAVA* voting process in various ways. On the one hand, later requestors may be more interested in voting and more motivated to complete the process. On the other, the closer to Election Day a voter starts the process, the more difficult it is for them to successfully complete all the steps on time.

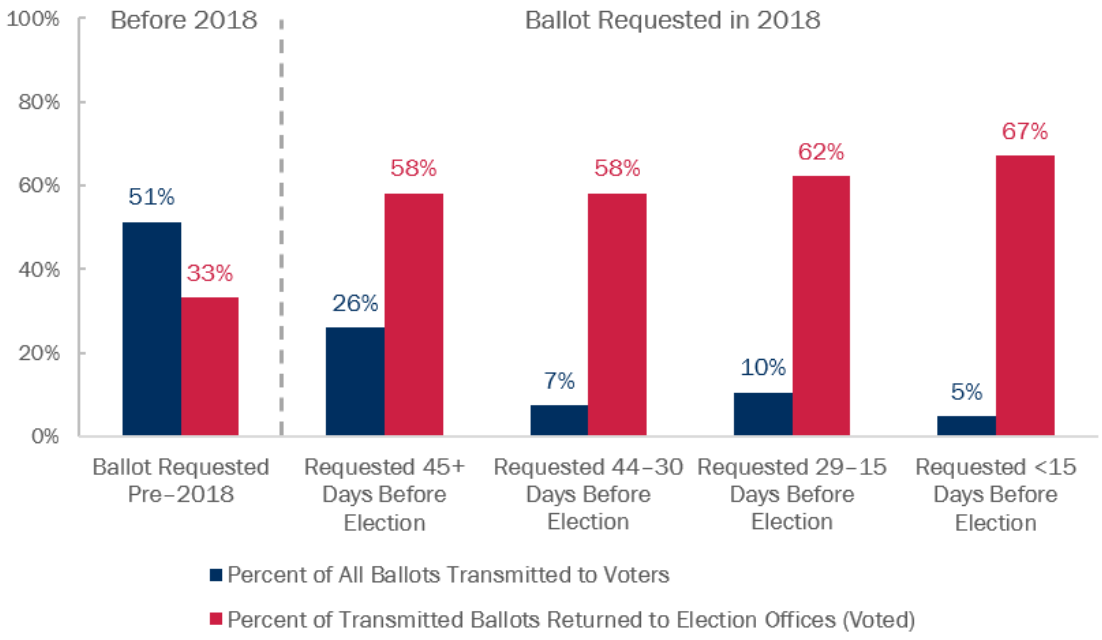
Among states and jurisdictions participating in the 2018 ESB Data Standard, 184,614 ballot requests were received by the 45-day deadline (77.4% of the total), and 53,875 requests were received between the 45-day deadline and Election Day.[22] Figure 5 shows how these ballot requests were distributed in the weeks leading to Election Day, revealing that 15.2% of ballot requests were received 30 days or less before Election Day. Interestingly, ballots requested past the 45-day deadline were returned at a higher rate (over 60%) than those ballots transmitted to voters who filed a request before the election year (33.1%). This effect may be due to "old" ballot requests sent, in some cases, to addresses that are no longer valid or to voters who are not interested in the current

[21] These figures exclude some states that reported implausible return rates of over 95% and observations that do not provide data on ballot request type (or have a request type other than FPCA or state application). They also exclude observations with missing data on ballot request date. Data from Alabama and Orange County (CA) from 2018 and from South Carolina in 2016 is not present in the graphs because they reported that the type of all their ballot requests was "Untracked." Even with these constraints, the graphs cover a large portion of all the observations in the 2018 and 2016 ESB data sets (71.5% and 70.8% respectively)

[22] *The MOVE Act* of 2009 amended UOCAVA to require all U.S. states and jurisdictions to transmit absentee ballots no later than 45 days before a Federal election to all *UOCAVA* voters who had submitted an absentee ballot request by this date, and that at least one electronic mode of blank ballot transmission be made available.

election, both of which would lead to low return rates compared to voters who, despite filing a ballot request relatively late, are engaged in and motivated to participate in the election.

Figure 5. Ballots Transmitted and Returned by Request Date—Later Request is Associated with Higher Likelihood of Return[23]



The closer a ballot request is to the election, the more likely it is that the ballot will be returned. The majority of ballots sent in 2018 had been requested in prior years. However, these ballots were the least likely to be returned to an election office: just one-third were. Of ballots requested in 2018, over half were returned, with the proportion increasing to two-thirds for ballots requested within two weeks of the general election.

Ballot Transmission

The second step of the process, once a ballot request is received and deemed valid, is the transmission of a blank ballot to the *UOCAVA* voter. In compliance with *the MOVE Act*, states are required to transmit ballots to voters at least 45 days before Election Day (given that the voter has requested a ballot before that deadline) to provide enough time for them to complete the voting process. Data from the participating states and jurisdictions confirms their adherence to *the MOVE Act*, as 97.2% of ballot requests dated before the 45-day deadline led to a ballot transmission by September 22, 2018 (the date of the 45-day deadline for the 2018 General Election).

For those ballot requests received past the 45-day deadline, election offices diligently processed the request and transmitted blank ballots to *UOCAVA* voters, usually in a week or less from the date they

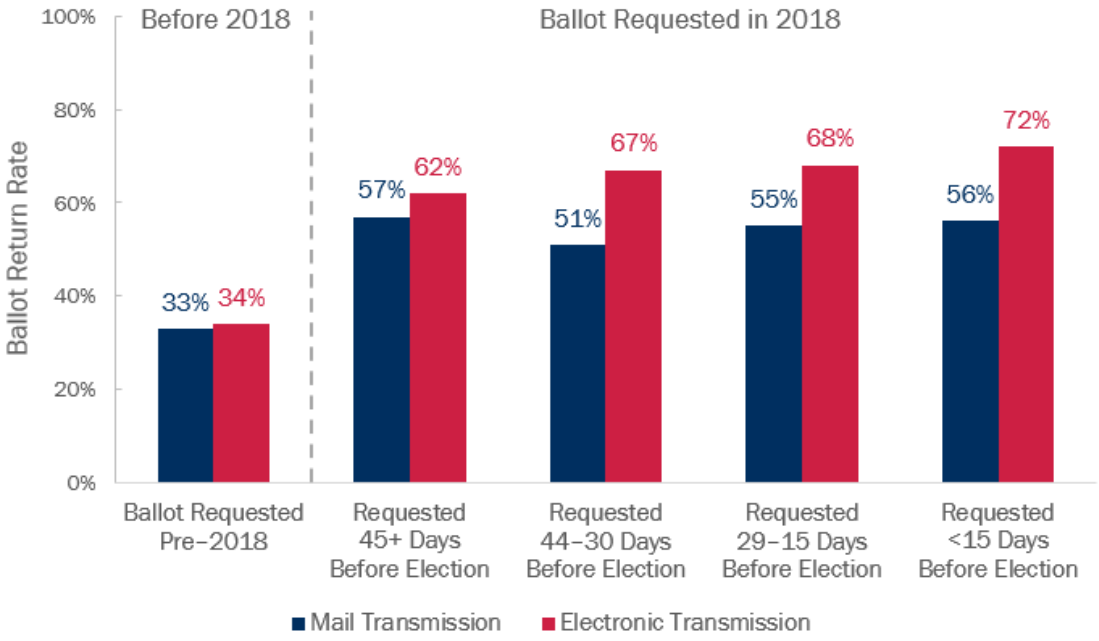
[23] The portion of the figure that discuses ballots returned excludes states that reported implausible return rates of over 95% and includes ballot requests filed up to Election Day.

received the ballot request. Although the ballot request processing times are generally short, ballot requests received too close to Election Day delay the start of the voting process and make it more difficult for voters to successfully complete it on time.

Among participating states and jurisdictions, 75.3% of ballots transmitted to voters requesting their ballot by the 45-day deadline were sent by regular mail (independent of whether the ballot request was made in 2018 or earlier). Electronic delivery increased for ballot requests received after the 45-day deadline; overall, 49.2% of ballots were transmitted electronically, but 67.5% of ballots were transmitted electronically in the two weeks before Election Day. This change in ballot transmission mode likely reflects the longer delivery times for mail ballot transmission compared to electronic modes.

Data on ballot return rates and ballot rejection rates further support the notion that when voters send their ballot requests very close to Election Day, electronic transmission modes increase chances of the ballot being returned and counted. Figure 6 shows return rates for ballots transmitted by mail or by electronic means by the timing of ballot request (and, subsequently, transmission). The return rate gap between the two transmission modes then increases as the ballot request is received closer to Election Day, particularly in the 45 days before the election, where the return rate for ballots transmitted electronically is over 10 percentage points higher than the return rate of ballots transmitted by regular mail.

Figure 6. Ballot Return Rate by Transmission Mode and Request Timing—Early Request is Key for Ballots Transmitted by Mail, and Electronic Transmission Helps Voters Overcome Time Barriers[24]



[24] This figure excludes states that reported implausible return rates of over 95%.

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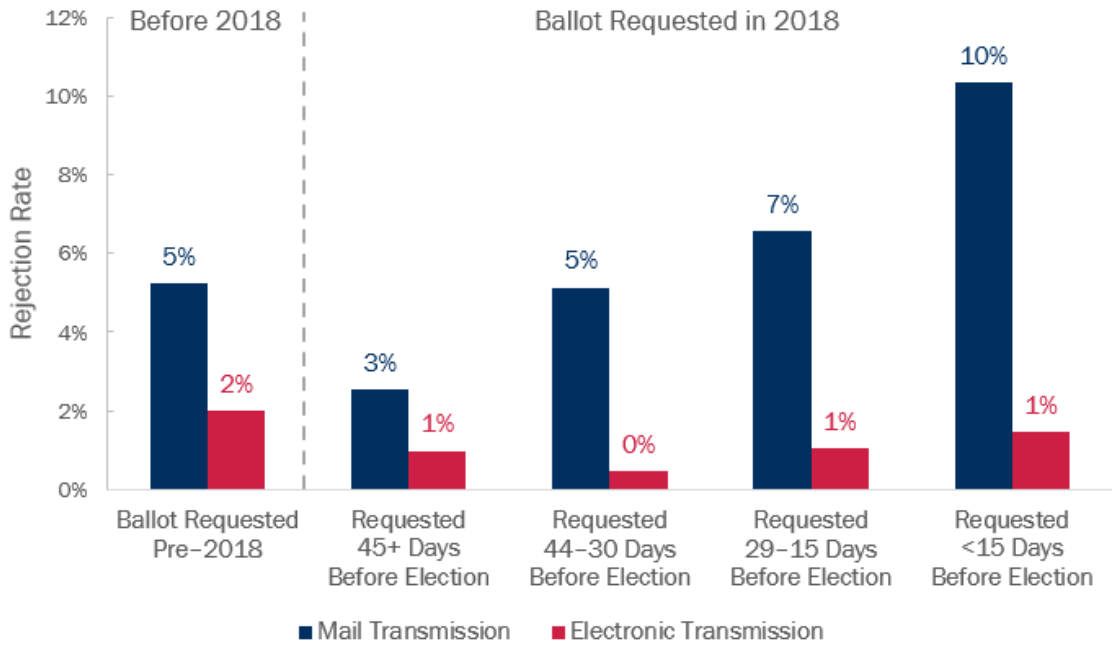
A similar effect is found when looking at the rejection rate by ballot request timing and transmission mode. Among the ballots that were returned by voters to the election office, only 3.4% were rejected. The rejection rate, however, greatly differs depending on when the ballot was requested and how the ballot was transmitted. As shown in Figure 7, rejection rates for ballots transmitted by mail are only slightly higher than those transmitted electronically when the ballot request was received before the 45-day deadline, but the difference increases notably as the ballot request date is closer to Election Day. The 45-day transmission requirement of *the MOVE Act* is critical to ensure ballots transmitted by mail can be returned in time to be counted. For ballots requested within two weeks of Election Day, 10.3% of those transmitted by mail are rejected, compared to just 1.5% of those transmitted electronically, suggesting that *the MOVE Act* requirement that electronic transmission modes be made available is an important protection for those unable to rely on postal mail to receive their absentee ballot.

Figure 7. Returned Ballot Rejection Rate by Transmission Mode and Request Timing—Late Request is Associated with Higher Rejection Rates for Ballots Transmitted by Mail, but Not Electronically[25]



The data on ballot return and ballot rejection shows the importance of both when a ballot request is received and how the ballot is then transmitted to the *UOCAVA* voter on the ability of that voter to successfully complete the *UOCAVA* voting process. Ideally, ballot requests should be submitted early, before the 45-day deadline, to increase the chances of completing the voting process. However, when a ballot request is made after the 45-day deadline, the advantages of electronic transmission modes become evident, both increasing the likelihood that a ballot is returned and that the returned ballot is counted.

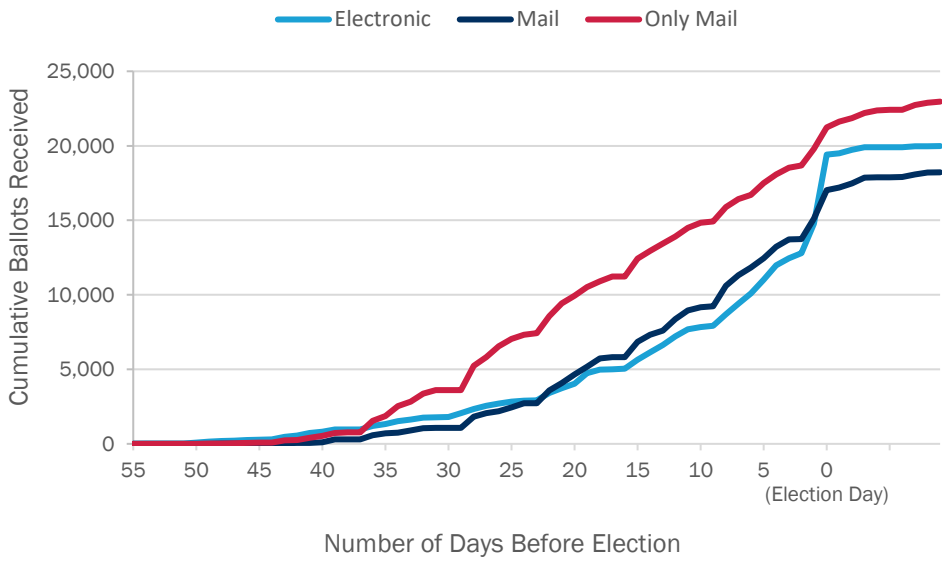
[25] This figure excludes states that reported implausible return rates of over 95%.

Ballot Return

The last step of the voting process is the return of a voter's completed ballot to the election office, where it is ultimately processed and either counted or rejected. Of the total 243,410 ballots transmitted by participating states and jurisdictions for the 2018 General Election, 125,607 were returned for counting.[26] Depending on state policies, *UOCAVA* voters may have different options to return their completed ballots. Among participants in the 2018 ESB, the states of Colorado, North Carolina, South Carolina, and Washington and the jurisdictions of Escambia County (FL), Los Angeles County (CA), and Orange County (CA) allowed for some form of electronic ballot return (i.e., email, online, and/or fax), and the others required that *UOCAVA* voters return absentee ballots by regular mail.[27]

Figure 8 presents the timeline and mode of ballots returned by voters. The "Only Mail" category refers to ballots returned by mail in those states that only allow mail as a form of ballot return, and the categories of "Mail" and "Electronic" refer to the mode used by voters to return a ballot when they have the option to choose between the two. The graph shows that mail return was overall the most-used method of ballot return by *UOCAVA* voters in 2018. However, state policies impact voter behavior, with *UOCAVA* voters in states that allow electronic return slightly more likely to utilize these methods to return their absentee ballots than to use mail ballot return.

Figure 8: Timing of 2018 *UOCAVA* Ballot Returns—Electronic Return Increases Close to Election Day[28]



[26] Throughout this paper we refer to returned ballots; it is important to note that these data actually refer to ballots that were received and processed by election offices. There might be instances when a voter did return a ballot but it might not have reached the election office, or it did but past the Election Day and canvass deadline and was then not recorded. Those ballots, which were actually returned by the voter, will not be included in the data since they were not ultimately recorded.

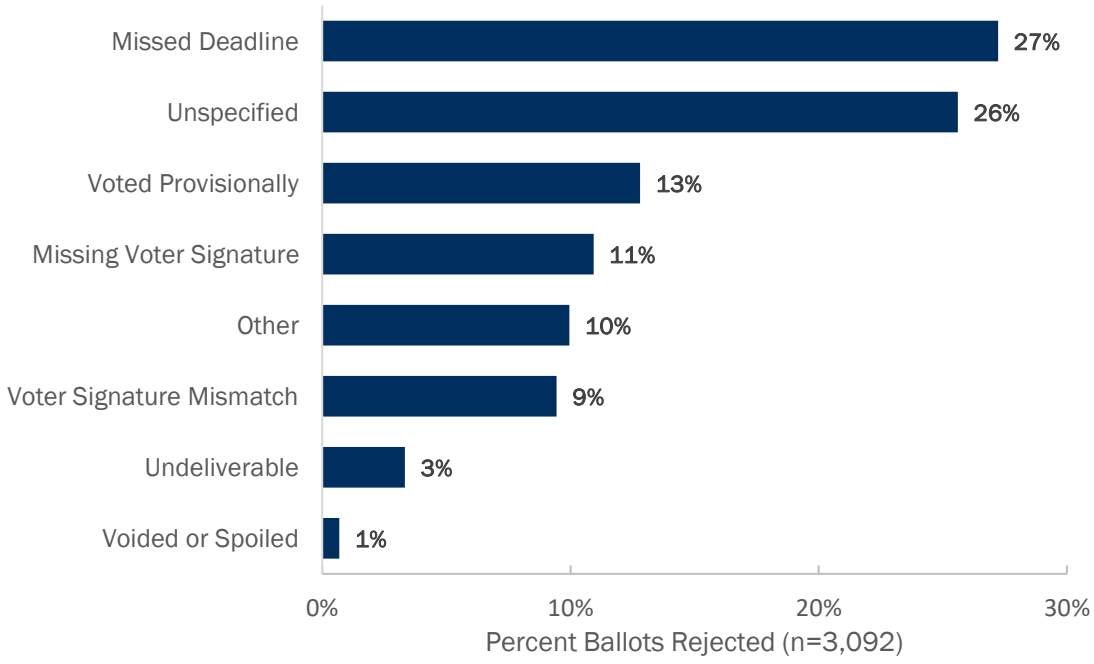
[27] Federal Voting Assistance Program (2017). "2018-2019 Voting Assistance Guide."

[28] This figure excludes states that reported implausible return rates of over 95%.

Mail ballot return (both as an option and as the only return mode allowed) followed a somewhat constant stream from early October to the days leading to Election Day, when there is a spike in the number of ballots received. Electronic ballot return, on the other hand, displays a slower start in terms of ballots returned, then starts to pick up in the two weeks before Election Day (shown by the changes in slope), passing the number of total ballots returned by mail in states that allow both forms of ballot return. This suggests that voters using electronic ballot return tended to wait until close to Election Day to return their ballots, either because electronic return enabled them to do so or because as Election Day approached, electronic modes became necessary in order for their ballot to be returned in time to be counted.

Finally, when looking at the ballots received past Election Day, although electronic ballots mostly stop arriving after Election Day, by-mail ballots continue being received well past this date. This is probably an effect of electronic ballots not being sent past Election Day because the voter is aware that the vote will not be valid and/or states stop recording/allowing electronic votes past Election Day. Mail ballots, however, can be counted even if they are received past Election Day if the state has a policy that allows for it (e.g., Washington allows ballots returned up to 20 days past Election Day) and the ballots are postmarked on the date of the election or earlier.

Figure 9. Reason for Ballot Rejection—Missing the Absentee Ballot Return Deadline Is the Most Common Reason for Returned Ballot Rejection[29]



[29] This figure excludes states that reported implausible return rates of over 95% and includes only observations with ballot requests filed up to Election Day.

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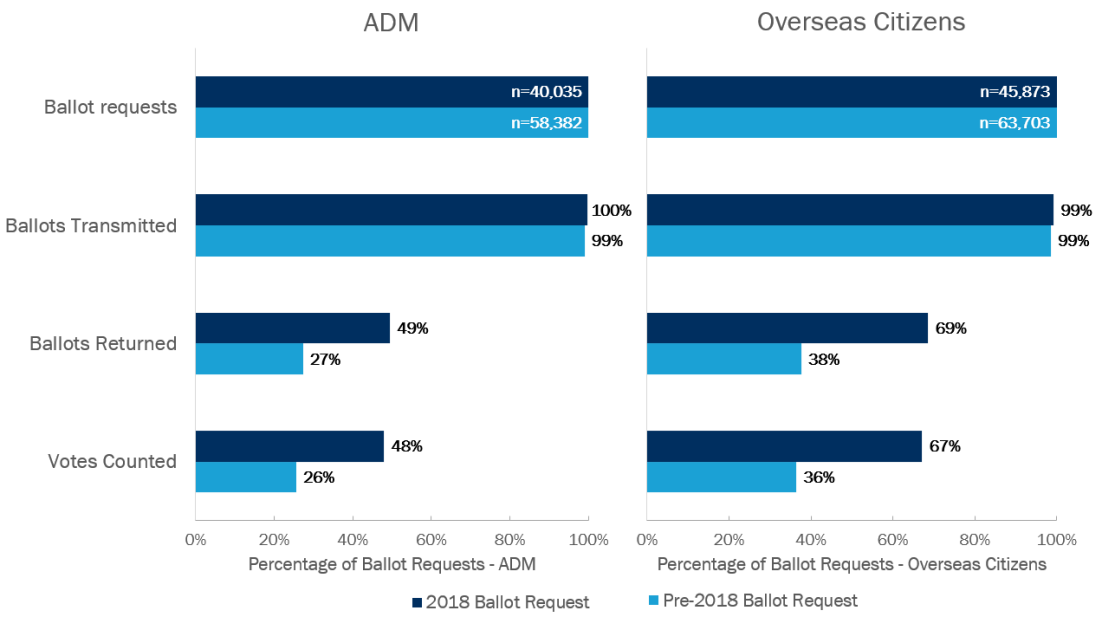
Of all ballots returned in participating states and jurisdictions, 3.4% were rejected. Figure 9 shows the reasons given by election offices for rejecting ballots. The most common reason was missing a ballot return deadline; overall, 27.2% of ballots received by the election office but not ultimately counted were rejected because they arrived too late. Though most returned ballots were ultimately counted, ballot return time continues to be an obstacle that prevents *UOCAVA* voters from successfully completing the voting process.

Comparing ADM and Overseas Voters

The overall patterns seen in the *UOCAVA* voting pipeline are consistent across different *UOCAVA* voter types. Figure 10 shows the voting pipeline for ADM and overseas citizens. Overall, there were more overseas citizen voters than military voters represented in the 2018 ESB data. Across both groups and consistent with the findings in the overall data, the primary drop-off point in the *UOCAVA* voting pipeline occurred between ballot transmission and ballot return. However, it is worth noting that once again, the year in which the ballot was requested plays an important role in the ballot return rate. Ballots requested in 2018 were returned at higher rates among ADM (49.8%) and overseas citizens (69.4%) compared to those requested in previous years (27.6% for ADM and 38.2% for overseas citizens). For all voter types, the majority of voters who successfully returned an absentee ballot ultimately had that ballot counted in the 2018 General Election, and missed deadlines were the most common reason for returned ballot rejection.

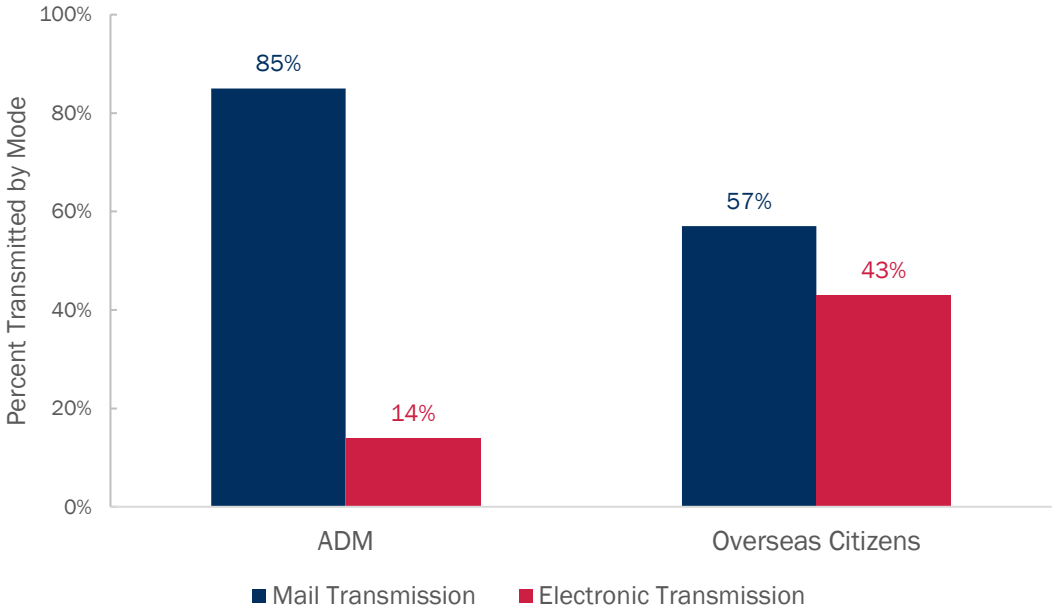
Figure 10. The *UOCAVA* Voting Pipeline by Voter Type—Overseas Citizens Returned Ballots at Higher Rates Than Military Voters for the 2018 General Election[30]



[30] This figure excludes states that reported implausible return rates of over 95% and includes only observations with ballot requests filed up to Election Day.

In addition to the differences in return rates between the two populations, there was a considerable difference in the return mode used by each group. ADM used regular mail for ballot transmission (85.3%) much more than electronic transmission (14.4%), and much more than overseas citizens (56.6% mail ballot transmission and 43.3% electronic ballot transmission). However, for ballot requests sent past the 45-day deadline, there was a notable increase in the use of electronic transmission modes among ADM.

Figure 11. Mode of Ballot Transmission by Population—Military Voters Relied Heavily in Regular Mail for Ballot Transmission Compared to Overseas Citizens



Conclusion

The ESB Data Standard provides a unique opportunity to look beyond gross measures of *UOCAVA* ballot request and return activity and instead explore in more detail how voters interact with the *UOCAVA* voting process. Using ESB data, collected in collaboration with CSG OVI, this research note examines not only *UOCAVA* voting obstacles and outcomes, but provides a more nuanced look at the factors influencing successful completion of the *UOCAVA* voting process. Results reveal how FVAP, as well as state and local election officials, might better serve this population.

Overseas citizens and ADM need to complete a three-step *UOCAVA* voting process, which consists of a ballot request, ballot transmission and ballot return, in order to cast an absentee ballot and have it counted. In every election, however, potential *UOCAVA* voters start but do not ultimately complete the voting process. Determining the stages of the voting process where *UOCAVA* voters drop off and factors associated with successful or unsuccessful completion of the process helps to better understand the challenges that *UOCAVA* voters experience and ways in which the *UOCAVA* voting experience might be improved so that more voters are able to complete the process successfully.

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Data Standardization and the *UOCAVA* Voting Pipeline

The use of transactional data provides detail about each step in the *UCOAVA* voting journey and allows for a more comprehensive analysis of the voting process than is possible with traditional survey or aggregate data.

The analysis in this research note uses the pipeline analogy to describe the voter process and identify the points in the process with the greatest drop off. Perhaps not surprisingly, the largest point of voter drop-off is between the ballot transmission and ballot return phases, with almost half of the ballots transmitted not being returned to the election office. However, the results of this analysis show that drop-off rates vary substantially across subpopulations of *UOCAVA* voters, particularly those who requested an absentee ballot for an election in comparison to those who continue to have a ballot transmitted for elections subsequent to their initial request. Although administrative data cannot identify the specific reason that any given voter did or did not complete the process, there are several factors that are associated with voters dropping out of the *UOCAVA* voting pipeline:

- *Absentee ballot requests carry over across elections.* Some states send ballots automatically to voters who requested a ballot for previous elections; others require *UOCAVA* voters to send a new ballot request each election cycle or each year. Carryover ballot requests have lower return rates compared to ballot requests made in the year of the election. The difference in carryover versus new ballot request return rates shows a trade-off in state policies governing the length of time a *UOCAVA* voter's ballot request remains valid. In states with extended validity periods, some ballots may be transmitted to voters who are not interested in voting in a particular election or are not reachable due to out-of-date addresses. However, some of these ballots will reach voters who may have forgotten to request a ballot or may not have planned to vote, but then cast a ballot because they receive it. In contrast, states with limited ballot request validity periods transmit fewer *UOCAVA* ballots but have a higher proportion of them received and returned by voters.

- *Too close to Election Day.* In some cases, voters start the voting process too close to Election Day or wait too long to fill and return their ballot to the election office. In some of these cases, the voter may decide that they are too close to Election Day and their ballot will not make it on time, so they do not return it. In other cases, even when the voter decides to send the ballot, if they send it too late and it arrives at the election office once they have closed the canvass, the ballot will not be recorded as "received" by the election office.

The results of this research note show that ballot request timing is a good indicator of how likely it is that a voter will successfully complete the voting process in a specific election year. Ballot requests filed during the election year have high return rates, which is possibly an indicator of voter engagement or accessibility. Additionally, for ballot requests received close to Election Day, electronic ballot transmission is related to a higher likelihood of returning a ballot on time compared to ballots transmitted by mail. Finally, there are differences between ADM and overseas citizens in their voting behaviors, with ADM requesting their ballots considerably earlier than overseas citizens. However, this behavior does not seem to be associated with higher levels of voting success, which should be further studied to analyze obstacles to completing the voting process that are specific to ADM.

These findings provide further support to FVAP's strategy to promote the filing of an FPCA by *UOCAVA* voters every election year by August 1 so that it can be processed (and, if necessary, corrected) in advance of the 45-day deadline, and whenever a voter moves or changes duty station, to ensure that their information is up to date and they receive a ballot in a timely manner. Additionally, results show the importance of electronic ballot transmission requirements set forth by

Data Standardization and the *UOCAVA* Voting Pipeline

the *MOVE Act*, particularly to enable those who request ballots close to Election Day to receive and successfully return their absentee ballot. Without electronic ballot transmission modes, many military and overseas citizens who request an absentee ballot would have little chance to receive and return their ballot on time.

The findings in this research note show some of the potential uses of standardized transactional data to better identify the obstacles that *UOCAVA* voters face during the voting process. Having data on how and when each transaction in the voting process is conducted provides a level of detail that is missed with aggregate data, but still allows summarization of all data in an aggregate manner. The ESB Data Standard was created collaboratively with state and local election officials who were part of the CSG OVI working group and was designed to be generally compatible with election management systems and business processes across jurisdictions. This facilitates reporting and minimizes non-response to items requested as part of this standard. The analysis conducted in this research note evidences the power of the ESB Data Standard to increase the ease and efficiency of reporting *UOCAVA* data, improve data quality, and enable more innovative analysis of the *UOCAVA* voter experience and drivers of success. In addition, current analysis shows some opportunities to improve reporting and compliance with the ESB standard. The CSG OVI is conducting two initiatives to assess the business processes and technological capacity of the election administrations systems that hold this data:

- Business process modeling is allowing the participating states and jurisdictions to evaluate the methodology for collecting and inputting the data into their election administration systems. This enables an assessment of where data tracking capacity falls short. It then allows the jurisdiction to determine if a change must be made to a business process or a technology capability in order to effectively capture the data.
- The ESB Data Standard Proof of Concept Pilot is being used to prove the utility and the validity of the ESB Data Standard in order to increase participation by jurisdictions outside of the Working Group and establish a future path for the larger election community, leading to better policy considerations.

For 2018, the states and jurisdictions participating in the ESB Data Standard accounted for about one third of all the ballot requests processed. In the future, FVAP aims to get more states and jurisdictions to participate in this project so results can be more representative at the national level, and more states and localities can benefit from the research conducted by FVAP to identify potential areas of improvement in their voting processes.

References

Alvarez, M.R., Ansolabehere, S., Antonsson, E., Bruck, J., Graves, S., Palfrey, T., Rivest, R., Selker, T., Slocum, A. and Stewart III, C. (2001). Voting—what is, what could be. Pasadena, CA: *Caltech/MIT Voting Technology Project.* Available at https://vote.caltech.edu/reports/1

Election Assistance Commission (2019). "Election Administration and Voting Survey." 117–152. Available at: https://www.eac.gov/assets/1/6/2018_EAVS_Report.pdf

Federal Voting Assistance Program (2017). "2018-2019 Voting Assistance Guide."

Federal Voting Assistance Program (2018). "Data Standardization and the Impact of Ballot Transmission timing and Mode on *UOCAVA* Voting." Available at https://www.fvap.gov/uploads/FVAP/Reports/609-ResearchNote11_DataStd_FINAL.pdf

Federal Voting Assistance Program (2018). "Post Election Voting Surveys: Active Duty Military Technical Report." Available at https://www.fvap.gov/uploads/FVAP/Surveys/FVAP_ADM-Technical-Report-2018.pdf

Federal Voting Assistance Program (2018). "Post Election Voting Surveys: State Election Officials Technical Report." Available at https://www.fvap.gov/uploads/FVAP/Surveys/FVAP_SEO_Technical_Report_2018.pdf

Federal Voting Assistance Program (2018). "2018 Overseas Citizen Population Analysis." Available at https://www.fvap.gov/uploads/FVAP/Reports/2018-Overseas-Citizen-Population-Analysis-Report.pdf

Stewart III, C. (2010). Losing votes by mail. *New York University Journal of Legislation and Public Policy, 13* (3), 573–601. Available at http://web.mit.edu/supportthevoter/www/files/2013/08/Losing-Votes-by-Mail.pdf

Appendix A: Exclusion Criteria and Duplicate Treatment

There were a total of 5,027 voters with multiple observations in the data set. These voters with multiple records accounted for a total of 10,909 observations. Of these voters with multiple observations, 89.5% had two observations, 4.9% had three observations, 5.0% had four observations, and 0.6% had more than four observations, with the maximum number of observations for a single voter being nine. Records of voters with several observations were reported by several participating states and jurisdictions, with Los Angeles County (CA) and New York state accounting for 80.7% of them (see table A1).

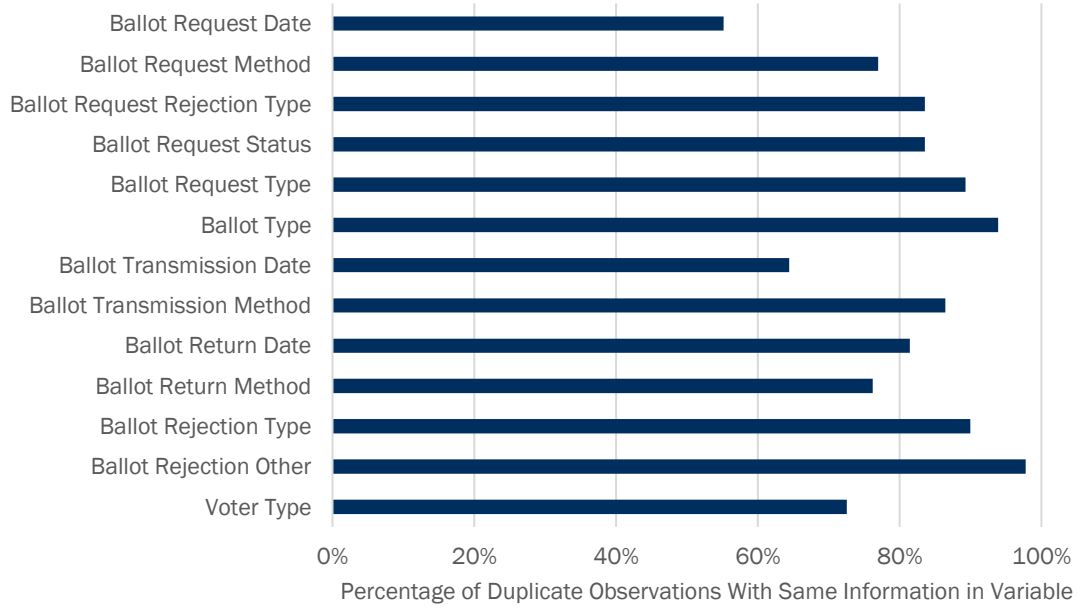
Table A1. Multiple observations per voter by state

State	Number of Duplicate Observations	Percentage of Total Duplicate Observations
Los Angeles County (CA)	6,286	57.6%
New York	2,520	23.1%
Washington	699	6.4%
Orange County (CA)	539	4.9%
Wisconsin	475	4.4%
North Carolina	344	3.2%
Ingham County (MI)	38	0.3%
Richmond County (GA)	6	0.1%
New Jersey	2	0.0%

For the most part, different observations from the same voter differed only in one to three fields, with ballot request date being the most common source of discrepancy (see Figure A1). That means that a "common" voter with multiple observations in the data set would have two different observations, with different application dates, but that would have the same information in most of the other relevant fields (e.g., ballot transmission date and mode, ballot return date and mode, ballot type).

After a careful review of the voters with multiple observations, we found that for 1,103 voters, their duplicate observations (2,223 observations total) had the same data on ballot request date, mode and rejection reason; ballot transmission and return date, mode and rejection reason; ballot type; and voter type. In some cases, there was only one field that differed between the two (or more) observations for a voter, and that field was not relevant for analyses. For example, New York had 1,912 duplicate observations differing only in "Election Name" (i.e., "18 General Election Fed" vs. "18 General Election"). Because these duplicate observations had the same data on voting variables, we kept only one observation per voter (1,103 total) and dropped the duplicates to avoid having some voters being overrepresented in the data set.

Figure A1. Percentage of Duplicate Observations With Same Information by Variable



The remaining 3,924 voters accounted for 8,686 observations. In these cases, the observations for the same voter differed in at least one relevant field for analyses. As discussed above, it was common to find two observations for a voter that only differed in the ballot request date and one other field, such as voter type (565 observations) or ballot transmission date (442 observations), but had the same data in fields related to ballot return. Due to the nuance of these data, the small differences between observations for the same voter, and the impossibility to create an effective rule that would select the most "accurate" observation per voter, we did not include these observations in analysis to avoid overrepresentation of voters in the data set.

Appendix B: Tabulation of 2018 ESB Data

The 2018 Election Administration and Voting Survey Section B (ESB) Data Standard consisted on a sample of 246,622 *UOCAVA* voters who requested an absentee ballot for the 2018 General Election. The ESB Data Standard collects data on when and how *UOCAVA* voters requested their ballots, got their ballots transmitted and how and when they returned them. Results for key variables are reported in this appendix, broken down by demographic subpopulations based on jurisdiction and voter type. Sample sizes (N) are included for each category.

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State / Jurisdiction Name. This table breaks down the voting state/jurisdiction from the *UOCAVA* voters represented in the sample [*N* = 246,622].

State / Jurisdiction	Percent of Total Sample
Alabama (n=1,428)	0.6%
Colorado (n=28,448)	11.5%
Escambia (FL) (n=7,184)	2.9%
Ingham (MI) (n=374)	0.2%
Los Angeles (CA) (n=25,074)	10.2%
New Jersey (n=7,724)	3.1%
New York (n=40,713)	16.5%
North Carolina (n=9,041)	3.7%
Orange (CA) (n=7,793)	3.2%
Richmond (GA) (n=202)	0.1%
South Carolina (n=3,333)	1.4%
Texas (n=29,463)	11.9%
Washington (n=80,568)	32.7%
Wisconsin (n=5,277)	2.1%

Data Standardization and the *UOCAVA* Voting Pipeline

Application Request Type. This table breaks down the type of ballot request.

	Application Request Type					
	FPCA	State Application	FWAB[31]	NVRA[32]	Informal Request[33]	Untracked
Respondents (n=238,784)	43.1%	43.2%	0.2%	2.7%	0%	10.8%
Jurisdiction						
Alabama (n=1,428)	0%	0%	0%	0%	0%	100%
Colorado (n=28,334)	24.1%	54.8%	0%	0%	0%	21.1%
Escambia (FL) (n=7,184)	19.7%	0%	0%	0%	0%	80.3%
Ingham (MI) (n=374)	98.4%	0%	1.6%	0%	0%	0%
Los Angeles (CA) (n=25,074)	31.5%	42.8%	0%	25.7%	0%	0%
New Jersey (n=0)	N/A	N/A	N/A	N/A	N/A	N/A
New York (n=40,713)	100%	0%	0%	0%	0%	0%
North Carolina (n=9,041)	69.5%	26.7%	3.8%	0%	0%	0%
Orange (CA) (n=7,793)	0%	0%	0%	0%	0%	100%
Richmond (GA) (n=202)	0%	0%	0%	0%	0%	100%
South Carolina (n=3,333)	13.1%	85.7%	0.1%	1.1%	0%	0%
Texas (n=29,463)	100%	0%	0%	0%	0%	0%
Washington (n=80,568)	11.1%	88.9%	0%	0%	0%	0%
Wisconsin (n=5,277)	10.7%	0%	0.6%	0%	0%	88.7%
Voter Type						
ADM (n=97,856)	11.7%	68.4%	0.1%	6.6%	0%	13.2%
Overseas Citizen (n=111,012)	55.6%	32.5%	0.2%	0%	0%	11.7%

[31] In some states, the Federal Write-In Absentee Ballots (FWABs) can be used as both a form of registration and ballot transmission at the same time.

[32] NVRA refers to the National Voter Registration Act, which established a National Voter Registration Form (NVRF).

[33] Informal requests refer to ballots requested through less formal processes, such as a letter or phone call.

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Application Request Method. This table breaks down the method by which the application was sent.

Application Request Method								
	Mail	Online	Email	Fax	In-Person	Phone	Other	Untracked
Respondents (n=246,482)	46.7%	25.7%	5.7%	0.1%	2.4%	0.3%	3.8%	15.3%
Jurisdiction								
Alabama (n=1,428)	0%	0%	0%	0%	0%	0%	0%	100%
Colorado (n=28,334)	32.8%	34.9%	9.3%	0.4%	1.6%	0%	0%	21.0%
Escambia (FL) (n=7,184)	31.5%	29.3%	6.7%	0.3%	1.2%	11.0%	20.1%	0%
Ingham (MI) (n=374)	0%	0%	0%	0%	0%	0%	0%	100%
Los Angeles (CA) (n=25,074)	73.1%	25.9%	0%	0%	0.1%	0%	0.8%	0%
New Jersey (n=7,724)	42.5%	0%	55.2%	0.7%	1.7%	0%	0%	0%
New York (n=40,713)	100%	0%	0%	0%	0%	0%	0%	0%
North Carolina (n=9,041)	33.6%	0%	65.1%	1.3%	0%	0%	0%	0%
Orange (CA) (n=7,767)	0.1%	0%	0%	0.3%	0%	0%	99.6%	0%
Richmond (GA) (n=202)	0%	0%	0%	0%	0%	0%	0%	100%
South Carolina (n=3,333)	78.7%	14.2%	3.0%	0.3%	1.9%	1.8%	0%	0%
Texas (n=29,463)	0%	0%	0%	0%	0%	0%	0%	100%
Washington (n=80,568)	43.3%	51.1%	0%	0%	5.7%	0%	0%	0%
Wisconsin (n=5,277)	11.0%	61.6%	14.6%	0.3%	9.2%	0%	0%	3.4%
Voter Type								
ADM (n=98,924)	40.9%	45.5%	2.7%	0.1%	3.6%	0.8%	2.8%	3.6%
Overseas Citizen (n=117,656)	63.3%	15.5%	9.7%	0.2%	1.9%	0.1%	5.5%	3.9%

Application Request Postmark Year. This table provides a breakdown by the year the application for an absentee ballot was postmarked.[34]

Application Request Year - Postmark				
	2018	2017	2016	Pre-2016
Respondents (n=54,609)	60.0%	0.8%	20.9%	18.3%
Jurisdiction				
Alabama (n=0)	N/A	N/A	N/A	N/A
Colorado (n=0)	N/A	N/A	N/A	N/A
Escambia (FL) (n=0)	N/A	N/A	N/A	N/A
Ingham (MI) (n=0)	N/A	N/A	0%	N/A
Los Angeles (CA) (n=24,944)	13.0%	1.7%	45.6%	39.6%
New Jersey (n=0)	N/A	N/A	N/A	N/A
New York (n=0)	N/A	N/A	N/A	N/A
North Carolina (n=0)	N/A	N/A	N/A	N/A
Orange (CA) (n=0)	N/A	N/A	N/A	N/A
Richmond (GA) (n=202)	96.0%	0%	4.0%	0%
South Carolina (n=0)	N/A	N/A	N/A	N/A
Texas (n=29,463)	99.5%	0%	0.1%	0.4%
Washington (n=0)	N/A	N/A	N/A	N/A
Wisconsin (n=0)	N/A	N/A	N/A	N/A
Voter Type				
ADM (n=16,577)	8.3%	1.6%	48.0%	42.1%
Overseas Citizen (n=8,145)	22.8%	1.9%	40.9%	34.5%

[34] The three fields reporting application request date (postmark, reception, and processing) are consolidated in one variable in the 2020 refinement of the ESB Data Standard.

Data Standardization and the *UOCAVA* Voting Pipeline

Application Request Received Year. This table provides a breakdown by the year the application for an absentee ballot was received.

Application Request Year - Received				
	2018	2017	2016	Pre-2016
Respondents (n=206,364)	39.9%	7.8%	33.2%	15.5%
Jurisdiction				
Alabama (n=1,355)	100%	0%	0%	0%
Colorado (n=28,448)	22.2%	1.9%	37.9%	37.9%
Escambia (FL) (n=0)	N/A	N/A	N/A	N/A
Ingham (MI) (n=373)	100%	0%	0%	0%
Los Angeles (CA) (n=25,074)	15.5%	3.6%	42.5%	38.4%
New Jersey (n=7,724)	95.4%	1.8%	1.9%	0.9%
New York (n=40,711)	27.5%	3.9%	43.5%	7.0%
North Carolina (n=9,041)	94.8%	0.7%	4.0%	0.5%
Orange (CA) (n=7,793)	22.2%	2.7%	48.9%	26.3%
Richmond (GA) (n=0)	N/A	N/A	N/A	N/A
South Carolina (n=0)	N/A	N/A	N/A	N/A
Texas (n=0)	N/A	N/A	N/A	N/A
Washington (n=80,568)	45.0%	15.8%	30.9%	8.2%
Wisconsin (n=5,277)	97.6%	0.4%	1.8%	0.1%
Voter Type				
ADM (n=90,647)	41.1%	11.7%	30.2%	16.7%
Overseas Citizen (n=115,254)	38.9%	4.8%	35.6%	14.6%

Data Standardization and the *UOCAVA* Voting Pipeline

Application Request Processed Year. This table provides a breakdown by the year the application for an absentee ballot was processed.

Application Request Year - Processed				
	2018	2017	2016	Pre-2016
Respondents (n=106,318)	61.0%	2.2%	23.6%	6.3%
Jurisdiction				
Alabama (n=0)	N/A	N/A	N/A	N/A
Colorado (n=0)	N/A	N/A	N/A	N/A
Escambia (FL) (n=7,184)	22.1%	6.7%	47.0%	24.2%
Ingham (MI) (n=372)	100%	0%	0%	0%
Los Angeles (CA) (n=25,074)	100%	0%	0%	0%
New Jersey (n=7,724)	97.4%	0.8%	0.9%	0.9%
New York[35] (n=40,711)	27.5%	3.9%	43.5%	7.0%
North Carolina (n=8,850)	100%	0%	0%	0%
Orange (CA) (n=7,793)	22.2%	2.7%	48.9%	26.3%
Richmond (GA) (n=0)	N/A	N/A	N/A	N/A
South Carolina (n=3,333)	99.4%	0.5%	0%	0%
Texas (n=0)	N/A	N/A	N/A	N/A
Washington (n=0)	N/A	N/A	N/A	N/A
Wisconsin[36] (n=5,277)	97.8%	0.2%	1.8%	0%
Voter Type				
ADM (n=35,527)	75.2%	2.1%	14.7%	7.2%
Overseas Citizen (n=70,340)	53.5%	2.2%	28.2%	5.9%

[35] New York reported processing 7,382 ballot requests after 2018. These ballot requests account for 18.1% of New York's total ballot requests and for 7% of the overall ballot requests in the data set reported in this table. They also account for 0.7% of ADM's ballot requests and 10.2% of Overseas Citizens ballot requests reported in this table.

[36] Wisconsin reported processing 12 ballot requests in 2019. These ballot requests account for 0.2% of Wisconsin's total ballot requests reported in this table.

Application Request Year–Composite. This table provides a breakdown by the year an application for an absentee ballot was submitted. It is a composite variable including requests by postmark, processing, and reception dates[37].

Application Request Year– Composite				
	2018	2017	2016	Pre-2016
Respondents (n=246,546)	47.3%	6.8%	29.2%	13.7%
Jurisdiction				
Alabama (n=1,355)	100%	0%	0%	0%
Colorado (n=28,448)	22.2%	1.9%	37.9%	37.9%
Escambia (FL) (n=7,184)	22.1%	6.7%	47.0%	24.2%
Ingham (MI) (n=373)	100%	0%	0%	0%
Los Angeles (CA) (n=25,074)	15.5%	3.6%	42.5%	38.4%
New Jersey (n=7,724)	95.4%	1.8%	1.9%	0.9%
New York (n=40,711)	27.5%	3.9%	43.5%	7.0%
North Carolina (n=9,041)	94.8%	0.7%	4.0%	0.5%
Orange (CA) (n=7,793)	22.2%	2.7%	48.9%	26.3%
Richmond (GA) (n=202)	96.0%	0%	4.0%	0%
South Carolina (n=3,333)	99.4%	0.5%	0%	0%
Texas (n=29,463)	99.5%	0%	0.1%	0.4%
Washington (n=80,568)	45.0%	15.8%	30.9%	8.2%
Wisconsin (n=5,277)	97.6%	0.4%	1.8%	0.1%
Voter Type				
ADM (n=98,903)	40.7%	11.2%	30.9%	17.0%
Overseas Citizen (n=117,716)	39.8%	4.7%	35.0%	14.3%

[37] See methodology section for more information on how this variable was generated.

Data Standardization and the *UOCAVA* Voting Pipeline

Application Request Status: This table breaks down the status of the application requests for absentee ballots.

Application Request Status				
	Accepted	Valid	Pending	Rejected
Respondents (n=246,597)	96.5%	3.2%	0%	0.3%
Jurisdiction				
Alabama (n=1,428)	94.8%	0%	0%	5.2%
Colorado (n=28,448)	99.6%	0%	0.4%	0%
Escambia (FL) (n=7,184)	100%	0%	0%	0%
Ingham (MI) (n=374)	100%	0%	0%	0%
Los Angeles (CA) (n=25,074)	99.4%	0%	0%	0.6%
New Jersey (n=7,724)	100%	0%	0%	0%
New York (n=40,713)	100%	0%	0%	0%
North Carolina (n=9,041)	99.8%	0%	0%	0.2%
Orange (CA) (n=7,768)	0%	100%	0%	0%
Richmond (GA) (n=202)	100%	0%	0%	0%
South Carolina (n=3,333)	100%	0%	0%	0%
Texas (n=29,463)	98.3%	0%	0%	1.6%
Washington (n=80,568)	100%	0%	0%	0%
Wisconsin (n=5,277)	100%	0%	0%	0%
Voter Type				
ADM (n=98,970)	98.3%	1.4%	0.1%	0.2%
Overseas Citizen (n=117,702)	94.5%	5.4%	0%	0%

Data Standardization and the *UOCAVA* Voting Pipeline

Application Request Rejection Type This table breaks down the reason given for why an application request was rejected.

Application Request Rejection Type				
	Duplicate	Invalid	Missing Voter Signature	Other
Respondents (n=175)	16.6%	11.4%	4.6%	67.4%
Jurisdiction				
Alabama (n=1)	0%	0%	0%	100%
Colorado (n=0)	N/A	N/A	N/A	N/A
Escambia (FL) (n=0)	N/A	N/A	N/A	N/A
Ingham (MI) (n=0)	N/A	N/A	N/A	N/A
Los Angeles (CA) (n=142)	17.6%	0%	0%	82.4%
New Jersey (n=0)	N/A	N/A	N/A	N/A
New York (n=0)	N/A	N/A	N/A	N/A
North Carolina (n=22)	18.2%	81.8%	0%	0%
Orange (CA) (n=10)	0%	20.0%	80.0%	0%
Richmond (GA) (n=0)	N/A	N/A	N/A	N/A
South Carolina (n=0)	N/A	N/A	N/A	N/A
Texas (n=0)	N/A	N/A	N/A	N/A
Washington (n=0)	N/A	N/A	N/A	N/A
Wisconsin (n=0)	N/A	N/A	N/A	N/A
Voter Type				
ADM (n=98)	14.3%	11.2%	0%	74.5%
Overseas Citizen (n=61)	24.6%	13.1%	8.2%	54.1%

Data Standardization and the *UOCAVA* Voting Pipeline

Ballot Transmission Date. This table breaks down the date when an absentee ballot was transmitted to a voter.

	Ballot Transmission Date				
	45 Days or more before Election Day	30–44 Days before Election Day	15–29 Days before Election Day	0–14 Days before Election Day	After Election Day
Respondents (n=234,216)	78.8%	5.9%	9.0%	6.2%	0.1%
Jurisdiction					
Alabama (n=1,351)	34.9%	11.9%	29.2%	23.8%	0.1%
Colorado (n=28,334)	80.7%	4.7%	7.8%	6.8%	0%
Escambia (FL) (n=6,664)	77.5%	3.8%	8.7%	10.1%	0%
Ingham (MI) (n=372)	47.8%	17.5%	22.6%	12.1%	0%
Los Angeles (CA) (n=25,074)	93.9%	0.5%	4.0%	1.5%	0%
New Jersey (n=7,616)	38.2%	15.8%	25.3%	20.7%	0%
New York (n=38,294)	89.9%	2.8%	3.9%	3.4%	0%
North Carolina (n=9,017)	32.7%	13.6%	25.6%	27.9%	0.1%
Orange (CA) (n=7,767)	91.2%	0%	7.0%	1.8%	0%
Richmond (GA) (n=202)	31.7%	12.9%	33.2%	22.3%	0%
South Carolina (n=3,300)	34.3%	13.8%	25.2%	26.6%	0%
Texas (n=20,423)	39.9%	16.6%	30.7%	12.7%	0%
Washington (n=80,568)	91.9%	4.4%	2.2%	1.3%	0.2%
Wisconsin (n=5,234)	32.4%	16.0%	29.2%	22.2%	0.2%
Voter Type					
ADM (n=98,011)	84.8%	4.2%	5.6%	5.4%	0.1%
Overseas Citizen (n=115,345)	80.8%	5.4%	8.0%	5.8%	0.1%

Ballot Transmission Method. This table breaks down the method used to send the ballot to the voter.

	Ballot Transmission Method					
	Mail	Email	Online	Fax	In-Person	Other
Respondents (n=242,344)	70.0%	29.2%	0.6%	0%	0.2%	0%
Jurisdiction						
Alabama (n=292)	0%	0%	100%	0%	0%	0%
Colorado (n=28,334)	30.5%	69.5%	0%	0%	0%	0%
Escambia (FL) (n=6,665)	66.1%	28.9%	4.4%	0%	0.7%	0%
Ingham (MI) (n=374)	20.1%	79.1%	0%	0%	0.8%	0%
Los Angeles (CA) (n=25,074)	94.7%	5.3%	0%	0%	0%	0%
New Jersey (n=7,724)	16.8%	83.2%	0%	0.1%	0%	0%
New York (n=38,294)	69.2%	30.8%	0%	0%	0%	0%
North Carolina (n=9,041)	11.6%	88.3%	0%	0%	0%	0%
Orange (CA) (n=7,767)	27.6%	72.1%	0%	0.3%	0%	0%
Richmond (GA) (n=202)	34.2%	0%	65.8%	0%	0%	0%
South Carolina (n=3,294)	16.7%	81.7%	0.6%	0%	1.0%	0%
Texas (n=29,438)	65.9%	34.1%	0%	0%	0%	0%
Washington (n=80,568)	100%	0%	0%	0%	0%	0%
Wisconsin (n=5,277)	22.9%	54.5%	15.6%	0%	7.0%	0%
Voter Type						
ADM (n=97,047)	85.2%	13.3%	1.1%	0%	0.3%	0%
Overseas Citizen (n=115,422)	58.2%	41.3%	0.4%	0%	0.1%	0%

Data Standardization and the *UOCAVA* Voting Pipeline

Ballot Type This table breaks down the type of ballot transferred to the voter.

	Ballot Type					
	Absentee	FWAB	Full	Federal	Provisional	Untracked
Respondents (n=213,000)	75.3%	0.2%	21.4%	2.9%	0%	0.3%
Jurisdiction						
Alabama (n=1,427)	0%	0%	100%	0%	0%	0%
Colorado (n=28,334)	0%	0%	100%	0%	0%	0%
Escambia (FL) (n=6,664)	0%	0.2%	99.8%	0%	0%	0%
Ingham (MI) (n=374)	0%	0%	0%	0%	0%	100%
Los Angeles (CA) (n=25,074)	99.2%	0.8%	0%	0%	0%	0%
New Jersey (n=7,724)	0%	0%	51.6%	48.4%	0%	0%
New York (n=38,294)	100%	0%	0%	0%	0%	0%
North Carolina (n=9,041)	97.1%	2.9%	0%	0%	0%	0%
Orange (CA) (n=7,793)	100%	0%	0%	0%	0%	0%
Richmond (GA) (n=202)	0%	0%	0%	0%	0%	100%
South Carolina (n=0)	N/A	N/A	N/A	N/A	N/A	N/A
Texas (n=2,228)	0%	0%	89.7%	10.3%	0%	0%
Washington (n=80,568)	100%	0%	0%	0%	0%	0%
Wisconsin (n=5,277)	0%	0%	59.3%	40.7%	0%	0%
Voter Type						
ADM (n=96,759)	79.1%	0.2%	20.5%	0%	0%	0.2%
Overseas Citizen (n=113,562)	73.4%	0.2%	20.9%	5.2%	0%	0.3%

Data Standardization and the *UOCAVA* Voting Pipeline

Ballot Return Date. This table breaks down the date when a ballot was returned.

	Ballot Return Date					
	30+ days before Election Day	15–29 days before Election Day	1–14 days before Election Day	Election Day	1–7 days after Election Day	8 days or more after Election Day
Respondents (n=105,726)	9.0%	27.3%	40.0%	10.1%	11.2%	2.5%
Jurisdiction						
Alabama (n=727)	5.5%	19.3%	66.9%	8.1%	0%	0.3%
Colorado (n=15,570)	5.9%	22.0%	45.9%	25.8%	0.1%	0.3%
Escambia (FL) (n=3,696)	14.5%	28.3%	43.3%	6.0%	5.6%	2.3%
Ingham (MI) (n=303)	8.6%	40.6%	45.5%	4.3%	0.3%	0.7%
Los Angeles (CA) (n=8,626)	1.3%	29.9%	40.9%	13.2%	10.4%	4.4%
New Jersey (n=5,814)	10.8%	24.5%	44.5%	16.7%	2.6%	0.9%
New York (n=17,282)	17.0%	42.3%	26.4%	2.4%	7.9%	4.0%
North Carolina (n=7,784)	10.4%	20.8%	47.3%	16.3%	4.8%	0.3%
Orange (CA) (n=2,262)	4.6%	24.2%	33.2%	3.1%	28.4%	6.5%
Richmond (GA) (n=162)	8.0%	14.2%	60.5%	9.9%	7.4%	0%
South Carolina (n=2,622)	15.8%	23.9%	41.3%	18.2%	0.6%	0.1%
Texas (n=11,609)	9.1%	27.0%	44.0%	8.0%	11.7%	0.2%
Washington (n=29,269)	6.5%	23.3%	39.5%	3.6%	23.1%	4.0%
Wisconsin (n=0)	N/A	N/A	N/A	N/A	N/A	N/A
Voter Type						
ADM (n=34,654)	8.0%	24.9%	41.0%	9.3%	14.0%	2.8%
Overseas Citizen (n=59,223)	9.6%	28.8%	38.7%	10.8%	9.4%	2.7%

Ballot Return Method. This table breaks down the method by which an absentee ballot was returned.

Ballot Return Method							
	Mail	Email	Online	Fax	In-Person	Other	Untracked
Respondents (n=95,867)	43.7%	18.8%	0.3%	2.1%	0.8%	1.4%	32.8%
Jurisdiction							
Alabama (n=727)	53.9%	0%	40.2%	0%	5.8%	0.1%	0%
Colorado (n=15,587)	38.5%	60.7%	0%	0.3%	0.5%	0%	0%
Escambia (FL) (n=3,776)	97.6%	0%	0%	2.4%	0%	0%	0%
Ingham (MI) (n=374)	0%	0%	0%	0%	0%	0%	100%
Los Angeles (CA)[38] (n=8,158)	67.1%	0%	0%	13.5%	2.7%	16.7%	0%
New Jersey[39] (n=5,814)	100%	0%	0%	0%	0%	0%	0%
New York[40] (n=17,282)	100%	0%	0%	0%	0%	0%	0%
North Carolina (n=7,792)	16.4%	83.1%	0%	0.5%	0%	0%	0%
Orange (CA)[4] (n=2,260)	68.1%	0%	0%	31.0%	0.9%	0%	0%
Richmond (GA)[6] (n=202)	0%	0%	0%	0%	0%	0%	100%
South Carolina (n=2,622)	17.8%	79.4%	0%	0.5%	2.2%	0%	0%
Texas[6] (n=29,463)	0%	0%	0%	0%	0%	0%	100%
Washington (n=0)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wisconsin[6] (n=1,810)	0%	0%	0%	0%	20.2%	0%	79.8%
Voter Type							
ADM (n=19,761)	66.6%	15.9%	1.5%	3.6%	2.4%	4.1%	6.0%
Overseas Citizen (n=46,442)	61.9%	32.0%	0%	2.7%	0.7%	1.0%	1.8%

[38] California only allows ballot return by mail or by fax (fax only if the voter is overseas or activated within 6 days of the election).
[39] New Jersey allows ballot return by mail, email and fax. However, ballots returned by email ad fax need also to be mailed to the Board of Election.
[40] New York, Georgia, Texas, and Wisconsin only allow ballot return by mail. Texas allows ballot return by fax if voter is located in hostile fire area.

Data Standardization and the *UOCAVA* Voting Pipeline

Ballot Rejection Type. This table describes the reasons for why a ballot was rejected.

	Ballot Rejection Type									
	Not Timely	Rejected	Mismatch Voter Signature	Missing Voter Signature	Voided Spoiled	Undeliverable	Postmark	Voter Died	Voter Moved	Other
Respondents (n=3,362)	26.4%	23.6%	8.7%	10.1%	5.0%	3.9%	0.7%	0.1%	0.3%	21.4%
Jurisdiction										
Alabama (n=5)	0%	0%	0%	20.0%	20.0%	40.0%	0%	0%	0%	20.0%
Colorado (n=328)	25.6%	0%	29.9%	40.9%	2.1%	0%	0%	0%	0%	1.5%
Escambia (FL) (n=349)	69.3%	0%	1.4%	0.9%	0%	21.8%	0%	0%	2.3%	4.3%
Ingham (MI) (n=9)	88.9%	0%	0%	0%	11.1%	0%	0%	0%	0%	0%
Los Angeles (CA) (n=1,155)	42.2%	0%	0%	2.9%	0.2%	0%	0%	0.2%	0%	54.5%
New Jersey (n=24)	0%	0%	33.3%	0%	0%	0%	0%	0%	0%	66.7%
New York (n=0)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Carolina (n=203)	7.9%	0%	0.5%	10.3%	74.9%	6.4%	0%	0%	0%	0%
Orange (CA) (n=36)	8.3%	0%	2.8%	11.1%	0%	41.7%	0%	0%	0%	36.1%
Richmond (GA) (n=6)	0%	0%	0%	0%	66.7%	16.7%	0%	0%	0%	16.7%
South Carolina (n=0)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Texas (n=62)	61.3%	0%	0%	0%	0%	37.1%	0%	0%	0%	1.6%
Washington (n=1,146)	1.0%	69.1%	15.6%	12.3%	0%	0%	1.8%	0%	0.2%	0%
Wisconsin (n=39)	0%	0%	0%	0%	0%	0%	2.6%	0%	0%	97.4%
Voter Type										
ADM (n=1,673)	34.0%	23.3%	6.5%	5.9%	3.2%	5.4%	0.8%	0.1%	0.5%	20.3%
Overseas Citizen (n=1,575)	16.4%	25.6%	11.6%	15.2%	7.2%	1.0%	0.5%	0.1%	0.1%	22.3%

Data Standardization and the *UOCAVA* Voting Pipeline

Voter Type (ADM). This table describes the type of voter who requested an absentee ballot.

	Voter Type	
	Active Duty Military	Overseas Citizens
Respondents (n=216,693)	45.7%	54.3%
Jurisdiction		
Alabama (n=1,428)	100%	0%
Colorado (n=28,435)	29.9%	70.1%
Escambia (FL) (n=7,183)	92.9%	7.1%
Ingham (MI) (n=374)	13.4%	86.6%
Los Angeles (CA) (n=24,638)	67.0%	33.0%
New Jersey (n=7,724)	13.8%	86.2%
New York (n=40,711)	8.3%	91.7%
North Carolina (n=9,041)	25.5%	74.5%
Orange (CA) (n=7,779)	18.3%	81.7%
Richmond (GA) (n=202)	68.3%	31.7%
South Carolina (n=3,333)	43.4%	56.6%
Texas (n=0)	N/A	N/A
Washington (n=80,568)	66.2%	33.8%
Wisconsin (n=5,277)	51.8%	48.2%

Appendix C: Missingness by Variable

The nature of the ESB Data Standard data set makes it difficult to determine the level of missingness by variable since, compared to more traditional data sets, no information in a field sometimes has a meaning rather than being missing information. For example, within this data set, no information in "Ballot Rejection Reason" means that a ballot was actually counted (given that the ballot was transmitted and returned).

In an effort to evaluate missingness accounting for the complexities of this data set, we classified most of the variables in three categories: General Variables and Ballot Request, Ballot Transmission, and Ballot Return. The first group, General Variables and Ballot Request covers six variables for which it is expected that all observations have information (e.g., Voter Type, Ballot Request Type) since all observations in this dataset represent a voter that started the voting process by requesting a ballot. The second group, Ballot Transmission, covers the three variables related with the transmission of blank ballots and assumes that if there is information in one of them there must be information in the other two (e.g., if there is information of the date when the ballot was transmitted, there should be information on how it was transmitted and the type of ballot that was transmitted). Finally, the group Ballot Return covers the two variables associated to the return of a ballot to the election office (i.e., return method and date). In this case, if there is information in one of the two variables it is expected that there will be information in the other.

General Variables and Ballot Request: the missingness values in this table show the percentage of observations within a category (i.e., row) for which there is not information for that variable.

Missingness – General Variables and Ballot Request						
	State Name	Voter Type	Ballot Request Type	Ballot Request Method	Ballot Request Date	Ballot Request Status
Respondents (n=246,622)	0.0%	12.0%	3.2%	0.1%	0.0%	0.0%
Jurisdiction						
Alabama (n=1,428)	0.0%	0.0%	0.0%	0.0%	5.1%	0.0%
Colorado (n=28,448)	0.0%	0.0%	0.4%	0.4%	0.0%	0.0%
Escambia (FL) (n=7,184)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ingham (MI) (n=374)	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%
Los Angeles (CA) (n=25,074)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New Jersey (n=7,724)	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
New York (n=40,713)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
North Carolina (n=9,041)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Orange (CA) (n=7,793)	0.0%	0.2%	0.0%	0.3%	0.0%	0.3%
Richmond (GA) (n=202)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Carolina (n=3,333)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Texas (n=29,463)	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
Washington (n=80,568)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wisconsin (n=5,277)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Ballot Transmission: the missingness values in this table show the percentage of observations within a category (i.e., row) for which there is not information for that variable when information was expected.

Missingness – Ballot Transmission			
	Ballot Type	Ballot Transmission Method	Ballot Transmission Date
Respondents (n=243,512)	12.5%	0.5%	3.8%
Jurisdiction			
Alabama (n=1,427)	0.0%	79.5%	5.3%
Colorado (n=28,334)	0.0%	0.0%	0.0%
Escambia (FL) (n=6,665)	0.0%	0.0%	0.0%
Ingham (MI) (n=374)	0.0%	0.0%	0.5%
Los Angeles (CA) (n=25,074)	0.0%	0.0%	0.0%
New Jersey (n=7,724)	0.0%	0.0%	1.4%
New York (n=38,294)	0.0%	0.0%	0.0%
North Carolina (n=9,041)	0.0%	0.0%	0.3%
Orange (CA) (n=7,793)	0.0%	0.3%	0.3%
Richmond (GA) (n=202)	0.0%	0.0%	0.0%
South Carolina (n=3,300)	100.0%	0.2%	0.0%
Texas (n=29,439)	92.4%	0.0%	30.6%
Washington (n=80,568)	0.0%	0.0%	0.0%
Wisconsin (n=5,277)	0.0%	0.0%	0.8%

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Ballot Return: the missingness values in this table show the percentage of observations within a category (i.e., row) for which there is not information for that variable when information was expected.

Missingness – Ballot Return		
	Ballot Return Method	Ballot Return Date
Respondents (n=125,607)	23.7%	15.8%
Jurisdiction		
Alabama (n=727)	0.0%	0.0%
Colorado (n=15,587)	0.0%	0.1%
Escambia (FL) (n=3,776)	0.0%	2.1%
Ingham (MI) (n=374)	0.0%	19.0%
Los Angeles (CA) (n=8,627)	5.4%	0.0%
New Jersey (n=5,814)	0.0%	0.0%
New York (n=17,282)	0.0%	0.0%
North Carolina (n=7,792)	0.0%	0.1%
Orange (CA) (n=2,262)	0.1%	0.0%
Richmond (GA) (n=202)	0.0%	19.8%
South Carolina (n=2,622)	0.0%	0.0%
Texas (n=29,463)	0.0%	60.6%
Washington (n=29,269)	100.0%	0.0%
Wisconsin (n=1,810)	0.0%	100.0%