Patterns and Trends in Rejected Mailed Ballots in Washington State: 2020 – 2024

Scott W. Allard
Evans School of Public Policy & Governance
University of Washington
sallard@uw.edu

Isaiah Wright
Evans School of Public Policy & Governance
University of Washington

Jacob M. Grumbach
Goldman School of Public Policy
University of California, Berkeley

Calista Jahn
Evans School of Public Policy & Governance
University of Washington

Lauren Woyczynski
Department of Sociology
University of Washington

September 29, 2025

Corresponding Author: Scott W. Allard (*sallard@uw.edu*)

EXECUTIVE SUMMARY

Washington State administers a fully vote-by-mail election system. Ballot envelopes must be signed and deposited in an official drop box by 8 pm on election night, or mailed and postmarked by the date of the election. Ballot signatures are processed by county elections staff when ballots are received. Under circumstances where a signature is determined not to match state records, or where a ballot is missing a signature, the ballot is then "challenged" by county elections staff. Voters with a challenged ballot receive a written notice sent through first-class mail from the county elections office that their ballot signature could not be matched to the voter's signature on file or was missing, and a declaration is included that allows the voter to present a valid signature to the county elections office to correct or "cure" the ballot. Challenged ballots that are not cured before county election offices certify the election results, are rejected.

This report analyzes voter-level ballot data from primary and general elections since 2020 to better understand the vote-by-mail experience in Washington State, with particular attention to outcomes of ballot curing processes and rejection of ballots not cured. Several key research questions guide this report:

- To what extent are signature challenged ballots cured by voters? How do cure rates vary by voter demographics and geographic location?
- How have trends and patterns in ballot rejections varied over time? Do rates of ballot rejections vary by voter demographics or geographic location?
- How do the reasons for which ballots are rejected vary over time, voter demographics, and geographic location?

Examining ballot acceptances, challenges, cures, and rejections for nearly 24 million ballots cast by voters in primary and general elections from 2020 to 2024, several key findings emerge about voters' experiences with vote-by-mail in Washington State:

- Across primary and general elections from 2020 to 2024, 1.6 percent of ballots cast were challenged for a missing signature or a signature that did not match the signature on file.
- In primary and general elections since 2020, about 60 percent of ballots with signature challenges (missing signature or mismatched signature) have been cured before county elections officials submit election results to the State.
- Overall, 1.4 percent of all primary ballots cast and 1.0 percent of general election ballots cast were rejected across elections from 2020 to 2024.
    - A very small percentage of all ballots cast were rejected for a signature that does not match the signature(s) on file – roughly about 0.5 percent of all ballots cast in any given primary or general election.
    - An even smaller percentage of cast ballots – just 0.2 percent – are rejected for missing a signature on the ballot envelope.
    - Roughly half of all ballots rejected in primary elections and in many general elections are rejected because they arrive late to county offices.

- We estimate that voters of color have higher ballot rejection rates than White voters. For example, in general elections from 2020 to 2024, Black (1.3 percent), Hispanic (1.5 percent), and Asian (1.5 percent) voters experienced ballot rejection rates much higher than White voters (0.9 percent).
- Self-identifying male voters have slightly higher ballot rejection rates than self-identifying female voters in both primary and general elections.
- Younger voters have a much higher ballot rejection rate than older voters. Roughly 4 percent of ballots cast by voters 18 to 25 years old from 2020 to 2024 were rejected, compared to less than 1 percent of ballots cast by voters 66 or over during that time. Younger voters are much more likely to have ballots rejected due to signature mismatch than older voters.

ACKNOWLEDGEMENTS

This research study received support from the Office of the Secretary of State and Washington State Legislature. Additional support was provided by the Evans School of Public Policy & Governance at the University of Washington. The research team recognizes the feedback, contributions, and support of many colleagues. Thank you to Stuart Holmes and David Elliott from the Office of the Secretary of State for support of the data analytic work. Many thanks to Jessica Godwin, June Yang, and the research team at the Center for Studies in Demography & Ecology at the University of Washington (CSDE) for providing data management and technical support. Finally, thank you to Craig Volden for comments on work-in-progress.

INTRODUCTION

Increased attention has been focused on ensuring the integrity of our national, state, and local elections. Washington State is known nationally for administering vote-by-mail (VBM) elections with a high degree of integrity, security, and voter engagement (Movement Advancement Project, 2023). Advantages of the mail-in ballot process include assurance that the voter received their correct ballot, the voter has time to complete the ballot, and a higher level of convenience and security than in-person or poll-site voting methods. With its advantages, new states continue to propose implementing VBM or no excuse absentee voting, in 2025, 14 states proposed legislation that would allow more voters to VBM. However, VBM is also under threat nationwide. In 2025, 14 states including Washington introduced bills that would restrict who is allowed access to VBM (Voting Rights Lab, 2025).

Washington State's mail-in ballot processes require voters to complete their ballot in accordance with a set of guidelines to ensure the integrity of the system. In Washington State, these guidelines involve mailing or delivering ballots on-time to a valid postal service mailbox or authorized ballot drop-box and signing the ballot envelope. Ballots not deposited in an official drop box by 8pm of election night or postmarked by the date of the election are rejected and not counted. Ballot signatures are processed by county elections staff when ballots are received and counted. Ballots with voter signatures are matched by county elections staff to signatures on record. Under circumstances where a signature is determined not to match state records, or where a ballot is missing a signature, the ballot is then "challenged" by county elections staff. Voters with a challenged ballot receive a written notice sent through first-class mail from the county elections office that their ballot signature was invalid or missing, and a declaration is included that allows the voter to present a valid signature to the county elections office to correct or "cure" the ballot.

A February 2022 report by the Washington State Auditor analyzed ballots rejected for signature mismatch or missing signatures in the 2020 general election. This report determined that the overall rate of rejected ballots was low and that the signature matching system worked effectively. The Auditor's report also noted, however, that there may be systemic variations occurring due to problems with signature verification. Specifically, the Auditor's report noted modest county-level variation in signature rejections across Washington State. Analyses highlighted evidence that signature rejections were more likely to occur across younger voters, rural voters, and voters of color.

Findings from the State Auditor's report led the Secretary of State's office and members of the Washington State Legislature to fund additional research activities at the Evans School of Public Policy & Governance at the University of Washington to examine trends in mailed ballot rejections. In November 2023, the Evans School released a report extending the work of the 2022 State Auditor's report (Allard, et. al., 2023). The study found that 1.5 percent of all primary ballots cast and 1.1 percent of general election ballots cast from 2012 to 2022 were rejected. Roughly half of all ballots rejected during this period in primary elections and in many general elections arrived late to county offices. When looking at voter-level demographics, the study found evidence that voters of color often have higher ballot

rejection rates than White voters. Self-identifying male voters were found to have slightly higher ballot rejection rates than self-identifying female voters in both primary and general elections. And, younger voters have a much higher ballot rejection rate than older voters.

This report builds on Allard, et. al. (2023), by examining the frequency with which mailed ballots are signature challenged, challenged ballot cure rates, and mailed ballot rejection rates across primary and general elections in Washington State from 2020 through 2024.

WASHINGTON STATE BALLOT LAWS, REGULATIONS, AND PROCESSES

Washington is a vote-by-mail state, where the Washington Secretary of State (SOS) and Washington State Legislature establish uniform rules and standards for all county elections auditors and county elections office staff to follow in the administration of vote-by-mail (Washington State Legislature 2023a). A visualization created by the SOS traces the vote-by-mail timeline and process is presented in Appendix Figure 1 (See Washington Secretary of State 2021, 2023a).

Ballots are mailed to voters at least 18 days before a given election day. Military or overseas citizens are mailed ballots at least thirty days before each special election, and at least forty-five days before each primary or general election. The SOS provides county elections offices with a Ballot Format & Mail Ballot Packet Materials Checklist to provide the minimum language and content that must be present. Guidelines provide a rough template for ballots and ballot envelopes; counties then customize their designs with any additional information the County Auditor deems necessary. County elections offices send ballot packets to eligible registered voters. Each ballot packet includes a blank ballot, return envelope with pre-paid postage, security envelope/sleeve, and any required inserts. The return envelope includes a place for the voter to sign and use to return the completed ballot. Completed ballots can be returned at an official ballot drop box or through the U.S. Mail. Ballots must be placed in an official ballot drop box by 8pm on election day or postmarked by election day. For military or overseas citizens, instead of the postmark, the date the voter signed the declaration on the return envelope determines the validity.

Once received by county elections offices, returned ballot packets are sorted and processed. It is at this time that the signature on the ballot return envelopes is checked against signature(s) on file for that voter. Most often the signature on file is from the Department of Licensing (DOL) and is captured at the time a driver's license or other state identification is obtained. Election workers and canvassing boards that review signatures for verification must take an oath administered by the county auditor and be given signature verification training. Local law enforcement may instruct on techniques used to identify forgeries. The SOS provides a statewide signature verification training prior to each special, primary, or general election, including provided guidelines on what determines an acceptable signature match (Washington Secretary of State 2023b). Guidelines outlined in state law indicate:

> "A signature on a petition sheet must be matched to the signature on file in the voter registration records. The following characteristics must be utilized to evaluate signatures to determine whether they are by the same writer:
>
> 1) The signature is handwritten.
> 2) Agreement in style and general appearance, including basic construction, skill, alignment, fluency, and a general uniformity and consistency between signatures;
> 3) Agreement in the proportions of individual letters, height to width, and heights of the upper to lower case letters;
> 4) Irregular spacing, slants, or sizes of letters that are duplicated in both signatures;
> 5) After considering the general traits, agreement of the most distinctive, unusual traits of the signatures.
>
> A single distinctive trait is insufficient to conclude that the signatures are by the same writer. There must be a combination or cluster of shared characteristics. Likewise, there must be a cluster of differences to conclude that the signatures are by different writers." (Washington State Legislature 2023b)

If ballots are not signed or the signatures are determined not to match, the ballots are "challenged." Voters whose ballots are challenged will be sent a cure letter via first-class mail from their county elections office. These cure letters invite the voter to provide a signature verification that can be matched to the signature on file. Again, the SOS provides county elections offices with templates for cure letters or forms that provide guidance about the language and content that must be present to assist the voter in curing their ballot. If the county elections offices have a phone number or email on the registration record or if such information is present on the ballot envelope, auditors are instructed in law to contact voters with challenged ballots that are unsigned three days before the election is certified (Washington State Legislature 2023c). In 2023, the Secretary of State provided voters with the ability to opt-in to ballot status text alerts via VoteWA. These text alerts would notify the voter when the ballot is received, accepted, and/or challenged.

Challenged ballots involving an envelope signature that does not match a signature(s) on file can receive a second-level of review by the county elections staff before the county elections office notifies the voter that the ballot was challenged. If this second-level review determines a signature match, the ballot is "cured" or accepted without any action by the voter. This means that in some cases, a "challenged" ballot may be resolved and accepted by county elections staff by the time a cure letter is delivered to the voter and/or returned. Some counties choose to audit accepted signatures by county elections staff in addition to the second review of all challenged ballots. When the voter returns the cure form, it is reviewed by county elections staff, and the ballot may be accepted for counting if the signature on the cure form matches the ballot return envelope. If it does not, it will require additional action by the

county elections staff. Remaining challenged ballots proceed to a third level of review, completed by the county's canvassing board (Washington State Legislature 2023d, 2023e) on the final day to certify the election. Challenged ballots that are not cured before county certification of election results are rejected. While all canvassing boards review challenged ballots before formally rejecting a ballot, canvassing boards may take recommendations about ballot rejection from county elections staff.

County elections offices have some discretion in how they choose to process challenged ballots and contact voters. For example, county elections offices have the flexibility to address common situations like household swaps without needing to challenge the ballot or send a cure form, whereby individuals residing at the same address all mistakenly sign each other's ballot envelopes. In addition, while all counties are required by law to contact voters with challenged ballots by mail and phone three days before the election is certified, many counties contact a voter much sooner and through repeated attempts. Some counties in Washington State also are piloting text message alerts, in addition to the email and phone methods.

After signature verification has occurred or a signature challenged ballot has been cured, the ballot packets are separated. The security envelope/sleeve is removed from the envelope. This allows for the voter's identity (that is printed on the outside of the return envelope) to be separated from their marked ballot that is inside the security envelope/sleeve. Then, once it is safe to do so, the ballot is removed from the security envelope/sleeve and is reviewed for processing. County elections offices tabulate on-time verified ballots and results are reported publicly. SOS maintains the VoteWA platform and database, which publishes elections results and provides publicly available data on a voter's ballot status. VoteWA also allows voters to follow the status of their ballot in real time.

VOTE-BY-MAIL ELECTIONS POLICY AND RESEARCH

Eight states (and the District of Columbia) allow for voting mostly or fully by mail, and about 30 other states allow voters to request a mail-in ballot (Gronke, Romero, Shino, and Thompson, 2023; National Conference of State Legislatures, 2023). A primary benefit of voting by mail is the ease with which a registered voter may cast a ballot compared to in-person voting. VBM is understood to reduce the transaction costs of voting and increase voter turnout (Baringer, Herron, and Smith, 2020; Berinsky, Burns, and Traugott 2001; Bonica et al., 2021; Gronke, Romero, Shino, and Thompson, 2023; Hanmer and Traugott, 2004; Southwell, 2010). Voters can mail or return their ballots well before the official election day, which reduces obstacles to voting that may occur for voters who might find it difficult to vote in person on a specific day. Voting by mail makes the act of voting more accessible to a host of populations with disabilities or physical limitations that may create obstacles to voting in person. The COVID-19 pandemic also underscored how vote-by-mail can help at-risk populations avoid large crowds in polling places (Office of the Washington State Auditor, 2022). Vote-by-mail also provides voters with additional time to make informed choices, which may enhance the voter experience and the strength of democratic

institutions (Baringer, Herron, and Smith, 2020; Bonica et al., 2021; Hanmer and Traugott, 2004; Southwell, 2010).

Studies of VBM find that a relatively small percentage of cast ballots – generally between 1.0 and 1.5 percent -- are rejected because they were unsigned or had a signature on the ballot envelope that does not match signatures on file, and then were never cured (Smith and Baringer 2019; Janover and Westphal, 2020). While VBM ballot rejections are not terribly prevalent in most settings, it is the case that many federal, statewide, and local elections are decided by less than a few percentage points.

Perhaps more importantly, there is reason to believe that ballot rejections do not occur randomly. Researchers identify several population sub-groups that face a higher likelihood of mailed ballot rejection. Younger voters are more likely to have mailed ballots rejected because they may be new to voting by mail and may fail to properly complete and sign their ballots. Signature characteristics among younger voters may shift or evolve across early adulthood (California Civic Engagement Project 2014; California Voter Foundation, 2020; Baringer, Herron, and Smith, 2020; Cottrell, Herron, and Smith, 2021; Shino, Suttman-Lea, and Smith, 2022; Smith and Baringer, 2019). Similarly, those voters who are new to a vote-by-mail system or those who participate in elections infrequently may be more likely to have ballots rejected due to limited familiarity with how to properly complete a vote-by-mail ballot or when ballots need to be mailed or returned for them to be considered on-time (California Voter Foundation, 2020; Smith and Baringer, 2019). Voters of color have been found to experience higher rates of mailed ballot rejection than White voters (Asian Americans Advancing Justice – California, 2017; Baringer, Herron, and Smith, 2020; Cottrell, Herron, and Smith, 2021; Shino, Suttman-Lea, and Smith, 2022; Smith and Baringer, 2019). Analysis by the California Civic Engagement Project (2014) concluded that California voters who indicated a preference for ballot materials in languages other than English in the 2012 general election had higher mailed ballot rejection rates than those who receive their ballots in English.

Ballot rejection rates also may vary by election type. For example, high-profile presidential or off-year general elections with statewide or congressional races often attract a larger number of new or infrequent voters (Allard et. al. 2023; Southwell, 2010). It should be expected that ballot rejection rates will be higher in these types of elections than other elections without such prominent contests. Indeed, there is some evidence that fewer ballots are rejected in the 2016 presidential election versus the 2018 off-year congressional election in Florida (Smith and Baringer 2019). Newer or less frequent voters may be more likely to not complete the ballot envelope signature properly and may be less likely to receive or respond to ballot curing invitations (Smith and Baringer 2019). It also may be the case that the salience of presidential-year or congressional off-year elections may be associated with fewer ballots being returned late.

Important aspects of election administration, which often varies at the county or local level, also may shape the degree to which mailed ballots are rejected. Ballot envelope design and the presentation of information about the vote-by-mail process can shape the degree to which voters fail to provide a proper

signature or return ballots late (Gronke, Romero, Shino, and Thompson, 2023; Johnson and Quesenbery, 2021; Wilding, 2021). Voter education materials also may affect the prevalence of rejected ballots (Acevedo et. al., 2020; Menger and Stein, 2017). Evidence also suggests that voter interactions and trust with both local election offices and the U.S. Postal Service affect whether voters submit mailed ballots properly and on time (Acevedo et al., 2020; White, Nathan, and Faller, 2015). The rate at which signatures on mailed ballot envelopes are determined not to match voter signatures on file has been found to vary by state laws around signature verification and variation in local election office practice (Baringer, Herron, and Smith, 2020; Janover and Westphal, 2020).

The clarity with which states and counties provide information about how to complete or cure a mailed ballot will shape the extent to which voters successfully sign and return their ballots, or cure ballots in cases where the envelope is missing or has a mismatched signature (Flaxman, Hyacinthe, Lawson, and Peters, 2013; Janover and Westphal, 2020). Ballot curing processes also have been found to be most successful when voters have access to multiple modalities (e.g., email, mailed forms, or in-person completion) for curing their ballots (Flaxman, Hyacinthe, Lawson, and Peters, 2013). Nevertheless, ballot curing efforts have not been found to reduce disparities in ballot rejections by age, race or ethnicity (Smith and Baringer 2019).

Elections security and integrity in VBM systems has also garners attention from researchers. When analyzing voter files and records in Washington State from 2011 to 2018, out of 4.5 million voters, (Wu, et. al., 2024) found no evidence of deliberate fraud. Washington State, like many other states, has instituted signature verification to ensure elections security, signature verification has been found to produce false positives more often than true detections of fraud. Over time and with trainings, however, elections administrators have adjusted practices to reduce the occurrence of false positives (Street, 2024). Despite little evidence of fraud in VBM systems, a host of new elections administration policies, such as requiring driver's license numbers or social security numbers to validate the ballot have been proposed in recent years. In 2025, 18 states proposed such legislation (Voting Rights Lab, 2025). It is the case that research in Texas shows that additional voter verification requirements significantly complicate the VBM process, causing higher rates of ballot rejection particularly among voters of color, (Miller et al., 2024).

BALLOT CHALLENGES, CURES, AND REJECTIONS: 2020-2024

This report examines several research questions about ballot challenge, cure, and rejection rates in Washington State's VBM system across primary and general elections since 2020: How have trends and patterns in ballot challenges and rejections varied over time? What share of challenged ballots are cured? Do cure rates or rates of ballot rejection vary by demographics or geography? How do the reasons for which ballots are rejected vary over time, voter demographics, and geographic location?

To answer these questions, this paper analyzes voter-level data for primary and general elections between 2020 and 2024 in Washington State. These data provide unique insights into ballot challenges, cures, and rejections. First, these data follow individual voters over time and across elections. Second, these data distinguish between different reasons why ballots are rejected. Finally, these data can generate county-level ballot challenge and rejection data, which allows us to think about whether there are systematic patterns across types of counties (e.g., rural versus urban counties).

Drawing from the research evidence to date, we expect ballot rejection rates and ballot curing rates to be lower among younger voters and voters of color. We expect ballot rejection rates to be higher in rural areas where voters may have to travel longer distances to reach ballot drop boxes or county election offices, and where county election offices may have fewer staff, resources, and capacity for education and outreach. We also expect ballot challenges and rejection rates to vary between primary and general elections. On the one hand, we expect primary election voters to be more experienced and engaged voters, which should lead to lower rates of signature challenges and rejections. But, primary elections, particularly in off-years, do not receive the same media coverage or public attention as general elections that help to remind voters about ballot due dates and proper ballot completion. The comparatively low salience of primaries suggests that the share of ballots returned late should be higher in primary than general elections (Allard et. al. 2023; California Voter Foundation, 2020).

DATA AND METHODS

Analyses presented below draw upon voter-level and county-level ballot data from the Washington Secretary of State. First, voter-level data on ballot issuances, challenges, cures, and rejections from the Secretary of State were used to construct a longitudinal voter-level file from 2020 to 2024. Combined, these data files provide voter-level information such as name, voter ID number, ballot ID number, self-reported gender, date of birth, date ballot was received by county elections office, indicator if the ballot was rejected, information about the reason a ballot was rejected, information on timing of cure notice, and an indicator that the ballot was cured. Voter-level data files do not distinguish Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) ballots from domestic vote-by-mail ballots, so our analyses pool both types of ballots.

We define cast ballots as those that are accepted by county election administrators, those that are challenged for missing signatures or signature mismatch, and those that are returned late.[1] Thus, we focus on cast ballots where the signature challenge process is most relevant and those that likely would be counted if they had been returned by election night. The analyses presented below focus on the August primary and November general elections from 2020 to 2024. The full analytic data set contains 23,912,357 ballots cast across the five primary and five general elections in this time period.

[1] Although there are several other ballot statuses tracked by WA Vote (e.g., invalid, suspended, undeliverable), those ballot statuses represent roughly 4 percent of all ballots sent to registered voters statewide in primary or general elections from 2020 to 2024.

Voter registration data provides several pieces of demographic information about voters. Birthdates provided in the voter registration data are used to calculate age, birth cohort and year of birth. Voters self-report gender (female, male, other, or no selection/unlisted) when registering to vote. Finally, we use information about voter mailing addresses to determine the county in which a voter resides. Counties are further coded into metropolitan and nonmetropolitan categories.

Voter-level data in Washington State, however, does not contain information about the race or ethnic identity of voters. To understand the racial backgrounds of Washington State voters and registrants, therefore, we use Bayesian Improved Surname Geocoding (BISG) statistical modeling.[2] BISG uses individuals' surnames and geographic locations to statistically estimate the probability that each individual fall into a given racial category (Asian American, Black, Hispanic, or White). Specifically, we take each individual's surname and check it against the Decennial Census Surname Files, which are lists provided by the U.S. Census Bureau of nearly all surnames of Americans—along with the percentage of people with that particular surname that are of each racial category. Surnames are most informative about Asian American and Hispanic individuals' backgrounds, whereas surnames are less informative in distinguishing White and Black individuals. For example, the surname Rodriguez is held by about 1.1 million Americans, with about 94 percent of them being Hispanic.[3]

To improve upon surname-based predictions, however, our BISG algorithm gains further information about an individual's racial background by looking at their geographic locations of residence. We first link individuals' ZIP codes to corresponding Census Tracts using a ''crosswalk" file provided by the U.S. Department of Housing and Urban Development's Office of Policy Development and Research (U.S. Department of Housing and Urban Development, Office of Policy Development and Research 2023). In a small number of cases where ZIP codes were not available, we used individuals' county of residence as their location. Then, using individuals' residential locations, we query the U.S. Census to see what percent of people in the individual's Census Tract (an area of around 4,000 residents) are from each racial group. Combined, information about surname and residential location helps us to improve our projections.

In the end, BISG produces a probability that an individual registered voter possesses a given racial background: Asian American, Black, Hispanic, White, or Other. There are "errors" in these probabilistic or predictive calculations, in which an individual is given a high probability of having a certain racial

[2] BISG is used routinely in civil rights and redistricting litigation at the state and federal levels (Barreto et. al., 2022; DeLuca and Curie, 2022; Decter-Frain et. al., 2023; Fiscella and Fremont, 2006; Grumbach and Sahn 2019; Imai and Khanna 2016).

[3] For Hispanic and Asian Americans, we are able to predict individuals' racial backgrounds with high precision based on surname alone. While it would be preferable to have self-reported information about race and ethnic identity, this study relies on imputed race and ethnicity. Our imputation method is limited to making inference about the probability a voter would identify as White, Black, Hispanic, or Asian. This method is unable to make inference about voters who would identify as Native American, many other ethnic identities, or more complex racial and ethnic identities.

background, when in reality they have a different identity. This commonly occurs when people change their surnames in interracial marriages and for racially mixed individuals. It is important to emphasize, however, individual "errors" in probabilities tend to cancel out in the aggregate. While BISG might get some individuals' racial backgrounds "wrong," the average or total of individuals across racial groups is estimated very accurately. Thus, in analyses presented below, we aggregate the probabilities of racial background across individuals to the state or county level.[4]

When examining ballot curing processes, we focus exclusively on mailed ballots without a signature or with an envelope signature that does not match the signature on file. Data from the Washington Secretary of State indicates whether a voter with a challenged ballot received a ballot curing notice and when that notice was sent. Thus, we can determine which ballots are cured by a secondary review process at the county elections office and which ballots were cured after a notice was sent to a voter. We also can determine how close to election day (before or after) a notice was sent to voters with a challenged ballot. Rejected ballots are defined as cast ballots that a county canvassing board rejects on the final day to certify the results of the election.

FINDINGS – BALLOT CHALLENGES FROM 2020 to 2024

Voter-level data from the Washington Secretary of State's Elections Data and Statistics system indicates that 23.9 million ballots were cast and received across primary and general elections from 2020 to 2024, (8.98 million and 14.9 million, respectively – see Table 1 below). Voter turnout rates in Washington State elections are quite high compared to other states – with over 70 percent of registered voters statewide casting a ballot in most presidential and congressional year elections since 2012 (Movement Advancement Project, 2023; Washington Secretary of State, 2023c).

Of the nearly 24 million ballots cast across primary and general elections from 2020 to 2024, 1.6 percent (376,138 total ballots) received a signature challenge, either because of a missing signature on the envelope or an envelope signature that was assessed to not match the signature on file at the time of

[4] To show how Bayesian Improved Surname Geocoding (BISG) operates, take the example of a hypothetical person named Christopher Smith living in a Census Tract in South Seattle. About 71 percent of people with the surname Smith (the most common surname in the United States) are non-Hispanic White, and about 23 percent are non-Hispanic Black, with the remaining 6 percent split across Asian, Latino, and other racial groups. Thus, based on surname alone, we would assume that an individual with the surname Smith has a 71 percent chance of being non-Hispanic White. Because Christopher Smith's South Seattle neighborhood or census tract has more Black than White residents, the algorithm adjusts its probability calculations to that this person has a 60 percent chance of being Non-Hispanic Black, a 38 percent chance of being Non-Hispanic White, a 1 percent chance of being Asian, and a 1 percent chance of being Hispanic. Predictions of racial identity using BISG can be quite precise. We find that the median of all individuals' best racial predictions is 91.6%. This means that for half of Washington registered voters, we are at least 91.6% percent sure about their racial background. For just 25% of the voters in our dataset, the probability of their most likely race is below 82.7%. This high level of precision for the vast majority of voters is further represented in the figure below. This figure represents the relative frequencies of the highest racial probability for each voter in our dataset. Christopher Smith, the hypothetical voter in the example above, would be represented in the area under the curve at x=0.6, since Christopher's most likely race is Black, and their probability of being Black is 60%.

initial ballot processing. Since 2020, the signature challenge rate in general elections is slightly higher than in primary elections (1.7 percent versus 1.4 percent, see columns 3 and 4 of Table 1). There is no indication in Table 1 that the share of ballots receiving signature challenges has changed substantially across primary and general elections since 2020. Rather, signature challenge rates appear to vary minimally by year and type of election (e.g., presidential versus off-year).

Regardless of election type or year, the majority of signature challenges are due to the determination of a mismatched signature on the ballot envelope. In primary elections from 2020 to 2024, 68.0 percent of signature challenged ballots were determined initially not to have a signature matching the one on file. Similarly, 79.2 percent of signature challenged general election ballots from 2020 to 2024 were determined not to have a signature matching the one on file. It remains the case, however, that a non-trivial share of signature challenged ballots were those returned with an empty signature line. Table 1 also shows modest variation from election to election in the share of challenged ballots missing a signature altogether relative to those with a mismatched signature.

Figure 1 below compares the ballot challenge rates pooled across primary and general elections from 2020 to 2024 by voter demographics. More detailed information related to Figure 1, including 95% confidence intervals, can be found in Appendix Table 1. Consistent with prior research, we find statistically significant differences in ballot challenge rates between voters of color and White voters. For example, 2.2 percent of ballots cast by Hispanic voters in primary and general elections since 2020 were challenged for signature reasons, compared to 1.5 percent of White voters. Ballot signature challenges occurred in 1.8 percent of ballots cast by Black voters and 2.0 percent of ballots cast by Asian voters in that same time period. Although the percentage-point differences here appear small, Figure 1 suggests that voters of color are roughly 20 percent to nearly 50 percent more likely to have a ballot challenged than White voters.

The bottom panels of Figure 1 examine ballot challenge rates by self-reported gender and age. There are slight differences in ballot signature rates between voters that self-identify as female or male (1.4 percent versus 1.8 percent, respectively). Ballot challenge rates are much higher for voters who self-report gender identity at the time of registration as “other” or “unknown.” Consistent with expectations, ballot signature challenge rates are much higher among younger than older voters in Washington State. Slightly more than 5 percent of ballots cast in primary and general elections from 2020 to 2024 by voters age 18 to 25 were challenged for signature issues, compared to 0.7 percent of voters 66 years and older.

We find no substantive difference in the ballot challenge rates for voters living in metropolitan versus non-metropolitan counties in Washington State (not shown in Figure 1, see Appendix Table 1).

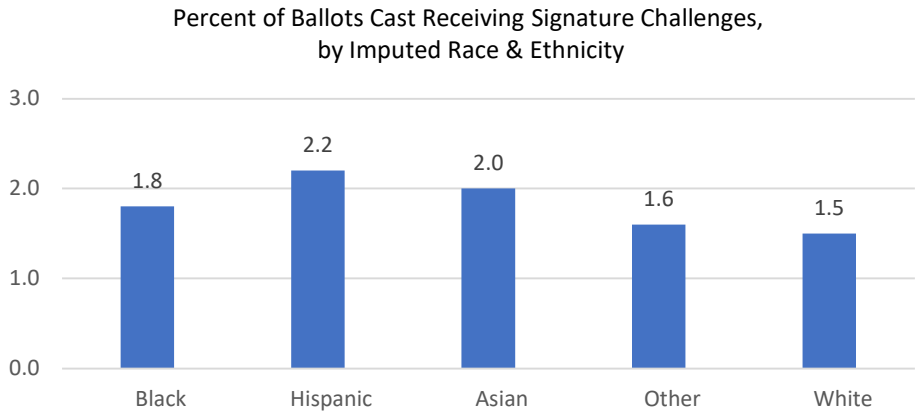
Table 1: Ballot Challenges across Primary and General Elections in Washington State, 2020 to 2024

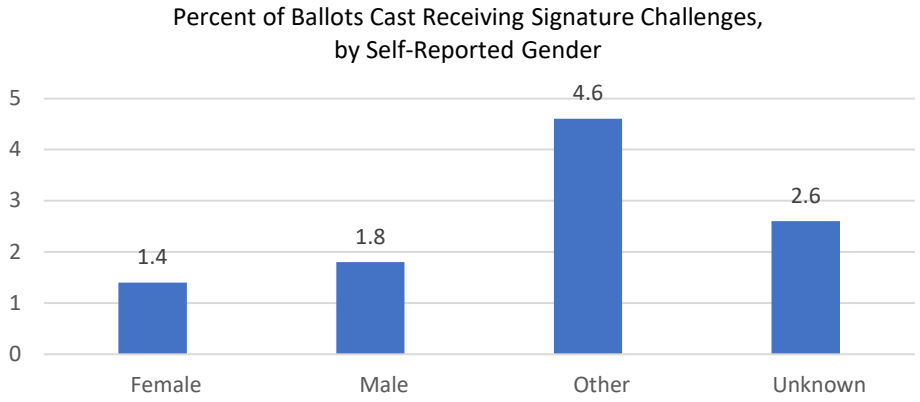
	Number of Ballots Cast		Number of Signature Challenged Ballots (% of Ballots Cast)		Number of Ballots Missing Signature (% of Ballots Cast)		Number of Ballots without Matching Signature (% of Ballots Cast)	
Year	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)	Primary (7)	General (8)
2020	2,547,193	4,136,004	38,999	71,534	13,655	11,631	25,344	59,903
			(1.5)	(1.7)	(0.5)	(0.3)	(1.0)	(1.5)
2021	1,313,369	1,919,704	19,531	27,204	7,038	9,025	12,493	18,179
			(1.5)	(1.4)	(0.5)	(0.5)	(1.0)	(1.0)
2022	1,968,952	3,103,931	31,636	63,738	7,476	10,959	24,160	52,779
			(1.6)	(2.1)	(0.4)	(0.4)	(1.2)	(1.7)
2023	1,133,780	1,778,865	15,720	26,032	5,655	7,685	10,065	18,347
			(1.4)	(1.5)	(0.5)	(0.4)	(0.9)	(1.0)
2024	2,016,403	3,994,156	20,988	60,756	6,816	12,593	14,172	48,163
			(1.0)	(1.5)	(0.3)	(0.3)	(0.7)	(1.2)
2020-2024	8,979,697	14,932,660	126,874	249,264	40,640	51,893	86,234	197,371
			(1.4)	(1.7)	(0.5)	(0.4)	(1.0)	(1.3)

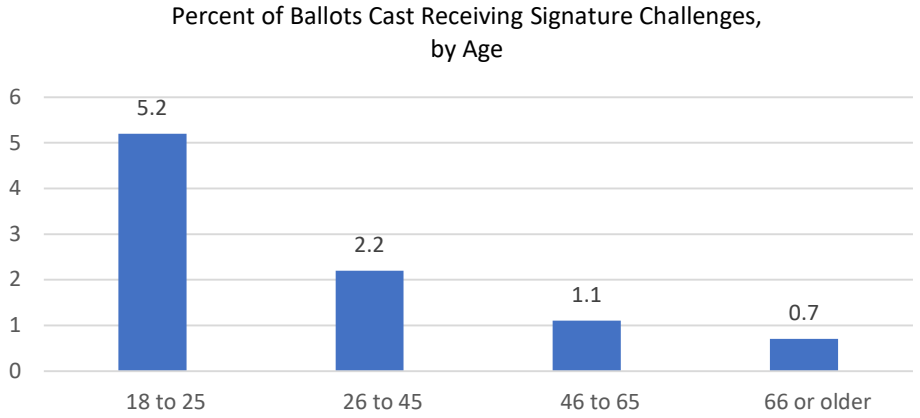
Note: Statewide figures of voter-level ballot data reported. Totals for ballots cast reflect those ballots where administrative records indicate they were either accepted or rejected for being late, lacking an envelope signature, or a signature that does not match the signature(s) on file. Signature challenges include ballots where there was no signature on the envelope and ballots where the signature was determined not to match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Figure 1: Signature Challenged Ballots across Primary and General Elections in Washington State by Voter Demographic, 2020 to 2024







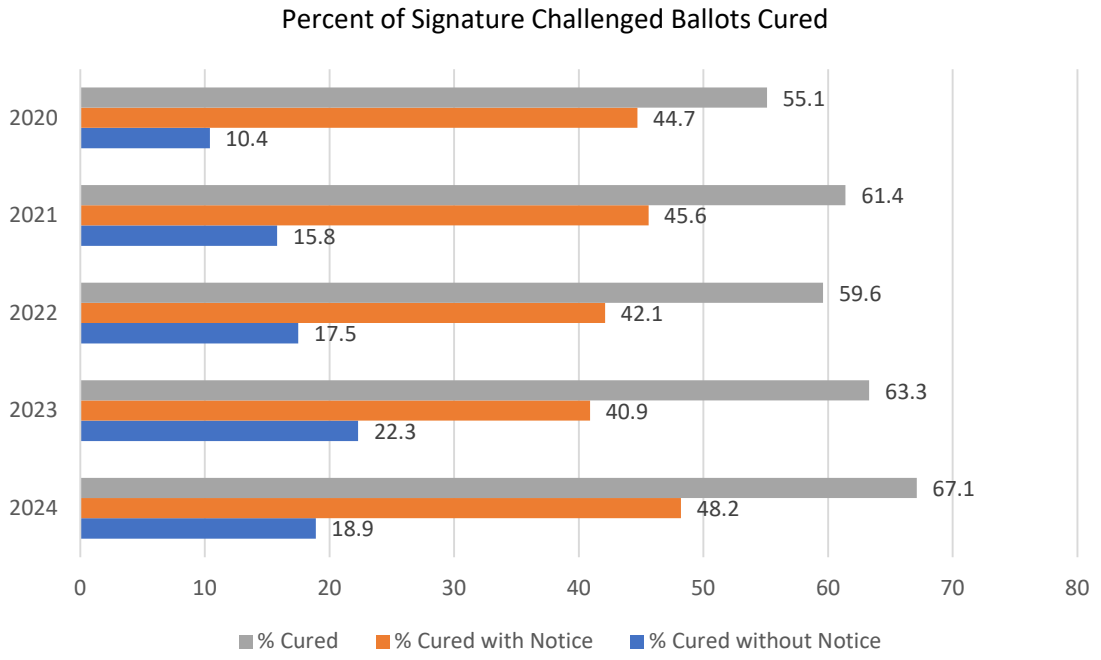
Note: Statewide figures of voter-level ballot data reported. Totals for ballots cast reflect those ballots where administrative records indicate they were either accepted or rejected for being late, lacking an envelope signature, or a signature that does not match the signature(s) on file. Challenged ballots include those where there was no signature on the envelope and ballots where the signature was determined not to match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

FINDINGS – BALLOT CURE RATES FROM 2020 to 2024

As noted above, voters receive notice when their ballots are challenged and given the opportunity to cure their ballot before counties submit official results to the State of Washington. Figures 2 and 3 examine the cure rates among signature challenged ballots across primary and general elections respectively from 2020 to 2024. The grey bars indicate the overall cure rate, while orange bars indicate ballots cured by the voter in response to a notice and blue bars reflect those cured through secondary or higher-level county elections administration review.

Figure 2: Ballot Curing across Primary Elections in Washington State, 2020 to 2024



Note: Statewide figures of voter-level ballot data reported.

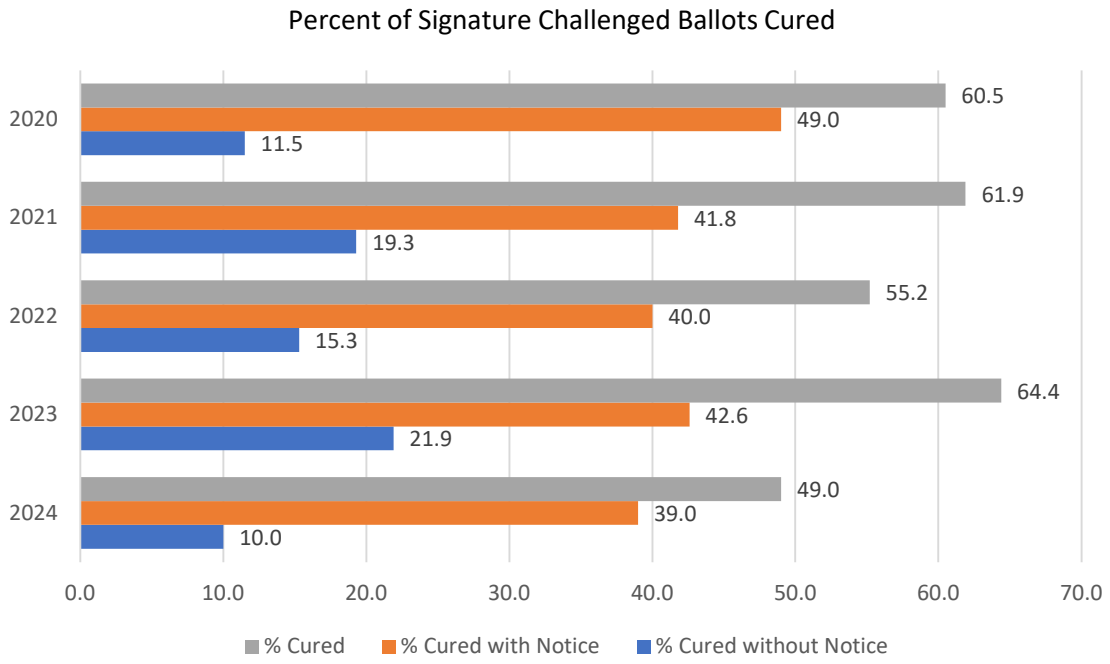
Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Roughly 60 percent of all signature challenged ballots in primary and general elections from 2020 to 2024 were cured, although there is some variation by election year and type. For example, the cure rate for signature challenges in the 2020 August Primary Election was 55.1 percent, compared to 67.1 percent in the 2024 August Primary Election (see Figure 2). By contrast, the cure rate for signature challenges was 60.5 percent in the 2020 General Election and 49.0 percent in the 2024 General Election (see Figure 3).

The vast majority of ballots cured across primary and general elections since 2020 were cured by the voter in response to a notice from their county elections administrator. For primary elections from 2020 to 2024, 44.3 percent of challenged ballots were cured by the voter in response to a notice (73.6 percent

of all cured ballots) and 42.5 percent of challenged ballots in general elections during that time were cured by the voter in response to a notice (75.3 percent of all cured ballots, not shown in Figures 2 and 3).

Figure 3: Ballot Curing across General Elections in Washington State, 2020 to 2024



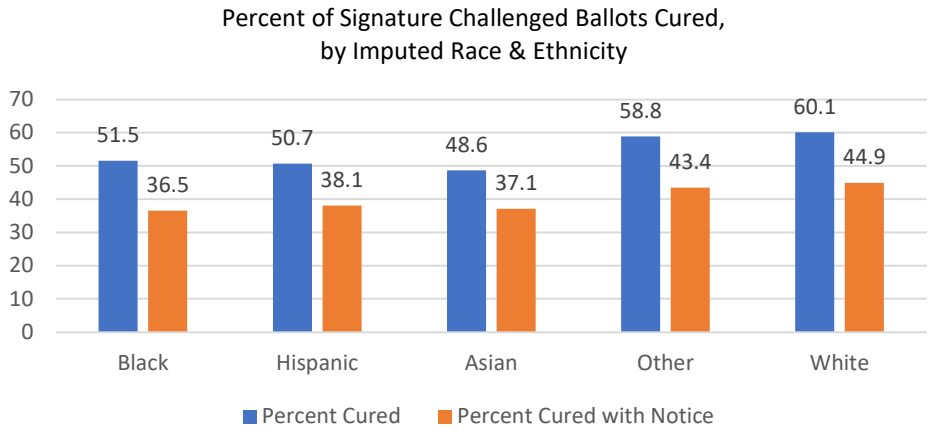
Note: Statewide figures of voter-level ballot data reported.

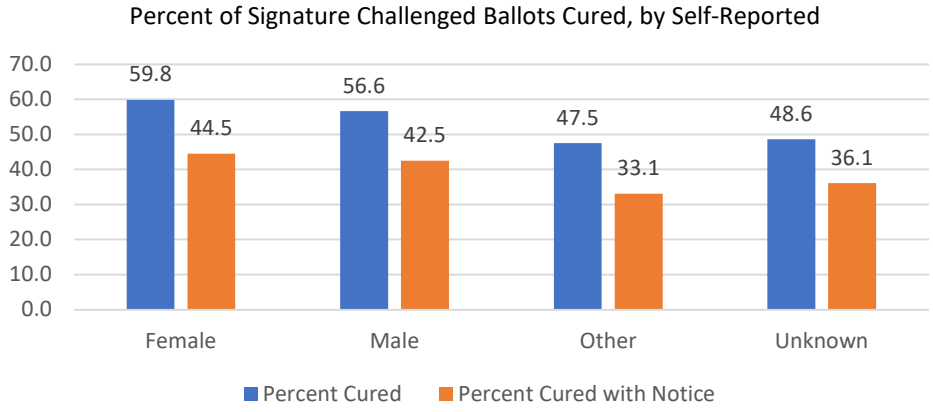
Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

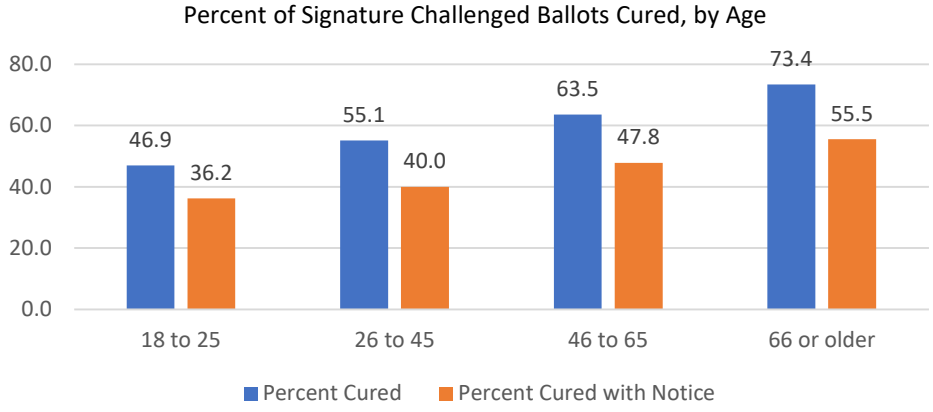
Given prior research that finds evidence of demographic differences in voter turnout and ballot rejections, Figure 4 examines demographic variation in the share of signature challenged ballots cured across all primary and general elections from 2020 to 2024. Again, more detailed information related to Figure 4, including 95% confidence intervals, can be found in Appendix Table 1.

The top panel of Figure 4 compares ballot cure rates from 2020 to 2024 by imputed race and ethnicity. Consistent with findings elsewhere, there is evidence of racial disparities in ballot curing rates. The ballot curing rate for White voters is about 10 percentage points higher (60.1 percent) than for Black voters (51.5 percent), Hispanic voters (50.7 percent), or Asian voters (48.6 percent). Although it is the case that

Figure 4: Ballot Curing across Primary and General Elections in Washington State by Voter Demographics, 2020 to 2024







Note: Statewide figures of voter-level ballot data reported. Challenged ballots include those where there was no signature on the envelope and ballots where the signature was determined not to match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

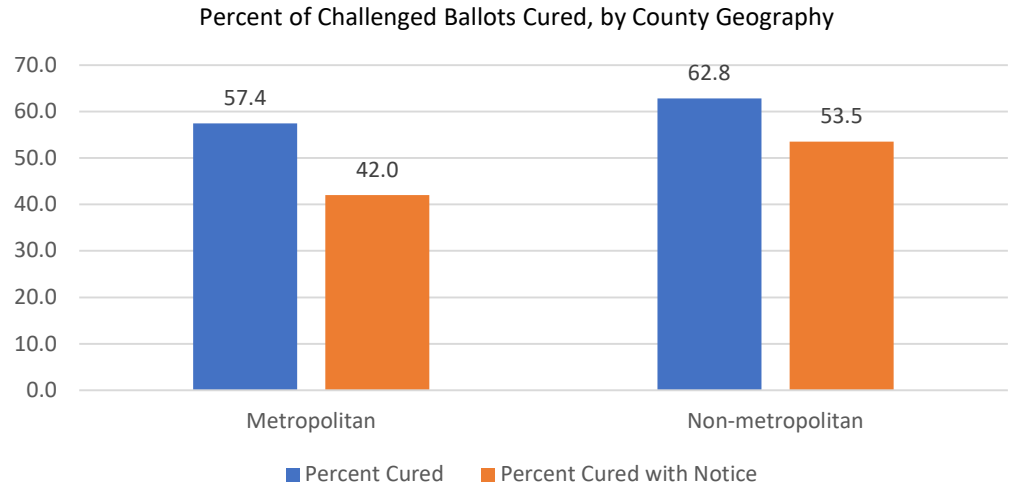
most voters regardless of race and ethnicity cure their challenged ballot in response to a notice, there are racial and ethnic differences in the share of challenged ballots cured by voters in response to a notice. For example, 44.9 percent of White voters cure challenged ballots in response to a notice, but less than 40 percent of Black, Hispanic, and Asian voters cure challenged ballots in response to a notice.

The middle graph in Figure 4 examines ballot cure rates by self-reported gender. The ballot curing rate among voters who self-identify as female is slightly higher than for voters who self-identify as male (59.8 percent versus 56.6 percent, respectively). Similar modest differences also exist between female and male voters when looking at the share of challenged ballots cured in response to a notice (44.5 percent versus 42.5 percent, respectively). Although a relatively small number of voters self-report gender as "other" or "unknown," these voters experience lower ballot curing rates than those voters self-identifying as female or male. While voters have limited options when reporting their gender identity, these findings are consistent with evidence of higher levels of administrative burden among transgender adults, as well as evidence that signatures may change for adults who transition in their gender identity (Herman et. al., 2024; Herman and O'Neill 2021; Maluf 2024; Movement Advancement Project 2022; Sederbaum, 2025).

The bottom graph in Figure 4 compares ballot cure rates by age of the voter. Consistent with evidence of higher turnout among older voters in Washington State, ballot curing rates also are higher among older voters. For example, nearly 75 percent of challenged ballots are cured by voters 66 years of age and older, compared to 47 percent of voters ages 18 to 25. Older voters also are more likely to respond to signature challenge notices than younger voters.

Figure 5 examines ballot cure rates between voters in metropolitan versus non-metropolitan counties in Washington State (see Appendix Table 1 for more detailed information). In primary and general elections from 2020 to 2024, 62.8 percent of signature challenged ballots from voters in non-metropolitan counties were cured compared to 57.4 percent among voters in metropolitan counties. Voters in non-metropolitan counties were more likely to cure their ballots in response to notices from their county election administrators than those in urban counties (53.5 percent versus 42.0 percent, respectively).

Figure 5: Ballot Curing across Primary and General Elections in Washington State by Geography, 2020 to 2024



Note: Statewide figures of voter-level ballot data reported. Challenged ballots include those where there was no signature on the envelope and ballots where the signature was determined not to match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

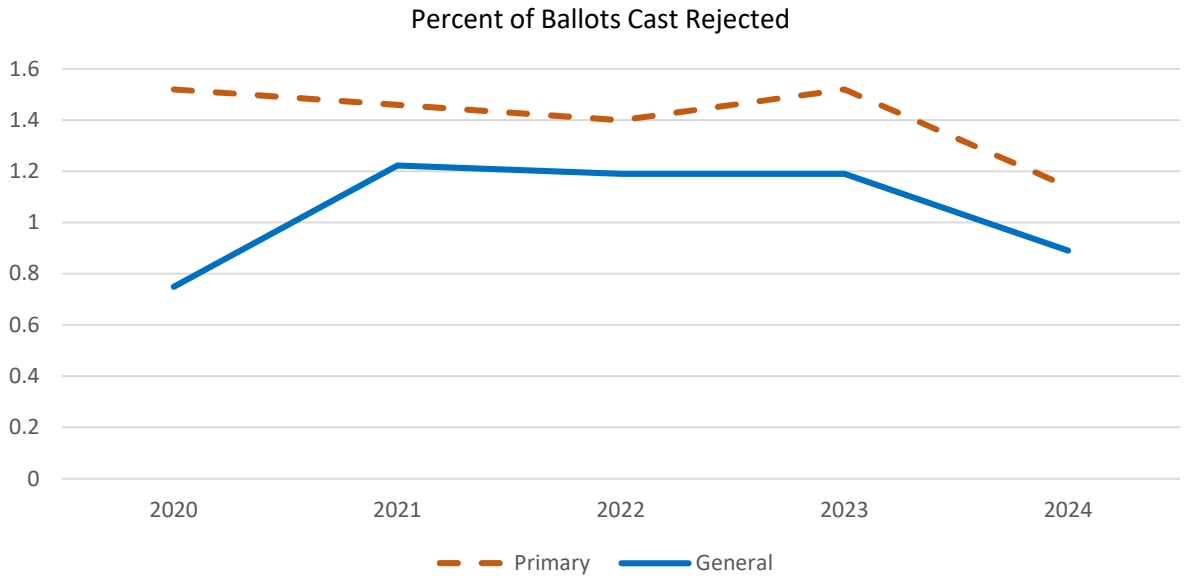
FINDINGS – BALLOT REJECTION RATES FROM 2020 to 2024

Ballots returned late and those not cured by voters within the time allowed are rejected by county elections administrators. Figure 6 and Table 2 report ballot rejection totals and rates for primary and general elections in Washington State from 2020 to 2024.

As Figure 6 shows, ballot rejection rates consistently are higher in primary versus general elections from 2020 to 2024. Overall, 1.4 percent of all primary ballots cast and 1.0 percent of general election ballots cast were rejected in those years (see Columns 3 and 4 of Table 2). Although ballot rejection rates for primary elections varied little from 2020 to 2024, the ballot rejection rate in the 2020 and 2024 General Elections were about 0.3 to 0.4 percentage points lower than the off-year general elections from 2021 to 2023.[5] Ballot rejection rates observed in these Washington State elections data are generally consistent with rejection rates calculated by researchers examining vote-by-mail processes in other states (California Voter Foundation 2014, 2020; Smith and Baringer 2019).

[5] Similar patterns are evident in Washington State when looking at county-level ballot data from 2012 to 2022 (Allard et. al. 2023).

Figure 6: Ballot Rejection Rate in Primary and General Elections in Washington State, 2020-2024



Note: Statewide figures of voter-level ballot data reported.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Figure 7 examines the prevalence of rejected ballots across imputed race and ethnicity, gender, age, and county geography for primary and general elections occurring from 2020 to 2024. More detailed information related to Figure 7, including 95% confidence intervals, can be found in Appendix Table 2.

Consistent with findings above regarding ballot challenge and cure rates, we find evidence that voters of color have higher ballot rejection rates in primary and general elections than White voters from 2020 to 2024. For example, general election ballot rejection rates for Hispanic and Asian voters almost 70 percent higher rate than the rate for White voters (1.5 percent versus 0.9 percent, respectively). Black voters experienced ballot rejections in general elections at a rate about fifty percent higher than White voters (1.3 percent versus 0.9 percent, respectively). While ballot rejection rates are slightly higher in primary than general elections across all racial and ethnic groups, the relative differences in rejection rates between voters of color and White voters are comparable to those observed in general elections. Moreover, the racial and ethnic disparities in rejection rates observed in these data for Washington State are comparable in magnitude to those found elsewhere in other studies of vote-by-mail (Smith and Baringer 2019).

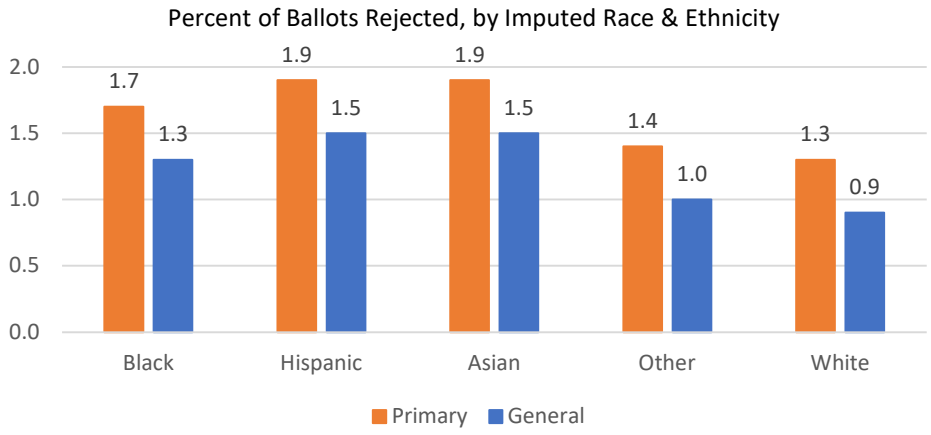
Table 2: Ballots Cast and Rejected in Primary and General Elections in Washington State, 2020 to 2024

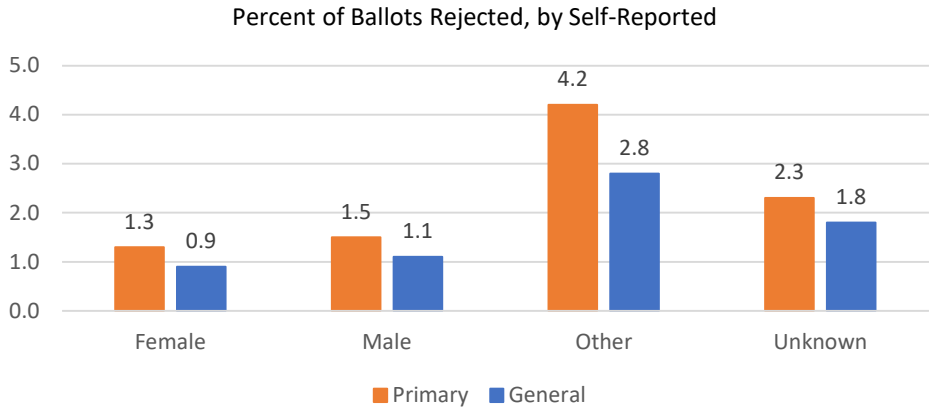
	Number of Cast Ballots Rejected		Percent of Cast Ballots that are Rejected		Percent of Cast Ballots Rejected for Not Matching Signature		Percent of Cast Ballots Rejected for No Signature		Percent of Cast Ballots Rejected for Being Late	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)	Primary (7)	General (8)	Primary (9)	General (10)
2020	38,842	30,970	1.5%	0.8%	0.5%	0.6%	0.2%	0.1%	0.8%	0.1%
2021	19,155	23,678	1.5%	1.2%	0.4%	0.4%	0.2%	0.2%	0.9%	0.7%
2022	27,523	37,032	1.4%	1.2%	0.5%	0.8%	0.2%	0.2%	0.7%	0.3%
2023	17,257	21,205	1.5%	1.2%	0.3%	0.4%	0.2%	0.2%	1.0%	0.7%
2024	23,036	35,580	1.1%	0.9%	0.2%	0.6%	0.1%	0.2%	0.8%	0.1%
2020 - 24	125,813	148,465	1.4%	1.0%	0.4%	0.6%	0.2%	0.2%	0.8%	0.3%

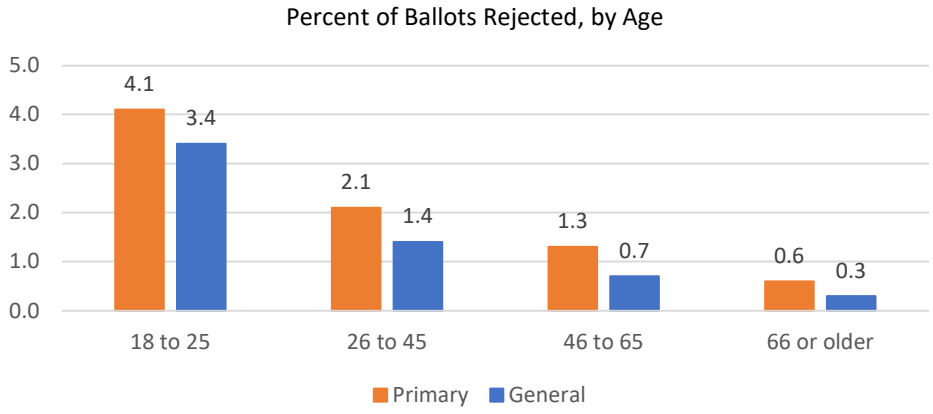
Note: Statewide figures of voter-level ballot data reported. Reported figures reflect those ballots where administrative records indicate they were rejected for being late, lacking an envelope signature, or a signature that does not match the signature(s) on file.

Source: Ballot Rejections and Cures from 2020 to 2024.

Figure 7: Ballot Rejections across Primary and General Elections in Washington State by Voter Demographics, 2020 to 2024







Note: Statewide figures of voter-level ballot data reported. Reported figures reflect those ballots where administrative records indicate they were rejected for being late, lacking an envelope signature, or a signature that does not match the signature(s) on file.

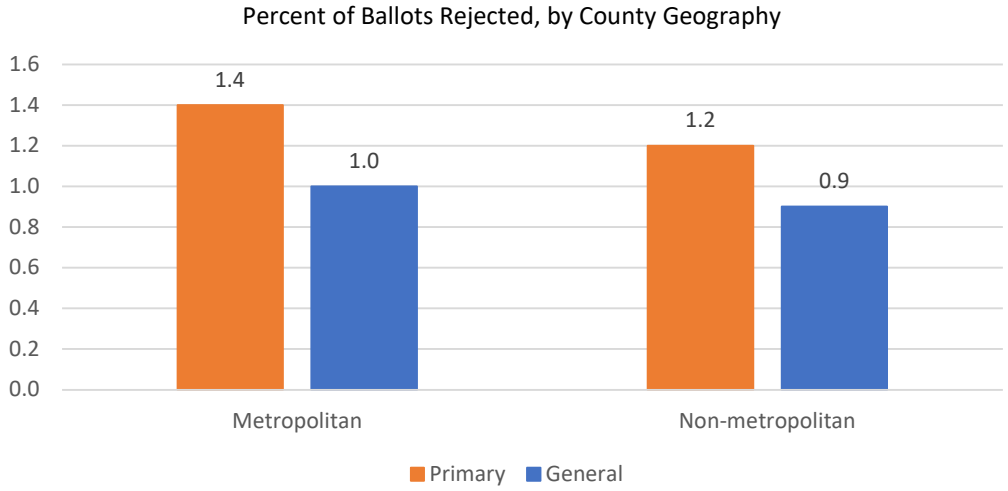
Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Descriptive analyses suggest self-identifying male voters have slightly higher ballot rejection rates than self-identifying female voters in both primary and general elections from 2020 to 2024. For example, 1.1 percent of all general election ballots cast by male voters were rejected compared to 0.9 percent of ballots cast by female voters.

As we might expect given the existing research literature, younger voters have a much higher ballot rejection rate than older voters. Across general elections from 2020 to 2024, the ballot rejection rate among voters 18 to 25 years old is 4.1 percent compared to less than 1 percent for voters 66 or over. Again, these observed disparities by age in Washington State are comparable to age-cohort differences documented in the existing literature (Smith and Baringer 2019).

In most primary and general elections, voters in metropolitan counties are more likely to experience ballot rejection than voters in nonmetropolitan counties – although the differences in ballot rejection rates between metro and nonmetro areas is only a few tenths of a percentage point in most elections (see Figure 8 below and Appendix Table 2). Nevertheless, slightly higher rates of ballot rejection in metropolitan counties reflect, in part, the fact that the voting-age population in urban areas is younger and more racially diverse than in rural areas.

Figure 8: Ballot Rejections across Primary and General Elections in Washington State by Geography, 2020 to 2024



Note: Statewide figures of voter-level ballot data reported. Reported figures reflect those ballots where administrative records indicate they were rejected for being late, lacking an envelope signature, or a signature that does not match the signature(s) on file.

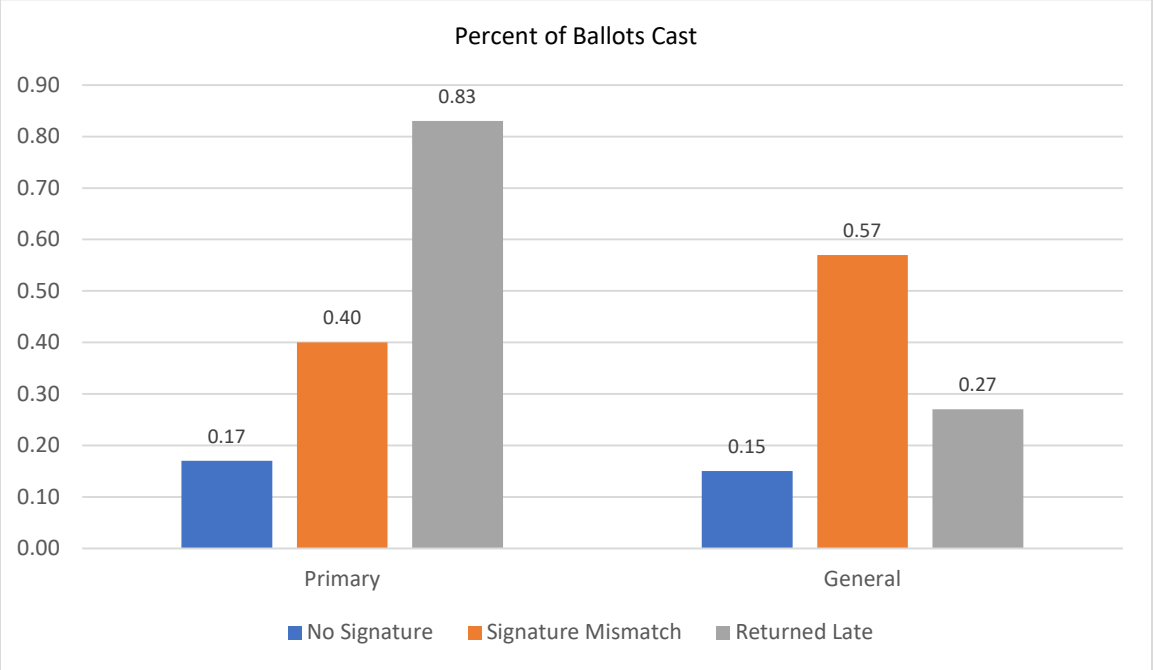
Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

FINDINGS – REASONS FOR BALLOT REJECTION FROM 2020 to 2024

As noted, this study focuses on ballots rejected for three primary reasons: missing a signature on the envelope; signature on the envelope is determined not to match signature on file; and, postmarked after election day or deposited in a drop box after 8pm on election day. Combined, these three reasons for rejection account for over 95 percent of all rejected ballots in primary and general elections.

Figure 9 charts the percentage of cast ballots rejected by each of the three major reasons for primary and general elections from 2020 to 2024 by voter demographics. Several findings stand out. First, a very small percentage of all ballots cast are rejected for missing a signature – less than 0.2 percent of all ballots cast in primary and general elections. A slightly larger share of ballots cast are rejected for having a signature that does not match what is on file, but again these types of ballot rejections account for less then 0.6 percent of all ballots cast in primary and general elections. About 0.8 percent of all ballots arrive late to county offices in primary elections from 2020 to 2024, more than double the share that are late in general elections (0.27 percent).

Figure 9: Ballot Rejections by Reason in Primary and General Elections in Washington State, 2020 to 2024



Note: Statewide figures of voter-level ballot data reported. Reported figures reflect those ballots where administrative records indicate they were rejected for being late, lacking an envelope signature, or a signature that does not match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Figures 10 through 12 chart the reasons for ballot rejection by voter demographics and geography in primary and general elections from 2020 to 2024. More detailed information related to Figure 9, including 95% confidence intervals, can be found in Appendix Table 3.

Missing Envelope Signature. Although only a small percentage of ballot envelopes are not signed when they are returned, several statistically significant differences exist across voter sub-groups. It is important to note, however, that even when observed differences in the share of ballots cast without an envelope signature are statistically significant, the differences are often of modest size substantively. For example, in general elections from 2020 to 2024, Black, Hispanic and Asian voters were more likely to submit a ballot without an envelope signature than White voters (0.20 percent, 0.24 percent, and 0.19 percent of all ballots cast versus 0.14 percent, respectively – see Figure 11). While these differences in rejection rates for missing signature are statistically significant, they are of very modest substantive size. Similar findings are present when looking at differences between female and male voters, as well as comparing female or male voters that self-report gender as "other" or "unknown."

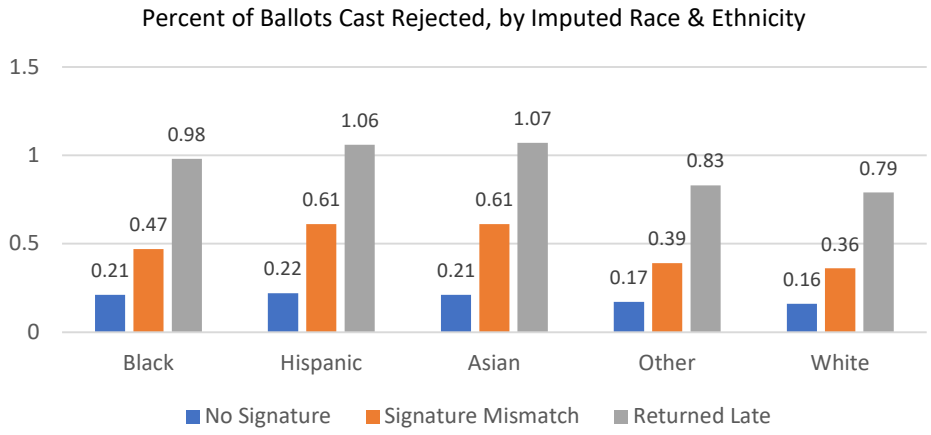
Perhaps reflecting unfamiliarity with VBM, younger voters are more likely to return a ballot without an envelope signature than older voters. Roughly 0.3 percent of voters 18 to 25 years of age returned a ballot without a signature in general elections from 2020 to 2024, compared to 0.01 percent for voters 66 years of age and older in general elections (see Figure 11).

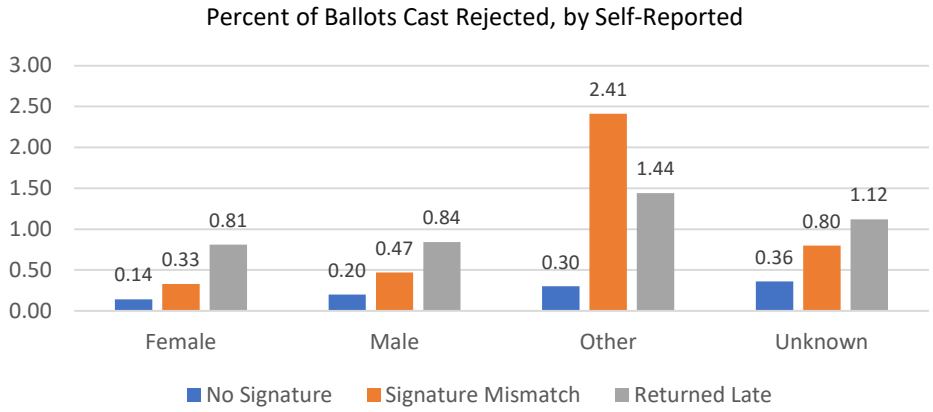
Even though voters in metropolitan counties are more likely to have their ballots rejected, voters in nonmetropolitan counties were slightly more likely to return a ballot envelope without a signature (see Figure 12). As in other demographic comparisons, however, the percentage point differences between rural and urban voters are relatively small – just a few one-hundredths of a percent.

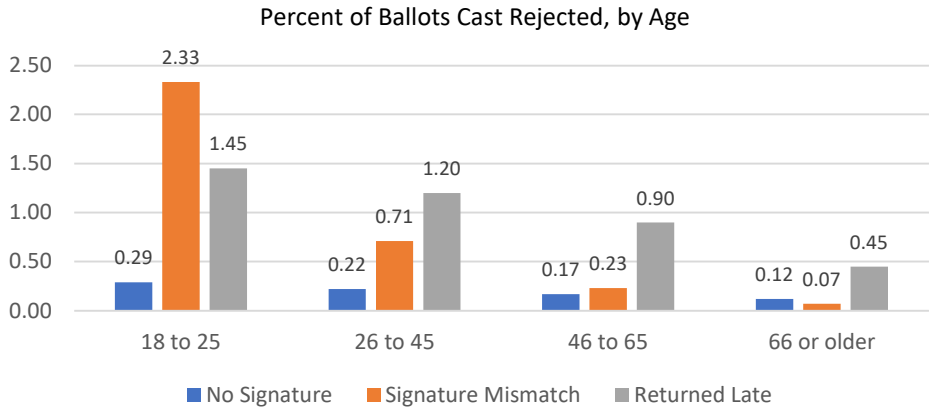
Signature Mismatch. Figures 10 and 11 provide evidence of consistent and statistically significant race and ethnic differences in the share of ballots with signature mismatch. In general elections since 2020, Hispanic and Asian voters were roughly twice as likely to have their ballots rejected for signature mismatch than White voters (0.96 and 0.94 percent versus 0.50 percent, respectively – see Figure 11). Black voters also had slightly higher rates of ballot rejection for signature mismatch than White voters in general elections (0.79 versus 0.50 percent respectively). Similar, but smaller substantively, race and ethnic differences in signature mismatch rates are present in primary elections.

There is evidence that male voters are slightly more likely to have ballots rejected for a signature mismatch than female voters, but the differences often are modest in size. In general elections since 2020, 0.66 percent of male voters had a ballot rejected for a signature mismatch compared to 0.48 percent of female voters (see Figure 11). Signature mismatch rates, however, are much higher for those voters self-reporting gender as "other" (2.05 percent) or "unknown" (1.11 percent).

Figure 10: Ballot Rejections by Reason in Primary Elections in Washington State by Voter Demographics, 2020 to 2024



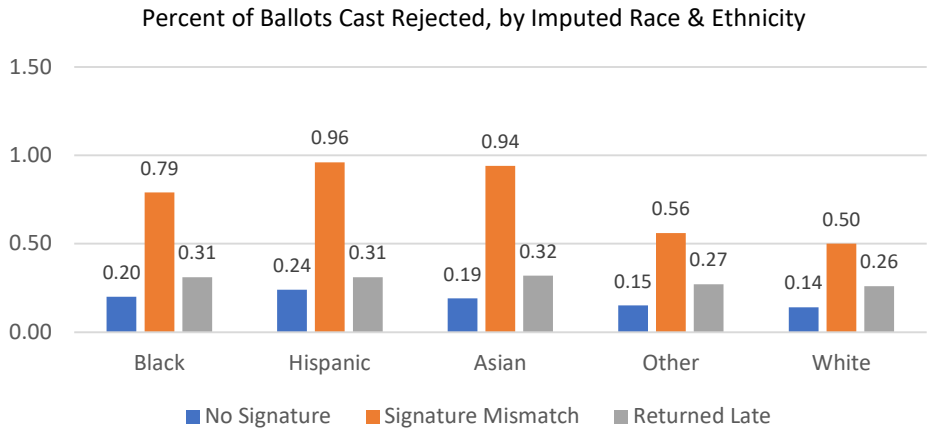


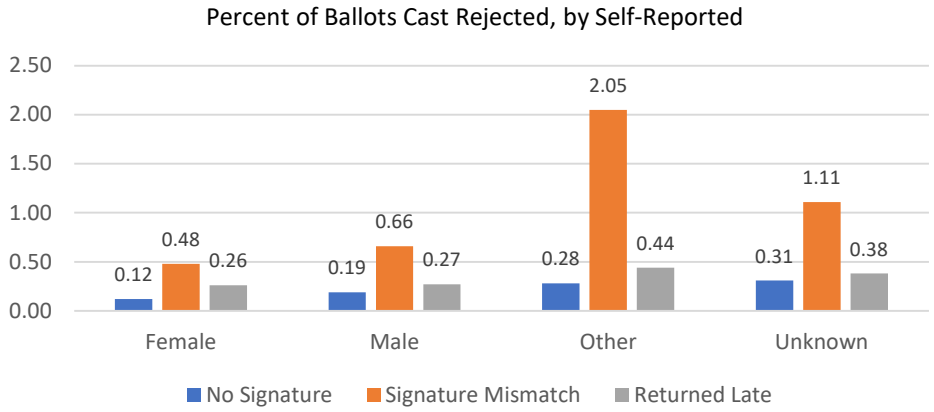


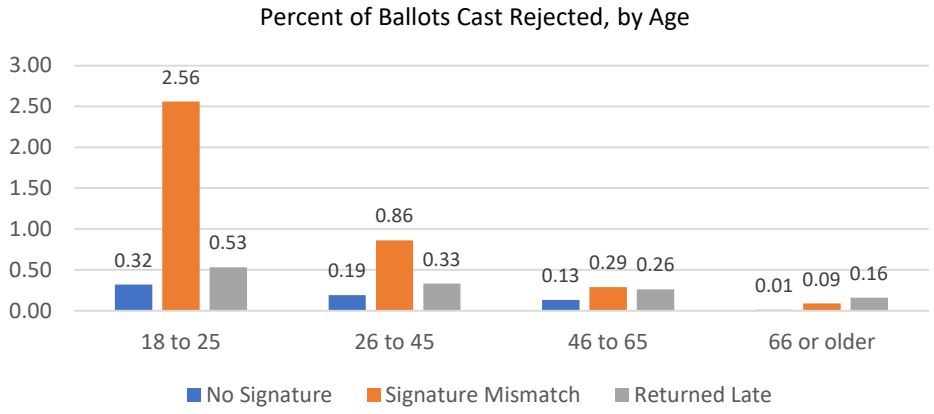
Note: Statewide figures of voter-level ballot data reported.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Figure 11: Ballot Rejections by Reason in General Elections in Washington State by Voter Demographics, 2020 to 2024







Note: Statewide figures of voter-level ballot data reported.

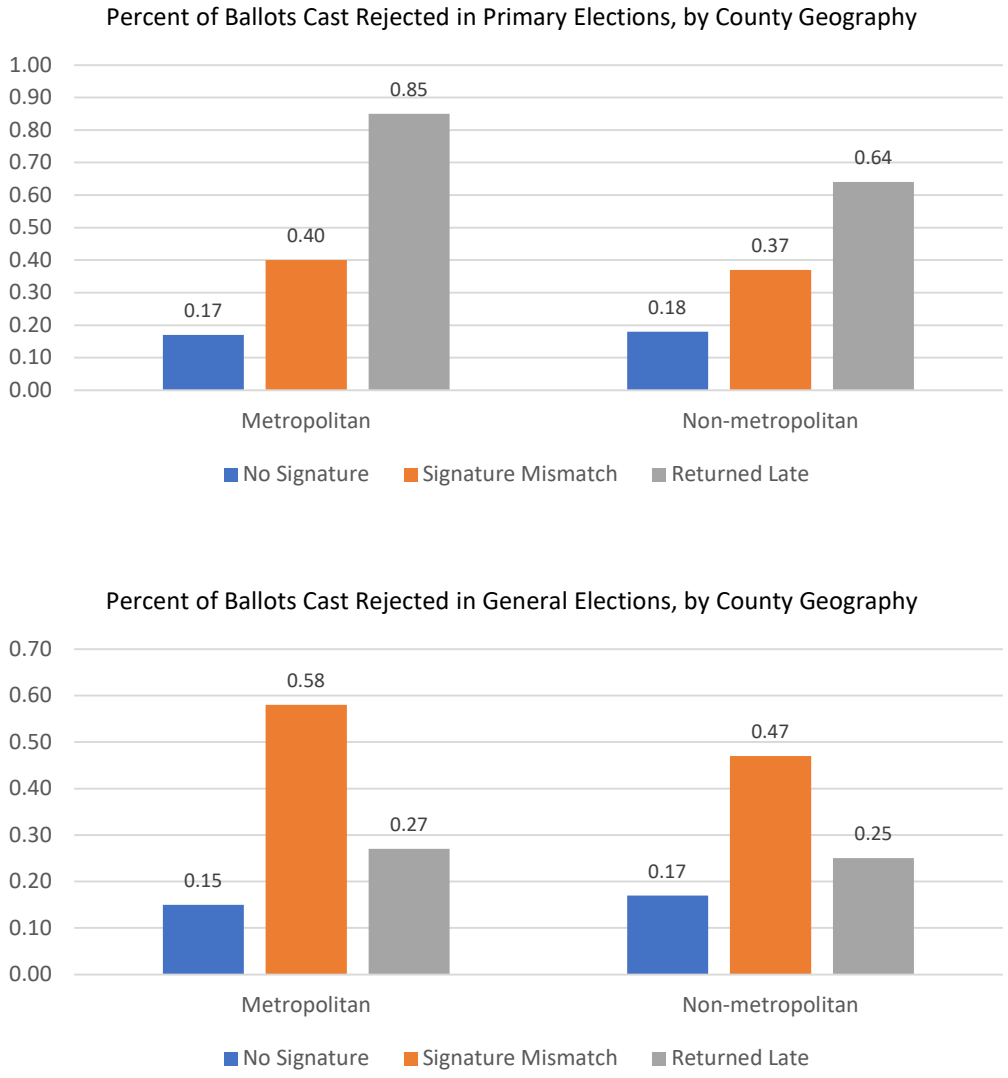
Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Although signature mismatch tends to be the most common reason ballots are rejected across all age groups in elections from 2020 to 2022, younger voters are much more likely to have ballots rejected due to signature mismatch than older voters. For example, whereas less than one-tenth of one percent of voters over 66 or older had ballots rejected due to signature mismatch in general elections, 2.56 percent of ballots cast in general elections by voters 18 to 25 years of age were rejected due to signature mismatch (see Figure 11). Likewise, voters 18 to 25 experienced signature mismatch in general elections at a rate almost ten times that of voters 26 to 45 years of age (2.56 percent versus 0.29 percent, respectively).

Figure 12 indicates voters in metropolitan areas are more likely to have their ballots rejected due to signature challenges than voters in nonmetropolitan areas across both primary and general elections, these differences are quite modest in size.

Arrived Late. Figures 10 through 12 also present the share of ballots rejected for being returned late. Several findings stand out. First, although there are statistically significant race and ethnic differences in the share of ballots returned late, the differences are quite small substantively. Similarly, there are only very modest gender differences in the share of ballots arriving late when comparing female voters to male votes. There is some evidence that votes self-reporting gender as "other" or "unknown" have slightly higher rates of late ballot return. Next, we find that younger voters are much more likely to return ballots late in primary and general elections, compared to older voters. Roughly 1.5 percent of ballots cast in primary elections since 2020 by voters 18 to 25 were returned late, compared to 0.45 percent of ballots cast by voters 66 years or older in those same elections. Finally, in primary and general elections between 2020 and 2024, voters in metropolitan counties were more likely to return their ballots late compared to voters in nonmetropolitan areas – although the differences are quite modest in size.

Figure 12: Ballot Rejections by Reason in Primary and General Elections in Washington State by Geography, 2020 to 2024



Note: Statewide figures of voter-level ballot data reported.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

CONCLUSION

Washington's vote-by-mail system continues to operate with a high degree of integrity and reliability. Of the nearly 24 million primary and general-election ballots cast from 2020 to 2024, just 1.6 percent were challenged for a missing or non-matching signature. Roughly three in every five signature challenged ballots were ultimately cured before certification. Analyses of voter-level data from 2020 to 2024, however, do reveal important demographic variation in voter experiences with the signature challenges and cures process. Ballot cure rates for voters of color were about 10 percentage points lower than rates observed for White voters. Older voters cured about two-thirds of their challenges from 2020 to 2024, while voters aged 18–25 and voters of color cured closer to half of all ballot signature challenges. Geographic context also mattered as non-metropolitan voters cured 63 percent of challenges versus 57 percent in metropolitan counties.

Ballots that are not cured or that arrive after the statutory deadline represent a very small fraction of overall turnout. Only 1.15 percent of all ballots cast were rejected across primary and general elections from 2020 to 2024. Rejection rates were slightly higher in primaries (1.4 percent) than in general elections (1.0 percent). We find that younger voters, voters of color, and male voters are consistently more likely to have ballots rejected than older voters, White voters, and female voters. Signature mismatch is the most common reason ballots are rejected, although late returns are a prominent reason for ballot rejection, particularly in primary elections.

Taken together, these findings underscore two realities. First, the overall incidence of ballot rejection is extremely low, reinforcing confidence in the security and reliability of Washington's vote-by-mail model. Second, the curing process appears effective for many voters, with the caveat that there are notable gaps in ballot curing rates between younger versus older voters, and voters of color compared to White voters.

Findings reported here suggest many important areas for continued and future research into the vote-by-mail experience in Washington State. First, ballot data provide only limited insight into the factors behind observed racial and ethnic disparities in ballot rejections. Greater attention should be paid to process-based and structural causes of race and ethnic disparities in ballot rejections. Additional research also should explore racial and ethnic differences in signature challenge decisions and ballot curing. Because standard racial imputation methods do not allow researchers to examine the experiences of Native American voters, there is need for researchers to work with tribal communities to identify obstacles and barriers facing Native American voters in Washington State. Research also should examine the degree to which non-binary gender identity is associated with higher rates of ballot challenges and rejections.

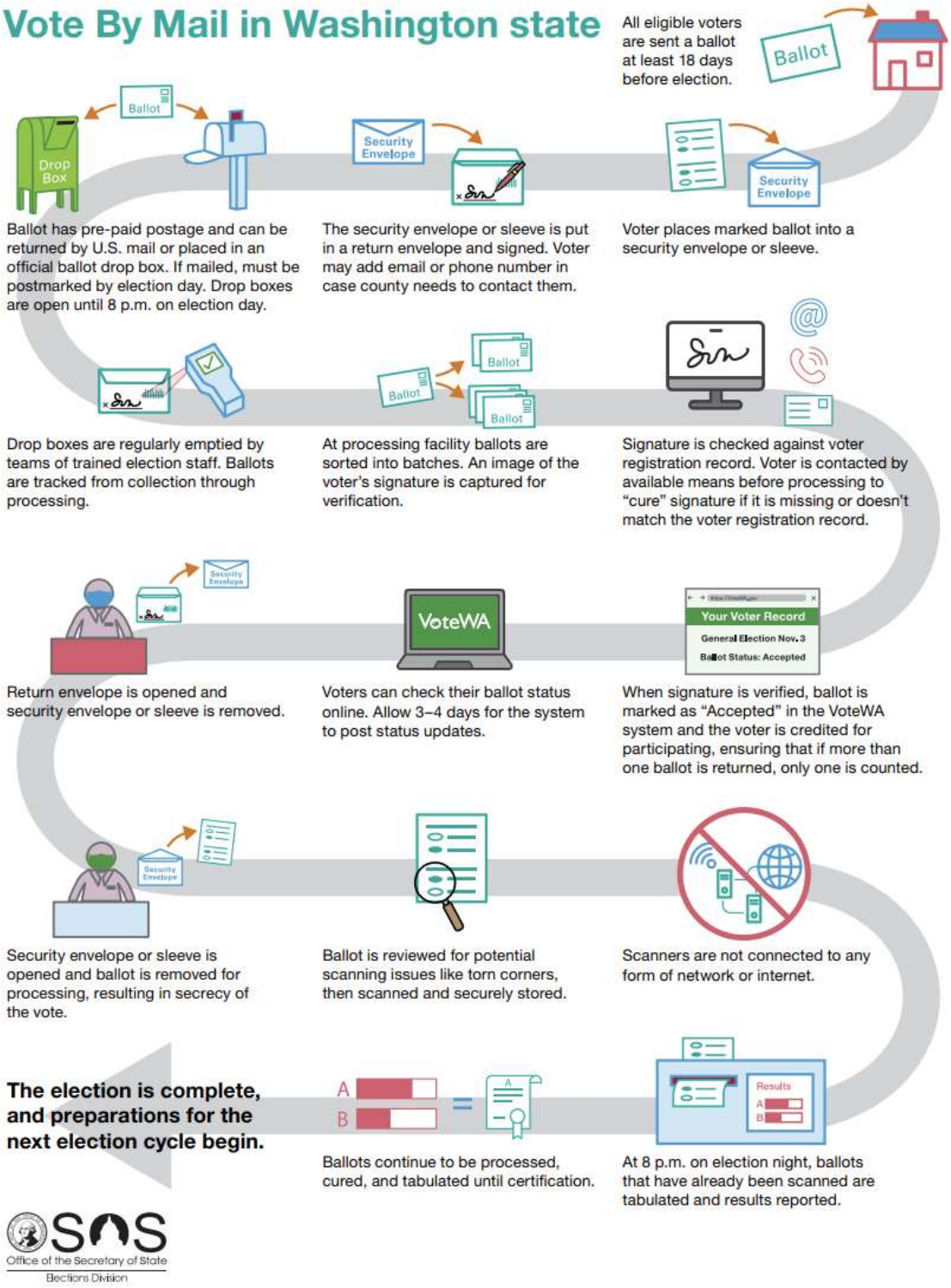
There remain open questions about how aspects of local context, such as drop box location or the presence of locally competitive elections, affect ballot rejection and cure rates. Although not discussed here, county offices for election administration in Washington State have started to use signature update

requests as a tool for improving signatures on file and thus reducing the number of challenged ballots. Given the promise of such tools, there is room to examine how counties make use of signature update forms and whether voters receiving these invitations have lower probabilities of having a ballot challenged. Finally, there is opportunity for researchers to collaborate with county elections offices to measure the impact of innovative practices to reach voters, such as ballot envelope redesign, modified cure letter formats, or introduction of new ballot processing technology.

Findings here underscore the importance of statewide voter outreach and educational programs reminding voters to match their ballot signature with the signature that is on the voter registration file (usually through the Department of Licensing). County elections offices should continue their efforts to offer voters regular opportunities to update signatures on file. Finally, legislators should explore how ballot drop boxes may be enhanced or redesigned to remind voters to sign their ballots.

In addition to governmental efforts, community-based organizations could play a stronger role in educating voters around VBM and helping voters cure challenged ballots, particularly within historically marginalized communities. Messaging that encourages voters to return their ballots as early as possible, to sign their ballots, and to sign using their driver's license signature may be particularly useful to reduce rejected ballot rates. Similarly, community-based organizations should work with county and state government to help voters learn about ballot processing and signature verification.

APPENDIX FIGURE 1: VOTE-BY-MAIL PROCESS, STATE OF WASHINGTON



Source: Office of the Secretary of State (2023a)

Appendix Table 1: Ballot Challenge and Cure Rates in Primary and General Elections in Washington State by Voter Demographics, 2020 to 2024

	Percent of All Ballots Cast that were Challenged		Percent of All Challenged Ballots that were Cured		Percent of All Challenged Ballots that were Cured with Notice		Number of Challenged Ballots
	Mean	95% CL	Mean	95% CL	Mean	95% CL	
Imputed Race & Ethnicity							
Black	1.8	[1.6, 2.0]	51.5	[50.7, 52.3]	36.5	[35.7, 37.2]	14,868
Hispanic	2.2	[2.0, 2.3]	50.7	[50.1, 51.3]	38.1	[37.6, 38.7]	30,074
Asian	2.0	[1.8, 2.1]	48.6	[48.1, 49.2]	37.1	[36.5, 37.6]	30,284
Other	1.6	[1.4, 1.7]	58.8	[58.3, 59.4]	43.4	[42.8, 43.9]	31,992
White	1.5	[1.4, 1.5]	60.1	[59.9, 60.3]	44.9	[44.7, 45.1]	268,920
Gender							
Female	1.4	[1.3, 1.4]	59.8	[59.6, 60.1]	44.5	[44.2, 44.7]	166,776
Male	1.8	[1.8, 1.8]	56.6	[56.4, 56.8]	42.5	[42.2, 42.7]	197,935
Other	4.6	[4.1, 5.2]	47.5	[41.6, 53.4]	33.1	[27.5, 38.7]	278
Unknown	2.6	[2.5, 2.6]	48.6	[47.2, 50.0]	36.1	[34.8, 37.4]	5,054
Age							
18 to 25	5.2	[5.2, 5.2]	46.9	[46.6, 47.3]	36.2	[35.9, 36.5]	85,833
26 to 45	2.2	[2.2, 2.2]	55.1	[54.8, 55.3]	40.0	[39.7, 40.2]	142,996
46 to 65	1.1	[1.1, 1.1]	63.5	[63.2, 63.8]	47.8	[47.4, 48.1]	92,384
66 or older	0.7	[0.7, 0.7]	73.4	[73.0, 73.7]	55.5	[55.1, 55.9]	54,924
County Geography							
Metropolitan	1.6	[1.6, 1.6]	57.4	[57.2, 57.5]	42.0	[41.9, 42.2]	335,407
Non-metropolitan	1.6	[1.6, 1.6]	62.8	[62.3, 63.2]	53.5	[53.0, 54.0]	40,731

Note: Statewide figures of voter-level ballot data reported. A small number of challenged ballots are missing gender or age information in the administrative data. Signature challenges include ballots where there was no signature on the envelope and ballots where the signature was determined not to match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Appendix Table 2: Rejected Ballots in Primary and General Elections in Washington State by Voter Demographics, 2020 to 2024

	Percentage of Cast Ballots Rejected			
	Primary		General	
	Mean	95% CL	Mean	95% CL
Imputed Race & Ethnicity				
Black	1.7	[1.6, 1.7]	1.3	[1.3, 1.3]
Hispanic	1.9	[1.9, 1.9]	1.5	[1.5, 1.5]
Asian	1.9	[1.8, 1.9]	1.5	[1.4, 1.5]
Other	1.4	[1.4 1.4]	1.0	[1.0, 1.0]
White	1.3	[1.3, 1.3]	0.9	[0.9, 0.9]
Gender				
Female	1.3	[1.3, 1.3]	0.9	[0.9, 0.9]
Male	1.5	[1.5, 1.5]	1.1	[1.1, 1.1]
Other	4.2	[3.2, 5.1]	2.8	[2.3, 3.3]
Unknown	2.3	[2.2, 2.4]	1.8	[1.7, 1.9]
Age				
18 to 25	4.1	[4.0, 4.1]	3.4	[3.4, 3.4]
26 to 45	2.1	[2.1, 2.1]	1.4	[1.4, 1.4]
46 to 65	1.3	[1.3, 1.3]	0.7	[0.7, 0.7]
66 or older	0.6	[0.6, 0.7]	0.3	[0.3, 0.3]
County Geography				
Metropolitan	1.4	[1.4, 1.4]	1.0	[1.0, 1.0]
Non-metropolitan	1.2	[1.2, 1.2]	0.9	[0.9, 0.9]

Note: Statewide figures of voter-level ballot data reported. A small number of challenged ballots are missing gender or age information in the administrative data. Signature challenges include ballots where there was no signature on the envelope and ballots where the signature was determined not to match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

Appendix Table 3: Ballot Rejection by Reason in Primary and General Elections in Washington State, 2020 to 2024

	Ballot Rejected: No Signature				Ballot Rejected: Signature Mismatch				Ballot Rejected: Returned Late			
	Primary (1)		General (2)		Primary (3)		General (4)		Primary (5)		General (6)	
	Mean	95% CL	Mean	95% CL	Mean	95% CL	Mean	95% CL	Mean	95% CL	Mean	95% CL
Imputed Race & Ethnicity												
Black	0.21	[0.19, 0.23]	0.20	[0.19, 0.21]	0.47	[0.45, 0.50]	0.79	[0.77, 0.82]	0.98	[0.95, 1.02]	0.31	[0.30, 0.33]
Hispanic	0.22	[0.21, 0.23]	0.24	[0.23, 0.25]	0.61	[0.59, 0.63]	0.96	[0.94, 0.98]	1.06	[1.03, 1.09]	0.31	[0.30, 0.32]
Asian	0.21	[0.20, 0.22]	0.19	[0.18, 0.20]	0.61	[0.59, 0.63]	0.94	[0.92, 0.96]	1.07	[1.04, 1.09]	0.32	[0.31, 0.33]
Other	0.17	[0.16, 0.18]	0.15	[0.14, 0.16]	0.39	[0.38, 0.41]	0.56	[0.55, 0.57]	0.83	[0.81, 0.85]	0.27	[0.26, 0.28]
White	0.16	[0.16, 0.16]	0.14	[0.14, 0.14]	0.36	[0.36, 0.37]	0.50	[0.49, 0.50]	0.79	[0.79, 0.80]	0.26	[0.26, 0.26]
Gender												
Female	0.14	[0.14, 0.15]	0.12	[0.12, 0.12]	0.33	[0.32, 0.33]	0.48	[0.47, 0.48]	0.81	[0.80, 0.82]	0.26	[0.26, 0.27]
Male	0.20	[0.20, 0.21]	0.19	[0.18, 0.19]	0.47	[0.46, 0.47]	0.66	[0.65, 0.66]	0.84	[0.84, 0.85]	0.27	[0.27, 0.28]
Other	0.30	[0.04, 0.56]	0.28	[0.12, 0.43]	2.41	[1.67, 3.15]	2.05	[1.63, 2.47]	1.44	[0.87, 2.02]	0.44	[0.24, 0.63]
Unknown	0.36	[0.32, 0.41]	0.31	[0.28, 0.34]	0.80	[0.73, 0.86]	1.11	[1.06, 1.17]	1.12	[1.04, 1.21]	0.38	[0.35, 0.41]
Age												
18 to 25	0.29	[0.27, 0.30]	0.32	[0.31, 0.33]	2.33	[2.29, 2.37]	2.56	[2.53, 2.59]	1.45	[1.42, 1.48]	0.53	[0.51, 0.54]
26 to 45	0.22	[0.21, 0.23]	0.19	[0.18, 0.19]	0.71	[0.70, 0.72]	0.86	[0.85, 0.87]	1.20	[1.18, 1.21]	0.33	[0.32, 0.34]
46 to 65	0.17	[0.17, 0.18]	0.13	[0.13, 0.14]	0.23	[0.22, 0.24]	0.29	[0.28, 0.29]	0.90	[0.89, 0.91]	0.26	[0.26, 0.26]
66 or older	0.12	[0.12, 0.13]	0.01	[0.01, 0.01]	0.07	[0.07, 0.08]	0.09	[0.09, 0.10]	0.45	[0.44, 0.46]	0.16	[0.15, 0.16]
County Geography												
Metropolitan	0.17	[0.17, 0.17]	0.15	[0.15, 0.15]	0.40	[0.40, 0.40]	0.58	[0.58, 0.59]	0.85	[0.85, 0.86]	0.27	[0.27, 0.28]
Non-metropolitan	0.18	[0.17, 0.19]	0.17	[0.16, 0.18]	0.37	[0.36, 0.39]	0.47	[0.46, 0.48]	0.64	[0.62, 0.65]	0.25	[0.24, 0.26]

Note: Statewide figures of voter-level ballot data reported. Reported figures reflect those ballots where administrative records indicate they were rejected for being late, lacking an envelope signature, or a signature that does not match the signature(s) on file.

Source: Ballot Issuances from 2020 to 2024; Ballot Rejections and Cures from 2020 to 2024.

REFERENCES

Acevedo, Mindy, Matthew A. Barreto, Michael Cohen, Chad W. Dunn, and Sonn Waknin. 2020. "Ensuring Equal Access to the Mail-In Ballot Box." *UCLA Law Review*. Special Issue, Law Meets World 68: 4-21.

Allard, Scott W., Jacob Grumbach, Calista Jahn, Megan Ming Francis, Lucas Owen, Whitney Quesenbery, Fernando Sánchez, AK Sterling, Joshua Varela, Will von Geldern, and Isaiah Wright. 2023. "Understanding Patterns and Trends in Rejected Mailed Ballots in Washington State." Evans Policy Innovation Collaborative Report. Accessed: June 7, 2025. https://evans.uw.edu/community-engagement/epic/washington-state-ballots-project/

Asian Americans Advancing Justice – California. 2017. "Asian Americans face higher than average vote-by-mail ballot rejection rates in California." Accessed: October 9, 2023. https://www.advancingjustice-alc.org/wp-content/uploads/2017/08/issuebrief-vbm-FINAL.pdf

Baringer, Anna, Michael C. Herron, and Daniel A. Smith. 2020. "Voting by Mail and Ballot Rejection: Lessons from Florida for Elections in the Age of the Coronavirus." *Election Law Journal*, 19(3): 289-320. DOI: 10.1089/elj.2020.0658

Barreto, Matthew, Michael Cohen, Loren Collingwood, Chad W. Dunn, and Sonni Waknin. 2022. "A Novel Method for Showing Racially Polarized Voting: Bayesian Improved Surname Geocoding." *New York University Review of Law & Social Change*, 46(1): 1-42.

Berinsky, Adam J., Nancy Burns, and Michael W. Traugott. "Who votes by mail?: A dynamic model of the individual-level consequences of voting-by-mail systems." *Public opinion quarterly* 65, no. 2 (2001): 178-197.

Bonica, Adam, Jacob M. Grumbach, Charlotte Hill, and Hakeem Jefferson. 2021. "All-mail voting in Colorado increases turnout and reduces turnout inequality." *Electoral Studies*, 72(2021): 1-12. DOI: 10.1016/j.electstud.2021.102363

California Civic Engagement Project. 2014. "Disparities in California's Uncounted Vote-by-Mail Ballots: Youth, Language Preference and Military Status." Issue Brief #13. Accessed: October 9, 2023. https://regionalchange.ucdavis.edu/sites/g/files/dgvnsk986/files/inline-files/UCDavisVotebyMailBrief3.pdf

California Voter Foundation. 2014. "Improving California's Vote-by-Mail Process: A Three-County Study." Accessed: October 9, 2023. https://www.calvoter.org/sites/default/files/cvf_vbm_study.pdf

California Voter Foundation. 2020. "Improving California's Vote-by-Mail Process by Reducing Ballot Rejection: A Three-County Study." Accessed: October 9, 2023. https://www.calvoter.org/sites/default/files/cvf_rejected_ballots_report.pdf

Cottrell, David, Michael C. Herron, and Daniel A. Smith. 2021. "Vote-by-mail Ballot Rejection and Experience with Mail-in Voting." *American Politics Research*, 49(6): 577-90. DOI: 10.1177/1532673X211022626

DeLuca, Kevin and John A. Curiel. 2022. “Validating the Applicability of Bayesian Inference with Surname and Geocoding to Congressional Redistricting.” *Political Analysis*, 31: 465-71.

Decter-Frain, Ari, Pratik Sachdeva, Loren Collingwood, Hikari Murayama, Juandalyn Burke, Matt Barreto, Scott Henderson, Spencer Wood, and Joshua Zingher. 2023. “Comparing Methods for Estimating Demographics in Racially Polarized Voting Analyses.” *Sociological Methods & Research*. DOI: 10.1177/00491241231192383

Fiscella, Kevin and Allen M. Fremont. 2006. “Use of Geocoding and Surname Analysis to Estimate Race and Ethnicity.” *Health Services Research*, 41(4, Part I): 1482-1500. DOI: 10.1111/j.1475-6773.2006.00551.x1482

Flaxman, Seth, Marie-Fatima Hyacinthe, Parker Lawson, and Kathryn Peters. 2013. “Voting by Mail: increasing the use and reliability of mail-based voting options.” Accessed: October 9, 2023. http://web.mit.edu/supportthevoter/www/files/2013/11/Vote-by-Mail-Reform-Memo.pdf

Gronke, Paul, Mindy S. Romero, Enrijeta Shino, and Daniel M. Thompson. 2023. “Vote-by-Mail in the United States: Best Practices and New Areas for Research.” Accessed: October 9, 2023. https://electionlab.mit.edu/sites/default/files/2023-10/vote-by-mail.pdf

Grumbach, Jake and Alexander Sahn. 2019. “Race and Representation in Campaign Finance.” *SSRN*. DOI: 10.2139/ssrn.3385855

Herman, Jody L., Nathan Cisneros, Lindsay Mahowald, and Will Tentindo. 2024. “The Potential Impact of Voter Identification Laws on Transgender Voters in the 2024 General Election.” Los Angeles, CA: The Williams Institute, UCLA School of Law. Accessed August 5, 2025. https://williamsinstitute.law.ucla.edu/publications/trans-voter-id-impact/

Herman, Jody L., and Kathryn O’Neill. 2021. “Gender Marker Changes on State ID Documents: State Level Policy Impacts.” Los Angeles, CA: The Williams Institute, UCLA School of Law. Accessed August 5, 2025. https://williamsinstitute.law.ucla.edu/wp-content/uploads/Gender-Markers-Jun-2021.pdf

Hanmer, Michael J. and Michael W. Traugott. 2004. “The Impact of Voting by Mail on Voter Behavior.” *American Politics Research*, 32(4): 375-405. DOI: 10.1177/1532673X04263412

Imai, Kosuke and Kabir Khanna. 2016. “Improving Ecological Inference by Predicting Individual Ethnicity from Voter Registration Records.” *Political Analysis*, 24(2): 263-72. DOI: 10.1093/pan/mpw001

Janover, William and Tom Westphal. 2020. “Signature Verification and Mail Ballots: Guaranteeing Access While Preserving Integrity—A Case Study of California’s Every Vote Counts Act.” *Election Law Journal*, 19(3): 321-43. DOI: 10.1089/elj.2020.0648

Johnson, Sean Isamu and Whitney Quesenbery. 2021. “Making ballot envelopes clear and understandable: The impact of plain language on voter signature forms.” Center for Civic Design. Accessed: October 9, 2023. https://civicdesign.org/wp-content/uploads/2017/12/VBM-Signature-Statements-CCD-final-2021-01-19.pdf

Maluf, Emmy. 2024. “Voting While Trans: How Voter ID Laws Unconstitutionally Compel the Speech of Trans Voters.” *Michigan Law Review* 122(5): 927–968.

Menger, Andrew and Robert M, Stein. 2017. “Enlisting the Public in Facilitating Election Administration: A Field Experiment.“ *Public Administration Review*, 78(6): 892-903. DOI: 10.1111/puar.12833

Miller, Michael G., Kevin T. Morris, Ian Shapiro, and Coryn Grange. 2024. “Restrictive Mail Voting Rules Burden Minority Voters: Evidence from Texas.” March 5. Brennan Center for Justice Working Paper. https://www.brennancenter.org/sites/default/files/2024-03/Miller%20-%20Texas_Rejections.pdf.

Movement Advancement Project. 2022. “The ID Divide: How Barriers to ID Impact Different Communities and Affect Us All.” Accessed August 5, 2025. https://www.mapresearch.org/file/MAP-Identity-Documents-report-2022.pdf

Movement Advancement Project. 2023. “Voter Turnout Percentage.” Accessed October 9, 2023. https://www.lgbtmap.org/democracy-maps/voter_turnout_percentage

National Conference of State Legislatures. 2023. “The Evolution of Absentee/Mail Voting Laws, 2020 through 2022.” Accessed: October 9, 2023. https://www.ncsl.org/elections-and-campaigns/the-evolution-of-absentee-mail-voting-laws-2020-through-2022

Office of the Washington State Auditor. 2022. Evaluating Washington’s Ballot Rejection Rates.” Accessed: October 9, 2023. https://sao.wa.gov/reports-data/audit-reports/evaluating-washingtons-ballot-rejection-rates

Sederbaum, Isaac. 2025. "Normative Sexual Citizens: Administrative Burden, Citizen-State Interactions, and Transgender People in the US." Working Paper.

Shino, Enrijeta, Mara Suttman-Lea, and Daniel A. Smith. 2022. “Determinants of Rejected Mail Ballots in Georgia’s 2018 General Election.” *Political Research Quarterly*, 75(1): 231-43. DOIL 10.1177/10659129219935

Smith, Daniel A. and Anna Baringer. 2019. “ACLU Florida: Report on Vote-by-Mail Ballots in the 2018 General Election.” ACLU Florida. Accessed: October 9, 2023. https://www.aclufl.org/en/aclu-florida-report-vote-mail-ballots-2018-general-election

Southwell, Priscilla L. 2010. “Voting Behavior in Vote-by-Mail Elections.” *Analyses of Social Issues and Public Policy*, 10(1): 106-15. DOI: 10.1111/j.1530-2415.2010.01218.x

Street, Alex. 2024. “Errors and Calibration in Mail Ballot Signature Rejections.” *American Politics Research* 52(5): 546–564. https://doi.org/10.1177/1532673X241254383.

U.S. Department of Agriculture. 2020. “Rural-Urban Continuum Codes.” Accessed: October 9, 2023. https://www.ers.usda.gov/data-products/rural-urban-continuum-codes

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. 2023. "HUD-USPS ZIP Code Crosswalk Files." Accessed: October 9, 2023. https://www.huduser.gov/portal/datasets/usps_crosswalk.html

Voting Rights Lab. 2025. "Voter Access." Accessed: June 6, 2025. https://tracker.votingrightslab.org/pending/snapshot/access

Voting Rights Lab. 2025. "Returning, Verifying, and Curing Mail Ballots." *Election Policy Tracker*. Accessed July 24, 2025. https://tracker.votingrightslab.org/issues/returning-verifying-and-curing-mail-ballots.

Washington Secretary of State. 2021. "Washington State Vote-By-Mail (VBM) Fact Sheet." Accessed: October 9, 2023. https://www.sos.wa.gov/sites/default/files/2022-05/wa_vbm.pdf?uid=6515b564d636f

Washington Secretary of State. 2022. "Elections Data and Statistics." Accessed: October 9, 2023. https://www.sos.wa.gov/elections/data-research/election-data-and-maps/data-and-statistics

Washington Secretary of State. 2023a. "Path of a ballot, Vote-By-Mail in Washington State." Accessed: October 9, 2023. https://www2.sos.wa.gov/elections/faq_vote_by_mail.aspx

Washington Secretary of State. 2023b. "Introduction to County Canvassing Boards: Washington State Elections." Accessed: October 9, 2023. https://countyofficials.org/DocumentCenter/View/2057/canvassing-board-handbook-NEO-1206

Washington Secretary of State. 2023c. "Voter Turnout by Election." Accessed: October 9, 2023. https://www.sos.wa.gov/elections/data-research/election-data-and-maps/data-and-statistics/voter-turnout-election

Washington State Legislature. 2023a. "Title 29A RCW: ELECTIONS." Accessed: October 9, 2023. https://app.leg.wa.gov/RCW/default.aspx?cite=29A

Washington State Legislature. 2023b. "WAC 434-250-120." Accessed: October 9, 2023. https://apps.leg.wa.gov/wac/default.aspx?cite=434-250-120

Washington State Legislature. 2023c. "WAC 434-261-050." Accessed: October 9, 2023. https://apps.leg.wa.gov/wac/default.aspx?cite=434-261-050

Washington State Legislature. 2023d. "RCW 29A.60.140: Canvassing Board—Membership—Authority—Delegation of Authority—Rule Making." Accessed: October 9, 2023. https://app.leg.wa.gov/RCW/default.aspx?cite=29A.60.140

Washington State Legislature. 2023e. "RCW 29A.60.165: Unsigned Ballot Declarations." Accessed: October 9, 2023. https://app.leg.wa.gov/RCW/default.aspx?cite=29A.60.165

White, Ariel R., Noah L. Nathan, and Julie K. Faller. 2015. “What Do I Need to Vote? Bureaucratic Discretion and Discrimination by Local Election Officials.” *American Political Science Review*, 109(1): 129-42. DOI: 10.1017/S0003055414000562

Wilding, Craig. 2021. "Mail Ballot Signature Rejections: Household Members Signing Each Other's Ballots." Accessed: October 9, 2023. https://stars.library.ucf.edu/etd2020/943

Wu, Jennifer, Chenoa Yorgason, Hanna Folsz, Cassandra Handan-Nader, Andrew Myers, Tobias Nowacki, Daniel M. Thompson, Jesse Yoder, and Andrew B. Hall. 2024. **“**Are Dead People Voting by Mail: Evidence from Washington State Administrative Data.” *Election Law Journal: Rules, Politics, and Policy*. Forthcoming.