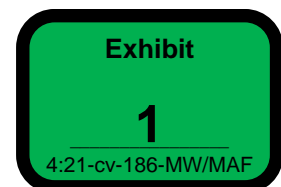*League of Women Voters of Florida, Inc., et al. v. Lee, et al.,*

Case No. 4:21-cv-00186-MW-MAF

United States District Court for the Northern District of Florida

Tallahassee Division

EXPERT REPORT OF MICHAEL C. HERRON, Ph.D.

_____

Dr. Michael C. Herron

September 1, 2021

Contents

1   Introduction

1   I have been engaged by League of Women Voters of Florida Plaintiffs' Counsel to provide an expert report in the matter of *League of Women Voters of Florida, Inc., et al. v. Laurel M. Lee et al.* In particular, Counsel requested that I assess the publicly stated rationale for Florida Senate Bill 90 (hereinafter SB 90) and characterize the burdens, if any, that this bill places on voters in Florida.[1] Counsel requested that I focus my report on the consequences that SB 90 has for vote-by-mail voting in Florida, ballot drop boxes, the forms of assistance that vote-by-mail voters are permitted to receive, voter registrations carried out with the assistance of third party voter registrations organizations, and voting lines.

2   Following its initial filing on February 3, 2021, SB 90 was subject to hearings and amendments during a three-month legislative process. After being passed by both chambers of the Legislature of the State of Florida, SB 90 was signed into law by Governor Ron DeSantis on May 6, 2021.

2   Summary of conclusions

I.   SB 90 is an election reform bill in Florida that has tightened regulations associated with voting by mail; placed limits on how ballot drop boxes can be used in the state; restricted the assistance that vote-by-mail voters can receive from others; added requirements to third party voter registration organizations; and, limited the forms of engagement that third parties can have with individuals waiting in line to vote. SB 90 has therefore raised the cost of voting in Florida. In legislative debates on SB 90, Florida legislators stated that this bill was intended to address concerns about voter fraud. Nonetheless, voter fraud in American elections is rare, and there is no evidence indicating that Florida is an outlier in the country with respect to voter fraud. There is also no evidence of systematic voter fraud in Florida in

---

[1]The text of SB 90 is available at `https://www.flsenate.gov/Session/Bill/2021/90/BillText/er/PDF` (last accessed August 11, 2021).

the 2020 election cycle. The vast majority of Florida's 67 counties, when asked to produce documentation of any concerns they had about election integrity, replied that they have no such documentation.

II.   Vote-by-mail ballots are regularly used by Florida voters. In statewide elections since 2014, approximately 39 percent of all ballots cast—over 19 million ballots in total—were vote-by-mail ballots. In the 2020 General Election, voters cast roughly 4.9 million vote-by-mail ballots, a record for the state. In the 2016 General Election, there were 2.8 million vote-by-mail ballots.

III.   While White voters in Florida have traditionally cast vote-by-mail ballots more often than Black voters, the Black vote-by-mail rate surged in the 2020 Primary Election and 2020 General Election. The same is true of voters affiliated with the Democratic party: their vote-by-mail rates exceeded Republican rates in the 2020 Primary and 2020 General, something that is unprecedented given vote-by-mail pattens in Florida in preceding years. In all nine elections studied in this report, from 2014 up to 2020, older voters were disproportionately heavy users of vote-by-mail voting. While all Floridians will be burdened by the changes SB 90 has made to statutes in Florida, older individuals are among the most prone to being burdened by changes to Florida's election laws that limit vote-by-mail voting. Lastly, SB 90's restrictions on vote-by-mail voting in Florida were enacted immediately following an election in which unprecedented numbers of Black and Democratic voters cast vote-by-mail ballots.

IV.   When registering to vote in Florida, individuals can state whether they need assistance voting. In the time period covered in this report, voters stating that they require voting assistance were disproportionately non-White, Democratic, and older. Thus, while all Floridians will be burdened by the changes SB 90 has made to limits on the forms of assistance available to voters, non-White, Democratic, and older voters are among the most prone to being burdened by these changes.

V.   The Survey of the Performance of American Elections is a national survey of voters gen-

erally conducted after midterm and presidential elections. Among other things, this survey tracks vote-by-mail voters whose ballots were submitted by third parties. Regression analysis of multiple editions of the Survey shows that individuals with disabilities are disproportionately likely to have relied on a third-party for vote-by-mail ballot delivery. While all individuals in Florida are burdened by SB 90's changes to Florida statutes that limit who can deliver vote-by-mail ballots, individuals with disabilities are among the most prone to being burdened in this way.

VI.   In the 2020 General, there were over 1.3 million ballots cast via drop box among the 46 counties for which total numbers of drop box ballots could be determined. Of voters who cast vote-by-mail ballots in these counties, roughly 31 percent submitted their ballots via drop box. And, at least one in every ten ballots voted in Florida in the 2020 General was submitted via a drop box.

VII.   Thousands of Florida voters who cast vote-by-mail ballots in the 2020 Presidential Preference Primary, the 2020 Primary, and the 2020 General Election submitted their ballots in drop boxes. Across a set of six counties that track the individuals who vote via drop box, the voters that cast their ballots in this way were disproportionately Black and disproportionately Democratic. Moreover, across all three elections in the 2020 cycle, the older a vote-by-mail voter, the less likely the voter was to have used a drop box. In the 2020 Presidential Preference Primary and the 2020 Primary, users of drop boxes were also disproportionately young. As a result, Black, Democratic, and young voters in Florida are among the most prone to being burdened by changes to Florida election statutes that limit the availability of drop boxes in the state. These burdens will be exacerbated by the fact that at least 21 counties across Florida have already announced reductions in drop box locations and/or hours on account of SB 90.

VIII. Across the aforementioned set of six counties that track the individuals who vote via drop box, in the 2020 Presidential Preference Primary and 2020 Primary between 60 and 70 percent of all drop box ballots were submitted within a week of Election Day. In the 2020

General, roughly 35 percent of drop box ballots were submitted in this time period. Across a set of 27 Florida counties that track daily totals of drop box submissions (which includes the above six), approximately 28 percent of drop box ballots were cast within a week of Election Day and roughly 23 percent were cast between September 1, 2020 and October 18, 2021, i.e., before early voting in Florida commenced in the 2020 General Election.

IX.   While the most populous counties in Florida offered more drop box locations in the 2020 General in an absolute sense, SB 90's changes to Florida's election statutes, which limit where drop boxes can be installed, practically necessitate that these counties have many fewer permitted drop box locations per registered voter. Accordingly, voters in populous counties who vote via drop box are subject to greater congestion than other voters. The most populous counties in the Florida are predominantly non-White and Democratic, and these counties have comparatively high rates of registered voters per permitted drop box location.

X.   Hundreds of thousands of voting-eligible residents of Florida have registered to vote with the assistance of third-party voter registration organizations. Among registered voters who used these organizations, there are disproportionately more Black registered voters and disproportionately fewer White registered voters. In addition, there are disproportionately more Democratic-affiliated voters and disproportionately fewer Republican affiliates. These conclusions hold in both official statewide data that tracks methods of voter registration and in lists of registrants maintained by selected Florida counties. Black and Democratic voters are among the most prone to be being burdened by changes to Florida election statutes that restrict the activities of third party voter registration organizations.

XI.   Voting lines in the United States and in Florida in particular have historically been longer for minority voters than for their White counterparts. This was true both prior to 2020 and in the 2020 General Election as well. Minority voters, therefore, are disproportionately burdened by the time tax of waiting in line to vote. Waiting in line to vote can also depress future voter turnout. By limiting the forms of engagement that third parties can have with individuals waiting in line to vote, SB 90 burdens those voters who face disproportionately

long voting lines, i.e., minority voters. And, to the extent that voters in Florida respond to the additional costs of voting by mail imposed by SB 90 by shifting to in-person voting, they risk exacerbating the already disproportionately long voting lines faced by Florida's non-White voters, burdening these individuals in the process.

3   Qualifications

3   I am the William Clinton Story Remsen 1943 Professor of Quantitative Social Science at Dartmouth College in Hanover, New Hampshire and am Chair, Program in Quantitative Social Science. From 2004 to June 2021, I was Professor of Government at Dartmouth. I have taught at Dartmouth since 2003 and previously was on the faculty of Northwestern University. I have served as a visiting professor at Harvard University (July 2008–January 2009), the University of Rochester (September 2006–December 2006), and the Hertie School of Governance in Berlin (August 2011–August 2012). I have also served as a visiting scholar at the Hertie School of Governance (August 2016–July 2017).

4   In January 1998, I received a doctorate in the field of Political Economy from the Graduate School of Business at Stanford University. I also have a master's degree in statistics from Stanford University (June 1995), a master's degree in political science from the University of Dayton (August 1992), and a bachelor's degree in mathematics and economics from Carnegie-Mellon University (May 1989).

5   I have published many scholarly articles on election administration and American elections, three such articles in 2019 and two in 2018. Among other subjects, I have written on the effects of ballot formats, patterns in invalid votes, the availability of early voting, and polling place congestion. My articles rely on statistical analyses, and my ongoing research agenda focuses heavily on issues in election administration.

6   I have published over 20 articles in peer-reviewed political science journals, including in the field's top general bwjournals (*American Political Science Review*, *American Journal of Political Science*, and *Journal of Politics*). I have published in specialty journals as well (*Election Law Journal*, *American Politics Research*, and *Legislative Studies Quarterly*).

7   I was a testifying expert for defendants in *Law et al. v. Whitmer et al.* (Case No.: 20 OC 00163 1B) and in *Jennings v. Elections Canvassing Commission of the state of Florida* (2006 WL 4404531 (Fla.Cir.Ct.)) and a testifying expert for plaintiffs in *Alliance for Retired American et al. v. Matthew Dunlap et al.* (DKT NO. CV-20-95), *Michigan Alliance for Retired Americans et al. v. Jocelyn Benson et al.* (Civil Action No. 2020-000108-MM), *League of Women Voters of New Hampshire et al. v. William M. Gardner et al.* (226-2017-CV-433), and *Veasey et al. v. Abbott et al.* (265 F. Supp. 3d 684 (S.D. Tex. 2017)). In addition, I have written expert reports in approximately 12 other cases relating to aspects of election law and election administration.

8   My written and oral testimony was credited by courts in their written opinions in *Law et al. v. Whitmer et al.*, *Donald J. Trump for President, Inc. v. Stephen Bullock et al.* (Case No.: 6:20-cv-00066-DLC), *League of Women Voters of New Hampshire et al. v. William M. Gardner et al.*, and in *Veasey et al. v. Abbott et al.*. My opinions and testimony have never been found by a court to be unreliable.

9   My *curriculum vitae* is attached as Appendix A.

10   I am being paid at a rate of $550/hour for work in this litigation. My compensation is contingent neither on the results of the analyses described herein nor on the contents of this report.

4   The calculus of voting

11   The *calculus of voting* is a theoretical framework that scholars regularly invoke, sometimes explicitly and other times implicitly, to guide inquiry when studying aspects of election adminis-

tration. I have invoked the calculus of voting in my academic work and in my work as an expert witness, and I do so in this report to guide my analysis.

12   This framework posits that an individual's decision to turn out and vote in an election should be understood as reflecting a comparison between the costs and benefits of this action. Attributed to Downs (1957) and Riker and Ordeshook (1968), according to the calculus of voting, an individual will turn out to vote only if the benefits of doing so outweigh the costs. Otherwise, the individual will not turn out.[2]

4.1   Benefits of voting

13   Broadly speaking, the benefits of voting can be broken into two categories. As discussed by Li, Pomante II and Schraufnagel (2018), one potential benefit associated with voting is instrumental: by casting a ballot for a given candidate, an individual increases the likelihood that this candidate will win his or her election. Prior to voting, of course, an individual does not know whether his or her vote will be pivotal to an election outcome. However, voting for a candidate increases this likelihood, even if by a very small amount.[3]

14   A second potential benefit of voting can be characterized as expressive (e.g., Brennan and Hamlin, 1998; Drinkwater and Jennings, 2007). Namely, a voter is said to receive an expressive benefit from voting if he or she values the act of expressing his or her opinion via casting a ballot. A voter can receive an expressive benefit from voting if voting is simply an activity that he or she likes to do. A voter can similarly receive an expressive benefit from voting if he or she values participating in a community exercise like an election.

---

[2]The calculus of voting can be interpreted deterministically (when voting's benefits exceed its costs, a voter turns out for sure) and probabilistically (when the of voting benefits exceed costs, a voter is more likely to turn out). See Brians and Grofman (2001) for an example of the latter.

[3]One can make a similar argument about statewide referenda or local issues that often appear on ballots. There is nothing in the calculus of voting that requires an election to involve candidates *per se*.

4.2   Costs of voting

15   On the other side of benefits are costs that a voter must incur in order to vote. These costs can be decreased or increased by changes in voting rules and procedures.

16   One cost of voting is time (Mukherjee, 2009; Herron and Smith, 2015). Waiting in line to vote is a time tax as is time spent gathering documents necessary to prove eligibility to vote, time spent traveling to a polling location or an elections office, time spent learning how to vote, among other things. For vote-by-mail (VBM) voters, time spent gathering documents necessary to prove eligibility to cast a VBM ballot and time spent acquiring a VBM ballot are also costs of voting.

17   Another cost of voting by mail is financial (Tokaji and Colker, 2007) to the extent that a voter's jurisdiction does not include pre-paid postage for vote-by-mail (VBM) ballot return envelopes.[4]

18   A third cost of voting is information. For in-person voters, knowing where to vote and when voting is allowed require an individual to have information about in-person voting processes. The same is true for voters wishing to cast VBM ballots. While voting by mail can be convenient (Gronke et al., 2008), knowing how to request a VBM ballot, knowing when requesting such a ballot is permitted and how long it will take to arrive subsequent to being requested, and understanding how to return a VBM ballot, as well as how long it will take a submitted ballot to travel to an elections office, all require specific knowledge.

19   When registering to vote is a prerequisite to voting, as it is in Florida, then costs of registration are also costs of voting. Like voting itself, registering to vote can impose a time tax, costs associated with documentation preparation, and specialized knowledge.

---

[4]According to the National Conference of State Legislatures, "17 states have statutes requiring local election officials to provide return postage for mailed ballots." Florida is not one of them. See "Which states pay for postage to return an absentee ballot?", *National Conference of State Legislatures*, available at `https://www.ncsl.org/research/elections-SB90and-SB90campaigns/absentee-SB90and-SB90early-SB90voting.aspx#pay` (last accessed August 15, 2021).

20   For scholarly literature on the costs of voting and how various aspects of election administration affect these costs, see Rosenstone and Wolfinger (1978), Rosenstone and Hansen (1993), Knack and White (2000), Brians and Grofman (2001), Knack (2001), Neiheisel and Horner (2019), Kaplan and Yuan (2020), and Grimmer and Yoder (2021). As shown concisely in Li et al. (2018), in states that have lower costs of voting, voter turnout is higher, all things equal. Thus, in states with higher costs of voting, voter turnout is lower, all things equal

21   The extent to which any particular cost of voting burdens an individual is dependent on an individual's personal circumstances. For individuals who are unemployed, transient, homeless, or have insecure housing, costs of voting that may seem trivial to those people not facing these challenges can be consequential. For individuals whose employment situations are rigid time-wise, separate trips to an elections office to, for example, secure or return a mail ballot can be burdensome. For individuals who are elderly and need assistance voting, voting by mail can be particularly burdensome. Individuals with disabilities can face high costs of voting in-person. Informational costs of voting will be higher for lesser educated individuals in society.

22   Throughout this report, when I assess the impact of SB 90 on a particular aspect of voting in Florida, I focus on whether this legislation increased the cost of voting and, if so, whether such an increase was concentrated on particular groups of voters.

5   Florida election administration

23   The federal government's role in election administration is limited, and operations of elections across the United States are governed largely by state laws.[5] Reflecting the implementation

---

[5]One exception concerns voters covered by the federal *Uniformed and Overseas Citizens Absentee Voting Act*, which covers "U.S. citizens who are active members of the Uniformed Services, the Merchant Marine, and the commissioned corps of the Public Health Service and the National Oceanic and Atmospheric Administration, their eligible family members, and U.S. citizens residing outside the United States." See "The *Uniformed and Overseas Citizens Absentee Voting Act* Overview," *Federal Voting Assistance Program*, available at `https://www.fvap.gov/info/laws/uocava` (last accessed August 14, 2021).

of federalism in the United States, the procedures by which eligible voters register to vote and the ways that they cast their ballots are matters left predominantly to state discretion.

5.1   State and county officials in Florida share election administration responsibilities

24   The state legislature in Florida, which consists of the state Senate and state House, is responsible for developing and enacting statutes that govern the conduct of elections in the state. The executive agency in Florida that handles election administration is the Department of State and in particular its Division of Elections.

25   Florida is divided into 67 counties. Each county has a Supervisor of Elections, who plays a significant role in the administration of elections.[6]

26   That both state and county officials in Florida are involved with election administration in the state has implications for the data sources on Florida election that I use in this expert report. In particular, some of the data sources I rely on here are maintained by the Florida Department of State and thus cover all of Florida.

27   In many places in this report, I also rely on data collected and maintained by county elections officials. However, not all county Supervisors of Elections offices maintain the same types of records. For example, later in this report I analyze lists of vote-by-mail voters who submitted their 2020 election ballots by placing them in drop boxes. Based on responses to discovery requests in this litigation, it is evident that only some counties in Florida maintain records documenting the voters who vote via drop box.

---

[6]"Each Supervisor conducts elections within his or her county." See "Contact Your County Supervisor of Elections," *Florida Department of State*, available at `https://www.dos.myflorida.com/elections/contacts/supervisor-SB90of-SB90elections` (last accessed August 14, 2021).

Page 14 of 121

28   In the academic literature on election administration, it is not uncommon for scholars to have data from some jurisdictions in a state (typically counties) but not others. My own published research on election lines in Florida exemplifies this (Cottrell, Herron and Smith, 2021).

5.2   Methods of casting ballots in Florida

29   Voters in Florida may vote *in-person* or with *vote-by-mail* (VBM) ballots. Voting in-person in Florida takes place on Election Day and during early voting hours, which are set by county elections officials in accordance with Florida statutes.

30   All registered voters in Florida may vote in-person, either at designated polling places on Election Day or in county early voting locations during early voting. Florida registered voters wishing to cast VBM ballots—which in some states would be called absentee ballots—must apply to do so, either in-person at Supervisors of Elections offices, by phone, or in writing. Florida is a "no excuse" absentee voting state, meaning that no reason is needed for a registered voter to acquire a VBM ballot.

31   In-person voters in Florida must bring a valid form of photo identification to their polling places. However, an individual who cannot establish his or her identity at the polls may vote a provisional ballot. A voter has until 5:00pm the day following Election Day to present evidence to local elections officials that the voter was eligible to vote where he or she appeared.[7]

32   VBM ballots can be submitted via mail or delivered in-person. VBM ballots must be submitted in designated envelopes that are signed and dated. Unlike votes cast in-person, VBM ballots in Florida can be rejected after being cast (Baringer, Herron and Smith, 2020). This can happen if a VBM ballot is missing a signature on its return envelope; if such a signature is present but does not

---

[7]For these in-person voting procedures, see "FAQ - Voting," *Florida Department of State*, avilable at `https://dos.myflorida.com/elections/contacts/frequently-SB90asked-SB90questions/faq-SB90voting` (last accessed August 30, 2021).

match an official voter signature on file; or, if the ballot is received late by local elections officials (for domestic voters in Florida, late means after 7:00pm on Election Day, regardless of postmark).

33   A Florida voter who requests a VBM ballot but then decides to vote in-person may do so.[8]

5.3   Demographics of the Florida electorate

34   In this report, I describe how various aspects of Florida elections—for example, the types of VBM voters in these elections who use drop boxes—are associated with voter race, age, and political party affiliation. To establish context for what follows, I now describe the racial, age-based, and partisan breakdown of the Florida electorate as of June 2021.

35   To do this, I draw on an official statewide Florida voter file, which is a list of registered voters in Florida. I use a version of this file with an effective date of June 2021, and Appendix B provides details on the file and describes how I processed it for use in this report. The June 2021 voter file has 15,105,044 rows, each of which corresponds to a registered voter. Ignoring duplicated voter identification numbers, the file covers 15,104,517 registered voters in Florida.

36   Table 1 contains the racial breakdown of these individuals. This table does not include registered voters for whom race is missing in the June 2021 voter file.

37   Florida's registered voter pool as of June 2021 was majority White. Hispanics make up approximately 17.42 percent of registered voters, and Black individuals, approximately 13.51 percent. Approximately 7.82 percent of registered voters report being neither Black, Hispanic, nor

---

[8]In particular, "A [Florida] voter who has requested a vote-by-mail ballot may change his or her mind and vote in person. The voter should bring the ballot (marked or unmarked) to the polls to turn the ballot in and vote a regular ballot. If the voter does not bring the ballot to the polls for whatever reason, the Supervisor of Elections' office will need to confirm that the ballot has not already been returned and received. If the ballot has not been received, the voter will be allowed to vote a regular ballot. If the ballot has been received, the ballot is deemed cast and the voter to have voted. If the voter believes the office is incorrect for whatever reason, the voter is allowed to vote a provisional ballot. The matter will then be presented to the canvassing board for determination. If it cannot be determined if the ballot has been received, the voter will be allowed to vote a provisional ballot." See "Vote-by-Mail," *Florida Department of State*, July 28, 2021, available at `https://www.dos.myflorida.com/elections/for-SB90voters/voting/vote-SB90by-SB90mail/` (last accessed August 30, 2021).

Table 1: Racial composition of the June 2021 Florida electorate

Race	Registered voters	Percent
Black	2,040,296	13.51
Hispanic	2,631,778	17.42
White	9,251,000	61.25
Other race	1,180,916	7.82

White. As is evident in Table 1, any election policy that affects voters in one of the three primary race groups in Florida will impact millions of registered voters.

38   Figure 1 plots voter age against number of registered voters, from 18 up to 100. As of June 2021, there were almost 100,000 18-year-old registered voters in Florida and more than 1.5 million registered voters age 25 years and younger. Along with these relatively younger individuals were roughly 4.3 million registered voters age 65 or older. Any election policy that affects young or older voters, or voters whose ages are between 25 and 65, will portend consequences for millions of registered voters.

39   Lastly, when an individual registers to vote in Florida, he or she must choose a partisan affiliation. As shown in Table 2, there are three primary partisan affiliations: Democratic, Republican, and No party affiliation (often called NPA). Under two percent of registered voters are affiliated with a third party. As shown in Table 2, there are millions of registered voters (greater than ten million, in fact) affiliated with the two main political parties in Florida and over four million registered voters that have no party affiliation.

Table 2: Partisan composition of the June 2021 Florida electorate

Party	Registered voters	Percent
Democratic	5,466,921	36.20
Republican	5,334,783	35.32
No party affiliation	4,045,212	26.78
Other party	257,074	1.70

Figure 1: Age of registered voters in Florida as of June 2021
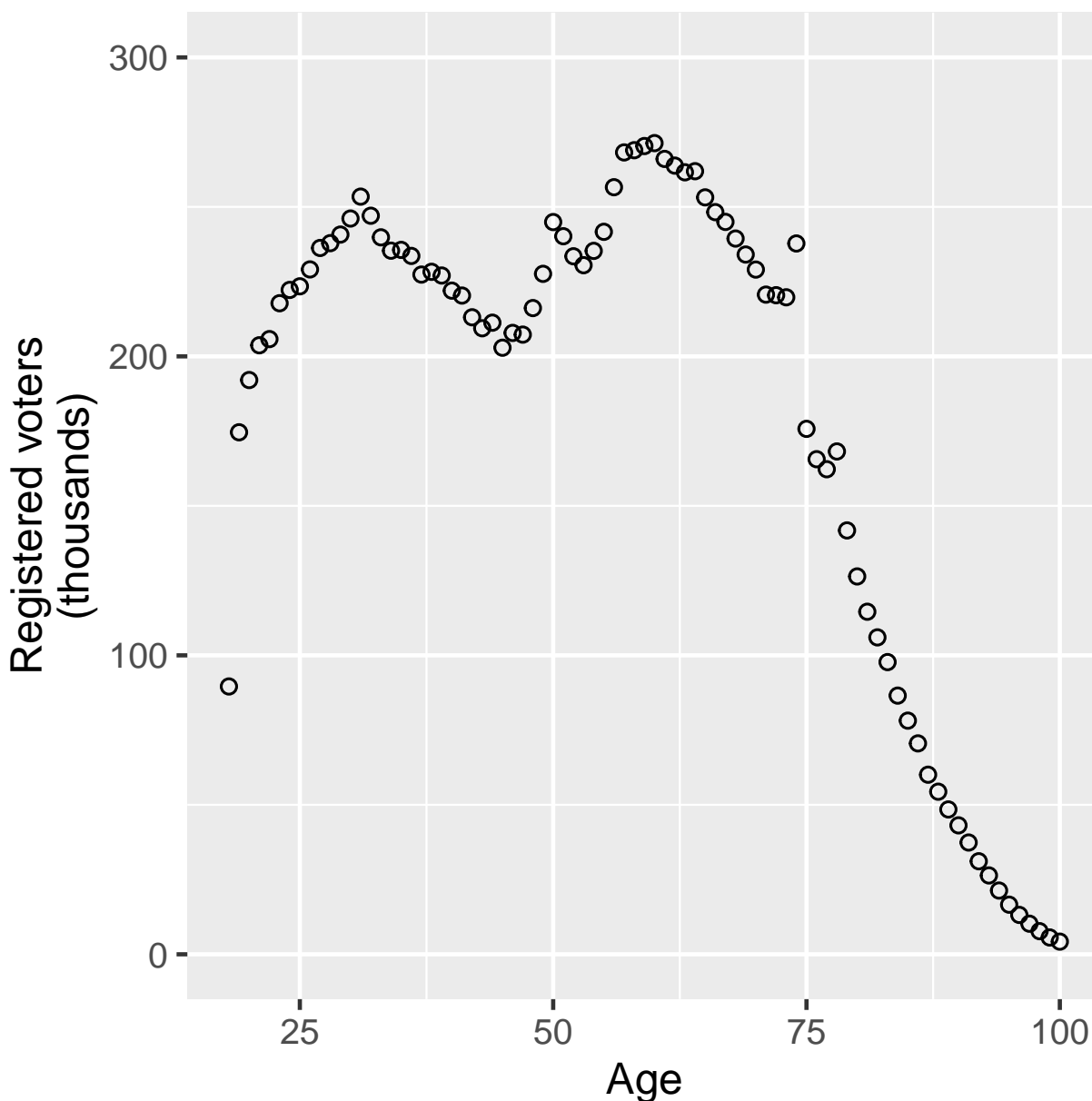
6   Overview of SB 90 and its publicly stated rationale

40   SB 90 is one of many election reform laws passed across the country in the aftermath of

the 2020 General Election.[9] Following the election, an unprecedented number of lawsuits—50 by

---

[9]New election laws have passed in "at least 18 states." See "Voting Laws Roundup: July 2021," *Brennan Center for Justice*, July 22, 2021, available at `https://www.brennancenter.org/our-SB90work/research-SB90reports/voting-SB90laws-SB90roundup-SB90july-SB902021#footnote1_xjeg8jl` (last accessed August 23, 2021).

mid-December 2020—were filed against states, challenging their results on the basis of alleged fraud.[10]   None of these lawsuits succeeded.   In January 2021, Congressional certification of the 2020 presidential election was disrupted by a riot at the United States Capitol.

6.1   Key provisions of SB 90

41   SB 90 changed numerous aspects of Florida election law.   The changes I analyze in this report are as follows:

Vote-by-mail. SB 90 tightened the procedures associated with casting vote-by-mail ballots in Florida. Prior to the enactment of SB 90, a voter's request for a vote-by-mail ballot was valid for two election cycles; per SB 90, a request now only covers one such cycle. In addition, a Florida voter requesting a vote-by-mail ballot "via telephone or electronic means...must provide his or her date of birth and the last four digits of his or her social security number, his or her Florida driver license number, or his or her Florida identification card number, whichever may be verified in the supervisor's records" (see lines 495-500 of SB 90).

Drop boxes. SB 90 limits the locations of drop boxes and times at which they can be used by voters, and it specifies new regulations on how drop boxes must be secured (lines 1165-1204).

Voter assistance. SB 90 limits the types of assistance with ballot delivery that vote-by-mail voters in Florida can receive, making possession by a volunteer of more than two ballots illegal unless the ballots belong to immediate family members (lines 1351-1367).

Third party voter registration organizations. SB 90 places new restrictions on the activities of these organizations. It requires their representatives to, one, warn new voter registrants of the risk of relying on third party voter registrations for the purposes of registering to vote and, two, provide them with information about methods of registering to vote that do not

---

[10]See "Trump's election fight includes over 50 lawsuits. It's not going well," *NBC News*, December 10, 2020, available at `https://www.nbcnews.com/politics/2020-SB90election/trump-SB90s-SB90election-SB90fight-SB90includes-SB90over-SB9030-SB90lawsuits-SB90it-SB90s-SB90n1248289` (last accessed August 26, 2021).

rely on third party voter registration organizations.

Voting line engagement.   SB 90 limits the extent to which third parties can engage with in-person voters who are waiting in to vote. These individuals may not "[engage] in any activity with the intent to influence or effect of influencing a voter" (lines 1227-1228).

42   I provide additional details on these changes when I describe how imposition altered the cost of voting in Florida and which groups of voters are most affected by this. For the moment, though, it suffices to note that the above changes consist of new restrictions on election-related activities in which many thousands of voters in Florida regularly engage.

6.2   The publicly stated rationale for SB 90

43   I now describe the publicly stated rationale for SB 90. My judgements about this are drawn from six committee hearing transcripts from the bill's legislative history.[11]   These hearings and their dates appear in Table 3.[12]

Table 3: Legislative committee hearings on SB 90

Chamber	Committee	Date
Senate	Ethics and Elections	February 16
Senate	Government Oversight and Accountability	March 10
House	Public Integrity and Elections	March 22
House	Appropriations Committee	April 8
Senate	Rules Committee	April 14, 20
House	State Affairs Committee	April 19

Note: hearings listed in chronological order.

44   The committee hearings on SB 90 featured both Florida legislators and members of the public who offered commentary on this bill and/or proposed amendments to it. For the purposes

---

[11]One of the hearings was technically two separate hearings, but the second day was effectively a continuation of the first.

[12]Plaintiffs' Counsel provided me with hearing transcripts, which appear in folders titled, "Florida Senate Ethics and Elections 021621 Transcript," "Florida Senate Gov. Oversight and Accountability 031021 Transcript," "Florida House Public Integrity and Elections Transcript," "House Appropriations Committee Transcript," "Senate Rules Committee 041421 Transcript," "Senate Rules Committee Transcript," and "House State Affairs Committee Transcript." The order of these folders corresponds to the listing of the hearings in Table 3.

of forming an opinion about the publicly stated rationale for SB 90, I considered only what Florida legislators themselves said about this legislation.

45   As noted earlier, this report focuses specifically on five aspects of SB 90: the changes in Florida law the bill effected regarding vote-by-mail voting, its implications for the use of drop boxes, its stipulations on the forms of assistance that vote-by-mail voters are permitted to receive, its rules for third party voter registrations organizations, and its limits on the sort of engagement that third parties can have with voters waiting in line to vote. When I describe the motivations for SB 90, I mean specifically the motivations that pertain to these five aspects of the bill.

46   While the precise subjects of the hearings in Table 3 varied (i.e., some hearings had more discussion of the fiscal implications of SB 90 than did others), the general comments that supporters of SB 90 made about the bill were similar across them.

47   Across the SB 90 hearings listed in Table 3, the dominant theme articulated by supporters of SB 90 was election integrity. This was broadly articulated by Representative Blaise Ingoglia at the House Public Integrity and Elections committee hearing. Representative Ingoglia introduced his extended discussion of SB 90 with, "The [proposed committee bill], I believe, will accomplish these goals [of improving on Florida election administration] by adding security [measures] to keep our elections safe and secure" (see House committee hearing transcript, pp. 3; for extended comments see pp. 3-6). Later at the hearing, Representative Ingoglia addressed drop boxes and the matter of who submit ballots via drop box: "[T]he goal [of SB 90's provisions regarding drop box voting] is to make sure that the person dropping off the ballot has the authority to drop off the ballot" (p. 48).

48   In a statement following comments that he made on vote-by-mail voting, Representative Ingoglia stated that, "So, you know, [SB 90], and the things in this bill are meant to increase election security without suppressing anybody's vote" (p. 125). Regarding voting by mail, Repre-

sentative Ingoglia also averred that, "But when we look at vote-by-mail ballots, there are almost no safeguards. And all we're asking for is some reasonable safeguards to ensure the sanctity of the vote, that nobody's vote is going to be disenfranchised, that we are looking for ID, we're making sure that the person who is supposed to cast the ballot is the person, in fact, casting the ballot" (p. 127). And, "But I believe, and most of our constituents would believe, that there should be some sort of safeguards on vote-by-mail" (p. 128).

49   These passages from Representative Ingoglia all invoke election integrity.

50   Also at the House Public Integrity and Elections committee hearing, Representative Byrd stated the following when describing his work as an election law attorney: "And there is [voter] fraud…Go research the phrase from the last election, 'overwhelming fraud,' because you will see that phrase throughout news reports as well. Well, of course, there's fraud in every election, there just wasn't overwhelming fraud" (p. 117). Representative Byrd posited as well that, "In Palm Beach County, from 2000, for Bush v. Gore, I sat there for 13 hours and listened to people openly discuss, I voted in New York. I'm here today. I voted in New Jersey, hahaha. This is what we do. Vote early, vote often. Vote twice. It happens. It's real. It's why every election cycle we need to ensure that we are doing everything we possibly can to verify one person one vote" (p. 118).

51   These passages from Representative Byrd all invoke election integrity.

52   At the Ethics and Elections Senate committee hearing on SB 90, committee chair Senator Dennis Baxley explained that, "[SB 90] also improves on the security of our vote-by-mail process. I'm very infatuated about security so that we don't have these doubts that some people have about election returns, and that we minimize those, and I think you've seen that in testimony today" (see p. 3 of the Senate committee transcript). When addressing the provision of SB 90 that requires Florida registered voters to request mail ballots every election cycle as opposed to every two such cycles, Senator Baxley stated that, "I truly believe we will have a more secure process when people

can decide each year what manner in which they would like to vote" (p. 10). Relatedly, per Senator Baxley, "And so I think the secure [voting by mail], we should develop policy that prevents [election materials in garbage cans] by having [voters] renew their desire to vote [by mail]. . . Over time, you will have a hard time protecting a voter file, in my opinion, if we don't safeguard reassuring that they want to vote again" (p. 4).

53   Senator Baxley also spoke at the Government Oversight and Accountability Senate committee hearing, during which he stated that there were unsecure drop boxes used in Florida election, implying that SB 90 will ameliorate this situation: "Well, the challenge is that you don't know what you don't know because many of these [drop] boxes were actually in places that no one was providing security over them or observing what was going on there."

54   These passages from Senator Baxley all invoke election integrity.

55   Along with others, the quoted passages above, of comments made by Florida legislators about SB 90, inform my judgement about the publicly stated rationale for SB 90. Election integrity was not the only theme that came up in hearings on this bill—another was ensuring that voters could always vote the way they wanted, this being used to justify changing Florida law so that requests for vote-by-mail ballots would last only one election cycle rather than two—but it was nonetheless the dominant theme.

6.3   Evaluating legislators' claims about election integrity in Florida

56   I now briefly consider how my description of Florida election administration in Section 5 of this report can be reconciled with some of the claims articulated by the legislators referenced above.

57   I cited Representative Ingoglia as stating that, "But when we look at vote-by-mail ballots, there are almost no safeguards" (p. 21). In fact, there are many security measures in place in

Florida to ensure the integrity of VBM ballots.

58   For a VBM ballot to be accepted in Florida, it must be returned in its security envelope, and there must be signature on the envelope that can be matched to a voter's signature on file. It is not the case that VBM ballots can be mailed back to elections officials in generic envelopes. Any VBM ballot returned in this way would not be counted. Moreover, a VBM ballot delivered in a drop box without being placed in its security envelope would not be counted. Florida security envelopes have barcodes that enable them to be tracked.[13] The security envelope requirement and signature matching requirements are safeguards for VBM ballot security, and safeguards like these are used all over the United States.[14] Beyond these two requirements, VBM ballots must be returned on time in order to be counted. Finally, safeguards embedded in the Florida voter registration system and on requests to receive VBM ballots are also safeguards on VBM voting in general.

59   Above I wrote how Senator Baxley stated that, "I truly believe we will have a more secure process when people can decide each year what manner in which they would like to vote" (p. 22). To the best of my knowledge, there are no findings in the academic literature on election administration showing that elections are more secure when individuals decide on a frequent basis as to how they would like to cast their ballots. Moreover, as I pointed out earlier in my brief discussion of the mechanics of VBM voting in Florida, voters in the state who request VBM ballots always have the option to vote in-person. Lastly, SB 90 does not offer voters the option of deciding how to cast their ballots on a relatively frequent basis; rather, it *requires* them to do this, in particular, requiring voters to submit VBM requests every election cycle, changing the procedures used in the VBM voting process in Florida for the last several years and thus increasing the cost of

---

[13]Other jurisdictions in the United States use barcodes on their envelopes for the same reason. See "The False Narrative of Vote-by-Mail Fraud," *Brennan Center for Justice*, April 10, 2020, available at   https://www.brennancenter.org/our-SB90work/analysis-SB90opinion/false-SB90narrative-SB90vote-SB90mail-SB90fraud (last access September 1, 2021).

[14]On safeguards across the country, see "VOPP: Table 14: How States Verify Voted Absentee Ballots," *National Conference of State Legislatures*, April 17, 2020, available at https://www.ncsl.org/research/elections-SB90and-SB90campaigns/vopp-SB90table-SB9014-SB90how-SB90states-SB90verify-SB90voted-SB90absentee.aspx (last accessed August 30, 2021).

voting in the state. Academic literature on the cost of voting shows how higher voting costs tend to lead to lower turnout, all things equal.

7   Voter fraud in American elections

60   I now provide context for the types of concerns about voter fraud that were offered as a motivation for SB 90. In what follows I first review the academic literature on voter fraud and summarize its findings. Second, I comment on Florida's experience with voter fraud in the 2020 election cycle.

7.1   Defining voter fraud

61   The study of voter fraud in the United States is part of the field of election administration.

62   For the purposes of this report, I define an instance of voter fraud as *an intentional act of deception aimed at subverting electoral processes*.[15] Instances of voter fraud can include, but are not necessarily limited to, *absentee or mail ballot fraud* (improperly acquiring and then submitting an absentee or mail ballot or ballots); *double voting* (voting more than once in an election in which this is not permitted); *non-citizen voting* (participating in a federal election when one is not a citizen of the United States); and, *voter impersonation* (voting in someone else's name, either in the name of a properly registered voter or using the registration records of a fictional individual).

63   Fraudulent actions of voters or intended voters are exemplars of what the United States Election Assistance Commission (EAC) calls "acts of deception." The EAC, a federal body estab-

---

[15]The North Carolina State Board of Elections (NCSBE) is responsible for managing elections in North Carolina. Since 2015, it has published a breakdown of voting irregularities that raise questions about election integrity. Referring to instances of potential voter fraud in the 2016 General Election, the NCSBE wrote that, "[Voter] [f]raud, in most cases, is an intent crime that requires prosecutors to show that the voter knowingly committed a crime." See p. 7 of "Post-Election Audit Report," *North Carolina State Board of Elections*, April 21, 2017, available at `https://s3.amazonaws.com/dl.ncsbe.gov/sboe/Post-SB90Election%20Audit%20Report_2016%20General%20Election/Post-SB90Election_Audit_Report.pdf` (last accessed August 25, 2021). Thus, a voter can behave in a way that is illegal in his or her state but not intentionally deceptive and thus not fraudulent.

lished in the aftermath of the contested 2000 presidential election, published "Election Crimes: An Initial Review and Recommendations for Future Study," in December 2006, a report categorizing a variety of election-related crimes.[16]

64   I list the above behaviors because they describe the sorts of actions that, based on my experience with academic literature on voter fraud, could in principle be characterized as fraudulent. That said, elections are regulated affairs, subject to state laws and potentially local laws as well, and what a court in any state determines is illegal depends on that state's particular laws.

65   Systematic voter fraud would require a large collection of like-minded individuals, all of whom would need to deliberately outwit voter registration systems, local election officials, and any observers who might be present in a voting location or in multiple locations. Such individuals, if seeking to commit voter fraud in Florida, would also have to be willing to risk criminal penalties. § 104.041 Fla. Stat. (2021) ("Fraud in connection with casting vote") and § 104.16 Fla. Stat. (2021) ("Voting fraudulent ballot").

7.2   Voter fraud in the United States

66   The literature on voter fraud in American elections incorporates a variety of research methodologies, exemplifying triangulation, wherein multiple research approaches are brought to bear on a single issue. If voter fraud in the United States is widespread, at least one of the methodologies in the literature should have detected evidence of it.

67   One methodology used in the study of voter fraud systematically tracks cases of alleged voter fraud in media reports and in official government documents. Examples of this are Minnite and Callahan (2003), Minnite (2007), Levitt (2007), Minnite (2010), and Levitt (2014). These studies conclude that rates of voter fraud in American elections are very low.

---

[16]The report is available at `https://www.eac.gov/sites/default/files/eac_assets/1/6/Initial_Review_and_Recommendations_for_Further_Study.pdf` (last accessed August 23, 2021).

68   Another methodology in the study of fraud involves surveying election officials. In the aftermath of the 2016 General Election, Famighetti, Keith and Pérez (2017) "interviewed a total of 44 administrators representing 42 jurisdictions in 12 states" (p. 1), inquiring about the prevalence of non-citizen voting. Famighetti, Keith and Pérez write that 40 jurisdictions reported "no known incidents of noncitizen voting in 2016" (p. 1). Moreover, they state that,

> "In the jurisdictions we studied, very few noncitizens voted in the 2016 election. Across 42 jurisdictions, election officials who oversaw the tabulation of 23.5 million votes in the 2016 general election referred only an estimated 30 incidents of suspected noncitizen voting for further investigation or prosecution. In other words, improper noncitizen votes accounted for 0.0001 percent of the 2016 votes in those jurisdictions" (p. 1).

69   Huefner et al. (2007) constitutes another example of a study that involved efforts to reach out to election officials. This study details the electoral environments of five states (Illinois, Michigan, Minnesota, Ohio, and Wisconsin), and the authors write as follows:

> "On the whole, voting fraud is exceedingly rare. Although allegations of voting fraud have been widely publicized in the media, most all of these have evaporated upon closer investigation" (p. 120).

70   Still another approach in the voter fraud literature uses statistical tools in efforts to determine if patterns in election returns and voting records are consistent with claims of voter fraud (Christensen and Schultz, 2014; Goel et al., 2020). Goel et al. is a study of double voting in the 2012 General Election, concluding that, "[D]ouble voting is not currently carried out in such a systematic way that it presents a threat to the integrity of American elections" (p. 467). Goel et al. conclude as well that measurement error in official election data could explain "a significant portion, if not all" of the cases of double voting that they identify.[17]

---

[17]A concern about double voting arose in the aftermath of the 2016 General Election in North Carolina. Four individuals in this state were accused of having voted illegally, only to be exonerated when it was discovered that

71   Two other examples of statistical analyses of voter fraud claims are Eggers, Garrob and Grimmer (2021), a study of fraud allegations made after the 2020 General Election, and Cottrell, Herron and Westwood (2018), a study I co-authored about fraud claims made after the 2016 General.

72   Finally, drawing on recent entries in a database of potential election irregularities developed by *The Heritage Foundation*, a study released by *The Brookings Institution* considers the prevalence of voter fraud in the country's five all-mail voting states.[18] The authors of this report identify 29 "fraudulent votes attempted by mail" out of 49,917,586 general election votes cast in the period under review. The number 29 is approximately 0.000058 percent of 49,917,586.[19]

73   The academic literature on voter fraud reviewed above is peer-reviewed, in most cases in publicly accessible journals and books, and in some cases is available online. It incorporates a variety of different research designs and data sources. Despite these differences, the contributions to the literature share a common finding: voter fraud in American elections is rare.

74   No evidence contradicting the findings in the academic literature on voter fraud was produced by a presidential commission on established in the aftermath of the 2016 General Election and shut down on January 3, 2018. No official reports of widespread and systematic voter fraud have come to light based on the commission's work.[20] Benjamin Ginsberg, a co-chair of the

---

they had the same names as incarcerated felons. This example illustrates how innocuous coincidences can present themselves as voter fraud. See "Republicans claim 43 voters are ineligible felons. Many of them aren't," *The News & Observer*, November 23, 2016, available at http://www.newsobserver.com/news/politics-SB90government/election/article116789083.html (last accessed August 25, 2021).

   [18]For the Heritage Foundation's database, see https://www.heritage.org/voterfraud (last accessed August 28, 2021). My referencing this database should be not considered an endorsement of it. I note it here because the database is the source for the cited *Brookings Institution* report.

   [19]"Low rates of fraud in vote-by-mail states show the benefits outweigh the risks," *The Brookings Institution*, June 2, 2020, available at https://www.brookings.edu/blog/fixgov/2020/06/02/low-SB90rates-SB90of-SB90fraud-SB90in-SB90vote-SB90by-SB90mail-SB90states-SB90show-SB90the-SB90benefits-SB90outweigh-SB90the-SB90risks/ (last accessed August 28, 2021).

   [20]On the origins and end of the presidential voter fraud commission, which offered no evidence that widespread fraud affected the 2016 General Election, see "Trump Closes Voter Fraud Panel That Bickered More Than It Revealed," *The New York Times*, January 4, 2018, available at https://www.nytimes.com/2018/01/04/us/voting-SB90fraud-SB90commission.html (last accessed August 30, 2021).

2013 Presidential Commission on Election Administration, wrote in September 2020 that, "[A]fter decades of looking for illegal voting, there's no proof of widespread fraud. At most, there are isolated incidents – by both Democrats and Republicans."[21]

7.3   Voter fraud in Florida during the 2020 election cycle

75   I now consider whether there is evidence of systematic voter fraud in Florida elections.

7.3.1   Findings about Florida in the academic literature on voter fraud

76   There are no findings in the literature reviewed above indicating that Florida is an outlier with respect to voter fraud rates.

7.3.2   Florida voter fraud incidents in the Heritage Foundation database

77   The Heritage Foundation's online database of voter fraud cases, which I noted above when discussing the Brookings report on voter fraud, identifies 15 fraud incidents in Florida, the earliest of which dates to 2003.[22] To establish some context for this figure, turnout in Florida statewide elections, 2004-2020, was 107,652,259.[23]

78   The figure of 107,652,259 understates the number of ballots cast by Florida voters since 2004. It ignores special elections and municipal elections, for example.

---

[21]For Mr. Ginsburg's comments on the lack of evidence about voter fraud in the United States, see "Republicans have insufficient evidence to call elections 'rigged' and 'fraudulent'," *The Washington Post*, September 8, 2020, available at https://www.washingtonpost.com/opinions/2020/09/08/republicans-SB90have-SB90insufficient-SB90evidence-SB90call-SB90elections-SB90rigged-SB90fraudulent/ (last accessed August 30, 2021). The 2013 Presidential Commission on Election Administration, on which Mr. Ginsburg served, is described at https://bipartisanpolicy.org/the-SB90presidential-SB90commission-SB90on-SB90election-SB90administration/   (last accessed August 30, 2021).

[22]See "Election Fraud Cases," *The Heritage Foundation*, available at https://www.heritage.org/voterfraud/search?combine=florida&state=All&year=&case_type=All&fraud_type=All (last accessed August 30, 2021).

[23]To calculate this sum, I consulted the election results archive maintained by the Florida Department of State. See https://results.elections.myflorida.com (last accessed August 30, 2021). For each statewide election since 2004, I recorded total voter turnout. The sum of turnout across these elections is reported in the body of the report.

79   Assuming, conservatively, that all of the 15 voter fraud incidents identified in the Heritage

database led to illegal votes, an estimate of the percentage at which cast Florida votes were affected

by fraud is approximately 0.0000139. Even assuming the 15 incidents of Florida voter fraud iden-

tified by The Heritage Foundation are examples of fraud, this estimate is conservative because it is

based on an understated count of voter turnout in Florida since 2004.

7.3.3   Evidence from Florida counties on voter fraud

80   As part of discovery, Plaintiffs' Counsel requested that county officials produce documen-

tation on potential voter fraud incidents in their jurisdictions. This request did not focus on con-

firmed incidents of voter fraud. Rather, it asked for all "documents and communications regarding

reporting, investigating, identifying, or prosecuting voter fraud associated in any way with ballots

cast at drop boxes" as well as all "documents and communications regarding reporting, investigat-

ing, identifying, or prosecuting incidents of voter fraud in connection with vote-by-mail voting."[24]

Accordingly, the discovery request was conservative in the sense of requesting information on any

potential incidents that could conceivably constitute voter fraud.

81   To these requests for documentation about voter fraud, most counties replied that they had

no documents to produce.

82   There are 11 counties that produced documentation pursuant to the voter fraud discovery

requests. These counties and the number of concerns per county appear in Table 4.

83   The most common concern of those enumerated in Table 4 is alleged double voting. That

said, as Goel et al. (2020) note, many instances of what appear on the surface to be double voting

are actually not double voting. Notwithstanding this point, an individual can double vote only if

he or she is registered in more than one place. Incidents of double voting thus reflect limitations in

---

[24]"PLAINTIFFS' FIRST SET OF REQUESTS FOR PRODUCTION TO SUPERVISOR OF ELECTION DEFEN-
DANTS," May 28, 2021, pp. 18-19.

Table 4: Concerns about possible voter fraud incidents produced by counties

County	Concerns
Escambia	7
Hillsborough	21
Indian River	4
Marion	1
Okaloosa	5
Osceola	1
Palm Beach	10
Pasco	3
Pinellas	3
Polk	2
Seminole	2

a state's voter registration system and not the voting procedures regulated by SB 90.[25]

84   None of the concerns in Table 4 appears to involve drop boxes.

85   I cannot infer which, if any, of the concerns listed in Table 4 have led to prosecutions and subsequently to convictions or guilty pleas for violations of Florida's election statutes. I also cannot infer how many of the concerns, if any, reflect voter fraud in the way I defined it earlier, i.e., intentional deception aimed at subverting electoral processes.

86   Indeed, it appears that not all of the concerns involve behaviors that are acts of intentional deception. Two concerns referred to individuals who hold power of attorney for parents in nursing homes signing their parents' ballot certificates. This could be illegal under Florida law but may not be deceptive. Another concern described an 87-year old who apparently signed his deceased wife's ballot certificate. And, one concern referred to a student who appeared to be under the impression that an in-person vote would cancel a mail vote. Lastly, one of the voter fraud concerns produced by a county was a complaint from a voter that she was not allowed to vote because someone had already voted a mail-in ballot in her name.

---

[25]Indian River County's production on the matter of voter fraud reported that county officials removed duplicate entries from its list of registered voter most likely in early May 2021. I do not treat this as a concern about voter fraud.

87   Earlier in this section of the report, I commented on the nature of "systematic voter fraud" and noted that this form of fraud would require a large collection of like-minded individuals, all of whom would need to deliberately outwit voter registration systems, local election officials, and any observers who might be present in a voting location or in multiple locations. Of the concerns listed in Table 4, I do not believe that any constitute evidence of systematic voter fraud.

7.3.4   Comments from Florida elections officials on the 2020 election cycle

88   Lastly, I note that, in the aftermath of the 2020 General Election, both the Florida governor and the secretary of state commented on the administration of their state's elections, the latter explicitly drawing attention to the issue of election integrity. In particular, per Florida Secretary of State Laurel Lee, "All Florida voters, no matter how they chose to cast a ballot, or who they voted for, could be confident in the integrity of our elections system and the security of their vote."[26] And on November 4, the day after voting in the 2020 General concluded, Florida Governor Ron DeSantis wrote that, "I would like to extend my appreciation to Florida's Supervisors of Elections, @FLSecofState & poll workers for their hard work during this election process. Thanks to their efforts, Florida is a model for the rest of the nation to follow."[27]

89   Florida Senator Dennis Baxley, on whom I commented above when describing the motivation for SB 90, referred to the 2020 elections as having "very high credibility."[28]

---

[26]See "DeSantis and lawmakers fight imaginary voter fraud, and other non-issues," *Orlando Sentinel*, February 23, 2021, available at `https://www.orlandosentinel.com/opinion/editorials/os-SB90op-SB90republican-SB90vote-SB90by-SB90mail-SB90reform-SB90florida-SB90non-SB90issue-SB9020210223-SB90qrmieom645bq5ck3aznsbml3ku-SB90story.html` (last accessed August 30, 2021).

[27]This quote is from a Tweet posted by Governor DeSantis, available at `https://twitter.com/govrondesantis/status/1324105204241993728?lang=en` (last accessed August 30, 2021).

[28]See "Florida Bill to Eliminate Voter Drop Boxes to Be Debated by Legislature," *Newsweek*, March 10, 2021, available at `https://www.newsweek.com/florida-SB90bill-SB90eliminate-SB90voter-SB90drop-SB90boxes-SB90debated-SB90legislature-SB901575190` (last accessed August 30, 2021).

8   Evolution of voting by mail in recent Florida elections

90   Table 5 reports turnout, VBM turnout, and corresponding VBM turnout percent for nine recent statewide elections in Florida. Throughout this report, I use the acronym "PPP" to refer to a presidential preference primary as distinct from a primary that does not involve presidential candidates. Table 5 draws from official election recap reports, produced during discovery by the Florida Department of State and described in Appendix F.

91   For the purposes of this section of the report, VBM turnout in an election is defined as the sum of the number of voters who cast valid VBM ballots in the election, the number who submitted VBM ballots that were rejected on the basis of signature problems, and the number who submitted VBM ballots that were rejected on the basis of being late. This means that a voter is said to have voted VBM if he or she tried to cast a ballot in this way.[29]

Table 5: Turnout and VBM voting in recent Florida statewide elections

Election	Turnout	VBM	VBM percent
2014 Primary	2,093,115	934,569	44.65
2014 General	6,046,466	1,903,344	31.48
2016 Primary	2,985,209	1,313,938	44.01
2016 General	9,604,048	2,762,617	28.77
2018 Primary	3,599,822	1,376,769	38.25
2018 General	8,333,706	2,658,990	31.91
2020 PPP	3,048,560	1,417,173	46.49
2020 Primary	3,929,821	2,378,527	60.53
2020 General	11,155,760	4,876,993	43.72
Total	50,796,507	19,622,920	38.63

92   Table 5 shows that over 19 million Florida voters have cast VBM ballots in statewide elections dating from 2014 to the present. The 2020 General Election saw the greatest VBM turnout since 2014 (not to mention the greatest voter turnout overall) with close to five million VBM bal-

---

[29]To determine which voters in an election recap report cast VBM ballots, I considered the voter history codes in the reports. Codes of "A" (valid VBM vote) "B" (rejected VBM ballot) and "L" (late VBM ballot) connote VBM voters. Turnout in an election is defined as the number of voters whose history codes indicate a VBM vote or are either "E" (early in-person vote) or "Y" (voted in-person on Election Day).

lots cast. While typical VBM rates in Florida statewide elections range from roughly 30 percent to mid-40s, over 60 percent of ballots cast in the 2020 Primary were VBM.

93   Even if Florida voting in 2022 and beyond returns to pre-pandemic patterns with respect to methods of ballot casting, historical trends imply that there will still be upwards of two million VBM ballots cast per general election. Thus, any restrictions on VBM voting imposed by SB 90 will impact millions of Florida voters.

8.1   SB 90 imposed new restrictions on voting by mail in Florida

8.2   Vote-by-mail rates by race

94   Table 6 disaggregates Florida VBM voting rates by race, using four race groups: Black, Hispanic, White, and Other. For each election considered in this report and each of four race groups, I calculate total turnout and total VBM turnout from election recap reports (described in Appendix F, as noted earlier). Table 6 reports race-based VBM turnout rates in the form of percentages.

Table 6: VBM rates by race in recent Florida statewide elections

Election	Black	Hispanic	White	Other race
2014 Primary	29.87	53.84	46.09	45.56
2014 General	21.92	33.14	32.96	29.59
2016 Primary	30.22	51.85	45.29	45.03
2016 General	20.47	27.08	30.90	26.40
2018 Primary	24.28	44.06	40.22	37.18
2018 General	21.96	31.41	34.14	29.69
2020 PPP	29.07	49.52	49.58	43.06
2020 Primary	52.05	64.14	61.21	65.87
2020 General	39.99	41.25	44.69	46.93

95   For Black voters and voters in the Other race category, VBM voting jumped in the 2020 Primary and 2020 General compared to past elections. Consider Black voters, for example. The VBM voting rates for these voters were 52.05 percent and 39.99 percent in the 2020 Primary and

2020 General, respectively. These are the highest rates of VBM voting for Black voters over the last four general election cycles. The same is true for the Other race category: their 2020 Primary and 2020 General VBM rates (65.87 percent and 46.93 percent, respectively) were also higher than any VBM rates over the last four election cycles.

96   For White voters, the situation is different. While the White 2020 Primary VBM rate of 61.21 percent is the greatest of all White VBM rates across the elections covered in Table 6, the White rate of VBM voting in the 2020 General (44.69 percent) was lower than the White VBM rates from the 2014 Primary (46.09 percent) and the 2016 Primary (45.29 percent), for example. The highest rate of VBM voting among Hispanic voters occurred in the 2020 Primary, this rate (approximately 64.14 percent) being the second highest VBM voting rate among all the race-based rates in Table 6..

97   Put another way, VBM voting was relatively high among all race groups in the 2020 Primary and the 2020 General. However, considered historically, the increase in VBM voting in these two elections was greater for Blacks and Other race voters than for White and Hispanic voters.

98   The extent of the increase in Black VBM voting with the onset of the 2020 Primary and General is evident in Table 7. This table has three race groups, not four like the previous table, and each number in the table is the percentage of a race group's VBM voting rate of the corresponding White VBM voting rate. Table 7 normalizes Black, Hispanic, and Other race VBM voting rates by White VBM voting rates because White registered voters are the most common voters in Florida (see Table 1).

99   For example, Table 7's Black percentage in the 2014 Primary is 64.81. This reflects the fact that 29.87 (the Black VBM voting rate in the 2014 Primary) is 64.81 percent of 46.09 (the White VBM voting rate in the 2014 Primary). In comparison, Table 7's Black percentage in the 2020 General is 89.48, reflecting the fact that 39.99 (the Black VBM rate in the 2020 General) is 89.48

Table 7: VBM rates by race as percentage of White VBM rate in recent Florida statewide elections

Election	Black	Hispanic	Other race
2014 Primary	64.81	116.84	98.86
2014 General	66.50	100.56	89.80
2016 Primary	66.71	114.49	99.41
2016 General	66.24	87.63	85.42
2018 Primary	60.38	109.54	92.44
2018 General	64.31	92.00	86.97
2020 PPP	58.64	99.88	86.85
2020 Primary	85.05	104.79	107.62
2020 General	89.48	92.29	105.00

percent of 44.69 (the White VBM rate in the 2020 General).

100   Among the three race groups in Table 7, Black voters have a distinct pattern. Namely, prior to the 2020 Primary, the Black ratios in Table 7 hovered around 50-60 percent. However, in the 2020 Primary and General, Black ratios jumped to 85.05 and 89.48 percent, respectively. This implies that the gap in VBM participation between White and Black voters narrowed in the 2020 Primary and the 2020 General. While White voters have traditionally used VBM voting more than Black voters, the White-Black gap in VBM voting rates shrunk in the 2020 Primary and 2020 General, the latter of which took place roughly three months before SB 90 was introduced.

8.3   Vote-by-mail rates by party affiliation

101   I now carry out a similar exercise based on the four party affiliations considered in this report: Democratic, Republican, No party affiliation (NPA), and Other. Table 8 shows VBM rates by these affiliations across statewide elections from 2014 to 2020. For the table's primary elections, VBM rates are not displayed for NPA and Other party voters. This is because Florida is a closed primary state, and barring unusual circumstances voters registered NPA or Other cannot participate in Democratic and Republican primaries unless they change their party registrations.[30]

---

[30]Florida's rules for primary voting are explained in "Closed Primary Election," *Florida Department of State*, available at https://dos.myflorida.com/elections/for-SB90voters/voter-SB90registration/closed-SB90primary-SB90party-SB90affiliation (last accessed August 31, 2021). A circumstance in which all registered voters can vote in a partisan primary, regardless of the election's parti-

Not all primary contests in Florida are partisan (i.e., Democratic or Republican), but most are.[31]

Table 8: VBM rates by party affiliation in recent Florida statewide elections

Election	Democrat	Republican	NPA	Other party
2014 Primary	42.06	44.66		
2014 General	30.73	33.32	28.81	30.29
2016 Primary	41.82	43.53		
2016 General	29.05	30.09	25.80	28.48
2018 Primary	36.78	37.44		
2018 General	32.37	32.73	29.65	26.10
2020 PPP	40.18	55.04		
2020 Primary	68.63	48.32		
2020 General	53.31	34.78	43.70	40.60

102   Across all elections prior to the 2020 Primary, Republican affiliates used VBM voting more frequently than Democratic affiliates. Indeed, in these elections Republican affiliates used VBM voting at greater rates than affiliates of all other parties.

Table 9: VBM rates by party as percentage of Democratic VBM rate in recent Florida statewide elections

Election	Republican	NPA	Other party
2014 Primary	106.17		
2014 General	108.41	93.74	98.56
2016 Primary	104.09		
2016 General	103.60	88.83	98.06
2018 Primary	101.80		
2018 General	101.10	91.58	80.62
2020 PPP	136.98		
2020 Primary	70.41		
2020 General	65.24	81.96	76.15

103   In the 2020 Primary and 2020 General, these patterns reversed, as reflected in Tables 8 and 9. Table 9 divides each party's VBM rates in Table 8 by corresponding Democratic rates,

---

sanship, is when all the candidates for an office share the same partisanship and where the winner of the primary will be the winner of the following general election.

[31]For example, the 2020 Primary in Florida, held on August 18, actually consisted of three primaries: Democratic, Republican, and non-partisan. The non-partisan primary featured candidates for circuit judge, reflecting the fact that circuit judge elections in Florida are non-partisan. The Democratic and Republican primaries featured candidates for many federal and state offices.

normalizing by Democratic rates because Democratic is the most common partisan affiliation in Florida in the June 2021 voter file (see Table 2).

104   I draw two conclusions from Table 9. First, the Republican ratios in the table shift from over 100 prior to the 2020 Primary (a ratio of 100 indicates a Republican VBM rate that is greater than a Democratic VBM rate) to well under 100 afterward. This shows the extent to which Republican affiliates voted VBM more often than Democrats prior to the 2020 Primary but much less frequently than Democrats afterward.

105   Second, NPA and Other party affiliates have always voted VBM less frequently than Democrats—note that their ratios in Table 9 are all less than 100. Still, NPA and Other party affiliates had their lowest VBM rates compared to Democrats in the 2020 General.

106   Overall, Table 9 is evidence that VBM voting among Democratic affiliates surged in the 2020 Primary and 2020 General, the latter of which took place roughly three months before SB 90 was introduced.

8.4   Vote-by-mail rates by age

107   I now disaggregate VBM voting rates by voter age. Namely, for each election and each age ranging from 18 to 100, inclusive, I calculate total turnout and total VBM turnout. An age's VBM rate is defined as the VBM turnout divided by turnout, multiplied by 100. Figure 2 plots VBM rates by age for the nine elections of interest in this section. Points in the figure are sized proportionally to the number of voters in a given age group.[32]

108   The nine plots in Figure 2 are similar in their implications for the relationship between age and VBM voting. In particular, the older a voter the more likely the voter was to cast a VBM ballot.

---

[32]There are a minuscule number of voters whose records in official election recap reports imply that they voted at the age of 17. I assume that these constitute date errors in the voter databases maintained by the Florida Department of State. These voters are not part of Figure 2.

Figure 2: Age and VBM voting rates in recent Florida elections
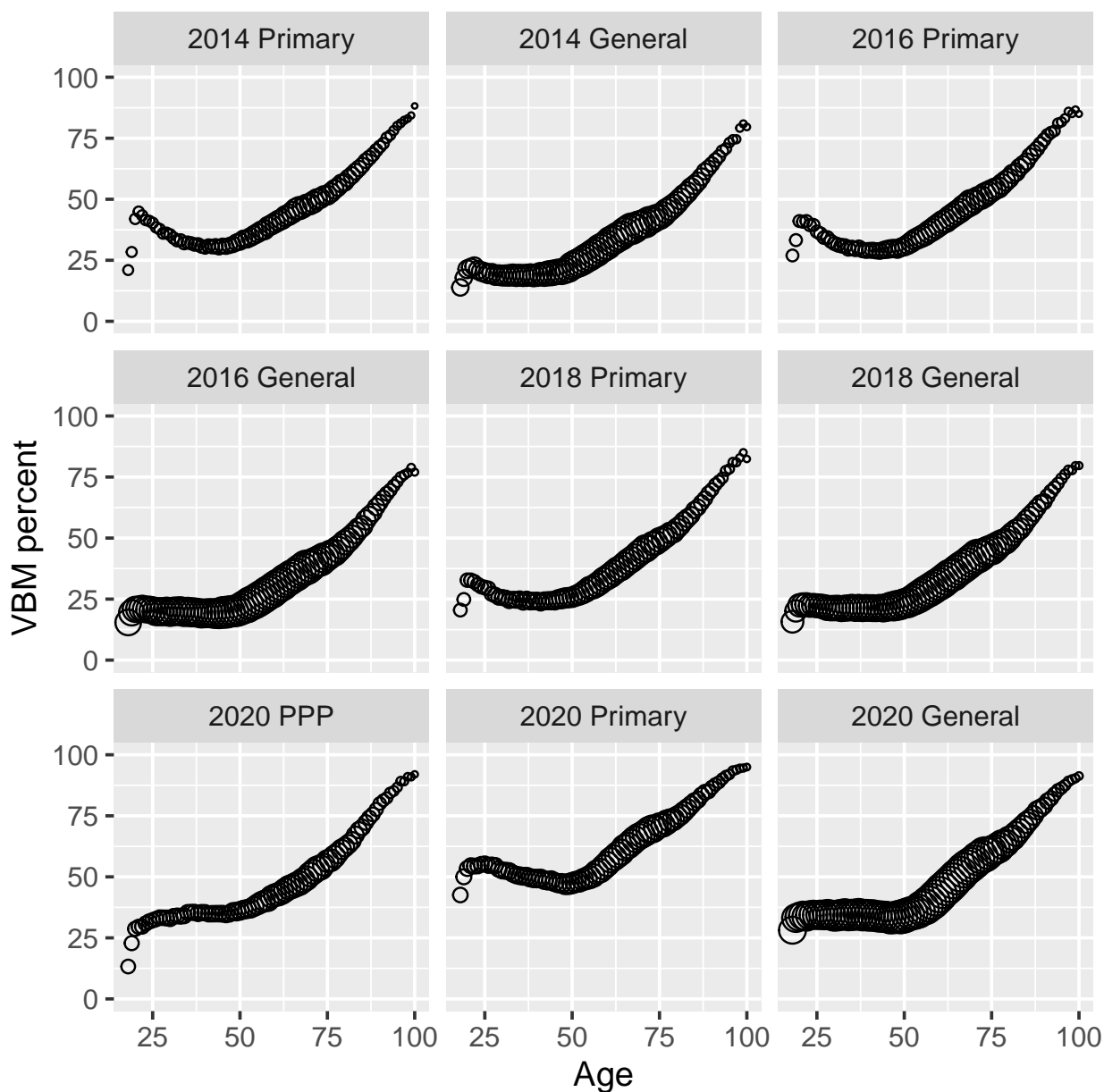
Note: each point is sized proportionally to voter turnout for a given age. Does not show ages greater than 100.

In primary elections, the youngest voters have relatively elevated VBM voting rates. However, this effect is overwhelmed by the regularity in which age and VBM voting likelihood are positively correlated.

8.5   Concluding thoughts on SB 90 and vote-by-mail voting in Florida

109   SB 90 places restrictions on VBM voting in Florida. This legislation has tightened the procedures used by voters in the state to request VBM ballots; limited the use of VBM drop boxes; and, limited the ballot delivery assistance available to VBM voters. Through these changes to Florida election statutes, SB 90 has raised the costs of voting VBM in Florida.

110   All Florida voters will be burdened by the increased costs that SB 90 imposes on VBM voting in Florida. This is the case even for voters who cast in-person ballots in Florida's elections. When the cost of VBM voting increases, we should expect fewer people to cast VBM ballots, all things equal, which will mean more in-person voters. Florida has experience with in-person voting congestion, which can lead to lower voter turnout rates in the future (Cottrell, Herron and Smith, 2021).

111   This point notwithstanding, individuals in Florida who use VBM voting most heavily will be disproportionately burdened by SB 90's increase in the cost of voting by mail. Accordingly, Black registered voters, voters whose partisan affiliation is Democratic, and older voters will bear a disproportionate burden of the changes to VBM voting in Florida wrought by SB 90.

9   Drop box use in the 2020 Florida elections

112   During the 2020 election cycle, Florida was one of 39 states in which VBM ballots could be submitted in drop boxes.[33] Some states offered drop box voting statewide, and in other states this form of ballot submission was available in selected jurisdictions (Hufford, 2021). Across the country, approximately 41 percent of VBM voters in the 2020 General cast their ballots by placing them in drop boxes (Pew Research Center, 2020). This figure includes states like Washington,

---

[33]See "How to Return a Vote-by-Mail Ballot," *Florida Department of State*, available at `https://dos.myflorida.com/elections/for-SB90voters/voting/vote-SB90by-SB90mail/` (last accessed August 10, 2021).

one of five states in the country that conducts essentially all-mail elections. In the 2020 General Election in Washington, approximately 73.1 percent of all ballots were returned in drop boxes.[34]

113   Collingwood et al. (2018) conducted a study of King County, Washington, concluding that drop boxes stimulate voter turnout; Collingwood et al. show that this effect is present in presidential and midterm elections but largest in off-year elections. McGuire et al. (2020) build on this result. Leveraging randomization in the location of drop boxes in Washington, they show that, "Decreasing a voter's distance to the nearest drop box by one mile increased the likelihood of voting [in the 2017 General Election in Washington] by 0.64 percentage points" (p. 1800).

114   Collingwood et al. (2018) and McGuire et al. (2020) show that drop boxes lower the cost of voting, stimulating increased voter turnout. This result is consistent with literature on the cost of voting. Namely, when voting is less costly, more people vote, all things equal. Conversely, when voting is more costly, we should expect fewer people to vote, all things equal.

115   In Florida, VBM ballots submitted in drop boxes face the same requirements as VBM ballots submitted via mail. Namely, a VBM ballot submitted in a drop box must be returned in its security envelope, and the envelope's ballot certificate must be signed and dated. The rules for evaluating signatures on VBM ballots voted by drop box are the same as those for VBM ballots returned in the mail. Florida law stipulates that VBM ballots returned without signatures, or with signatures that do not match official signatures on file, are rejected and do not count unless they are "cured" before a statutory deadline.[35] VBM ballots returned absent security envelopes do not count.

---

[34]See "Ballot Drop Box Usage by Year," *Washington Secretary of State*, available at `https://www.sos.wa.gov/elections/research/ballot-SB90drop-SB90box-SB90usage-SB90by-SB90year.aspx` (last accessed August 15, 2021).

[35]For the VBM ballot cure process, see "VOTE-BY-MAIL CURE AFFIDAVIT – INSTRUCTIONS AND FORM," *Department of State*, available at `https://files.floridados.gov/media/700479/dsde139.pdf` (last accessed August 11, 2021).

116   Figure 3 displays a picture of a Lake County drop box.[36]

Figure 3: Photograph of a Lake County drop box

9.1   SB 90 imposed new restrictions on drop box use in Florida

117   SB 90 imposes restrictions on the use of drop boxes in Florida. These restrictions cover drop box locations, hours of operation, and in-person monitoring requirements, and they reduce the availability of drop boxes in Florida, raising the cost of VBM voting in the state and thus the cost of voting in Florida overall.

118   *Locations*. SB 90 stipulates that a county can place drop boxes in three types of locations: the supervisor's main office; a permanent branch office of the supervisor; and, a county's early voting sites, this defined as sites that are used for early voting and those that qualify for being used in this way (lines 1169-73). The word "permanent" is new as of SB 90.

---

[36]The source of the drop box picture is "Vote-by-mail deadlines to know in Florida ahead of 2020 election," *Click-Orlando.com*, September 1, 2020, available at `https://www.clickorlando.com/news/local/2020/09/01/vote-SB90by-SB90mail-SB90deadlines-SB90to-SB90know-SB90in-SB90florida-SB90ahead-SB90of-SB902020-SB90election` (last accessed August 10, 2021).

119   *Hours of operation.* SB 90 eliminates the option for supervisors to offer 24-hour drop box availability for drop boxes located anywhere besides supervisors' offices: "Except for secure drop boxes at an office of the supervisor, a secure drop box may only be used during the county's early voting hours of operation" (lines 1176-79).

120   *In-person monitoring.* SB 90 stipulates that "A secure drop box at an office of the supervisor must be continuously monitored in person by an employee of the supervisor's office when the drop box is accessible for deposit of ballots" (lines 1180-1183). And, drop boxes installed in any other location beyond a supervisor's office "must be monitored in person by an employee of the supervisor's office" (lines 1179-80). Video monitoring of drop boxes is not allowed per SB 90, and this practice was wide used in Florida in the 2020 General Election.[37] Additionally, prior to SB 90, sworn law enforcement officers could monitor drop boxes at supervisors of elections offices. Under this legislation, however, employees of supervisors' offices must monitor such boxes even if sworn law enforcement officers are present (lines 1183-1184).

121   SB 90 also subjects supervisors of elections to penalties if the legislation's drop box provisions are not followed: "(3) If any drop box is left accessible for ballot receipt other than as authorized by this section, the supervisor is subject to a civil penalty of $25,000. The division is authorized to enforce this provision" (lines 1201-1204).

9.2   Florida-wide and county drop box rates in the 2020 general election

122   The Florida Department of State does not, to the best of my knowledge, collect and maintain records on which voters in the state have used drop boxes in recent elections. During discovery, Plaintiffs' Counsel requested that counties produce details on the individual voters who used drop

---

[37]On counties that used video monitoring, see "Guard ballot drop boxes, DeSantis tells Florida elections officials in last-minute memo before early voting starts," *South Florida Sun Sentinel*, October 17, 2020, available at `https://www.sun-SB90sentinel.com/news/politics/elections/fl-SB90ne-SB90early-SB90voting-SB90drop-SB90box-SB90guards-SB9020201017-SB90mrd4zdpqunh2ve2jpxpc4v73ku-SB90story.html` (last accessed August 15, 2021).

boxes during the 2020 PPP, the 2020 Primary, and the 2020 General and, if this information is not available, on the number of ballots submitted using drop boxes during these three elections.

123   For the 46 counties that produced drop box totals for the 2020 General (or data that could be aggregated into drop box totals), Table 10 describes the number of drop box ballots cast and the corresponding county drop box rate as a percentage of VBM votes.[38] As noted in the bottom right of the table (see the "Total" row), across the 46 counties that appear in it, there were over 1.3 million ballots cast using drop boxes. This corresponds to approximately 30.9 percent of all VBM voters. Appendix G provides details on the sources behind Table 10.[39]

124   Turnout in the 2020 General in Florida was roughly 11.1 million (see Table 5). Even considering only 46 of Florida's 67 counties, slightly more than one in ten total ballots (around 12 percent) cast in this election were submitted in drop boxes.

9.3   Characteristics of drop box voters

125   In this section of the report, I describe Florida's drop box voters in the 2020 election cycle, focusing in particular on race, party affiliation, and age.

---

[38]The drop box count for Hernando County in Table 10 is understated and the county's corresponding drop box rate therefore conservative. In the Hernando production in response to Plaintiffs' Counsel's request for data on drop box use, one column in the produced Hernando spreadsheet for the 2020 General Election combines ballots submitted via drop box with early voting ballots. My counts of Hernando County's drop box ballots in Table 10 do not include this column of data. In addition, the drop box count in Table 10 for Palm Beach County is understated and that county's drop box rate thus conservative. Per correspondence with county Counsel, technical difficulties affected Palm Beach County's production in response to Plaintiffs' Counsel's discovery requests, and these difficulties led to a diminished drop box count for Palm Beach County.

[39]In a statement issued on March 22, 2021, Florida Supervisors of Elections stated that, "In 2020, 1.5 million Vote By Mail voters took advantage of the convenience and security of drop boxes." The letter is available at https://www.myfloridaelections.com/portals/fsase/Documents/Public%20Policy/FSE_Statement_032221.pdf. Articles in the press have reported that 1.5 millon Floridians cast their ballots via drop box in the 2020 General. See, for example, "New limits on drop boxes, mail ballots ready for final Florida House and Senate votes," *Herald-Tribune*, April 20, 2021, available at https://www.heraldtribune.com/story/news/politics/state/2021/04/20/florida-SB90republicans-SB90want-SB90new-SB90limits-SB90drop-SB90boxes-SB90mail-SB90ballots/7292659002 (last accessed August 28, 2021). Regardless, the number of drop box voters in Table 10 covers only the counties in the table.

Table 10: Drop box usage by county, 2020 General

County	Ballots	Rate	County	Ballots	Rate
Pinellas	194,843	55.87	Nassau	5,172	28.38
Miami-Dade	161,914	31.49	Martin	4,571	10.50
Hillsborough	149,342	44.16	Indian River	3,409	7.45
Broward	148,747	31.28	Levy	3,205	40.69
Lee	95,063	42.32	Putnam	2,398	26.46
Sarasota	73,232	51.81	Columbia	2,309	23.59
Orange	72,226	25.67	Gadsden	2,078	26.99
Polk	54,785	40.67	Okaloosa	1,976	5.19
Seminole	54,220	52.01	Taylor	1,825	58.63
Palm Beach	54,197	13.92	Okeechobee	1,683	35.82
St. Lucie	31,481	40.85	Citrus	1,617	4.10
Volusia	26,344	18.35	Bay	1,515	5.21
Leon	23,604	35.00	Bradford	1,073	27.85
Pasco	20,098	16.16	Franklin	937	36.49
Osceola	19,746	25.67	Hendry	737	22.21
Collier	14,872	14.40	Dixie	587	22.09
Alachua	14,015	22.62	Walton	528	4.48
Lake	11,690	16.71	Holmes	361	15.59
St. Johns	11,547	19.94	Union	105	8.56
Manatee	10,242	9.69	Madison	103	4.94
Santa Rosa	6,973	22.66	Calhoun	87	5.59
Highlands	6,731	34.18	Hardee	0	0.00
Marion	6,683	9.01	Total	1,304,083	30.31
Hernando	5,212	10.95			

Counties ordered by decreasing number of drop box ballots.

9.3.1   Race and drop box use across 46 counties

126   For the 46 counties listed in Table 10, the "Rate" column in this table is the percentage of VBM ballots cast via drop box. Using the official recap report for the 2020 General Election, I isolate all VBM voters and calculate the percentage Black of these individuals. Then, I plot VBM rates against percentage Black. The resulting plot is Figure 4.

127   This figure constitutes suggestive evidence that Black voters in Florida were disproportionately heavy users of drop boxes in the 2020 General Election. The more Black a county, the greater the drop box rate among VBM voters, as is evident in the figure's regression line, which is

Figure 4: VBM rate and Black percent among 46 counties, 2020 General Election
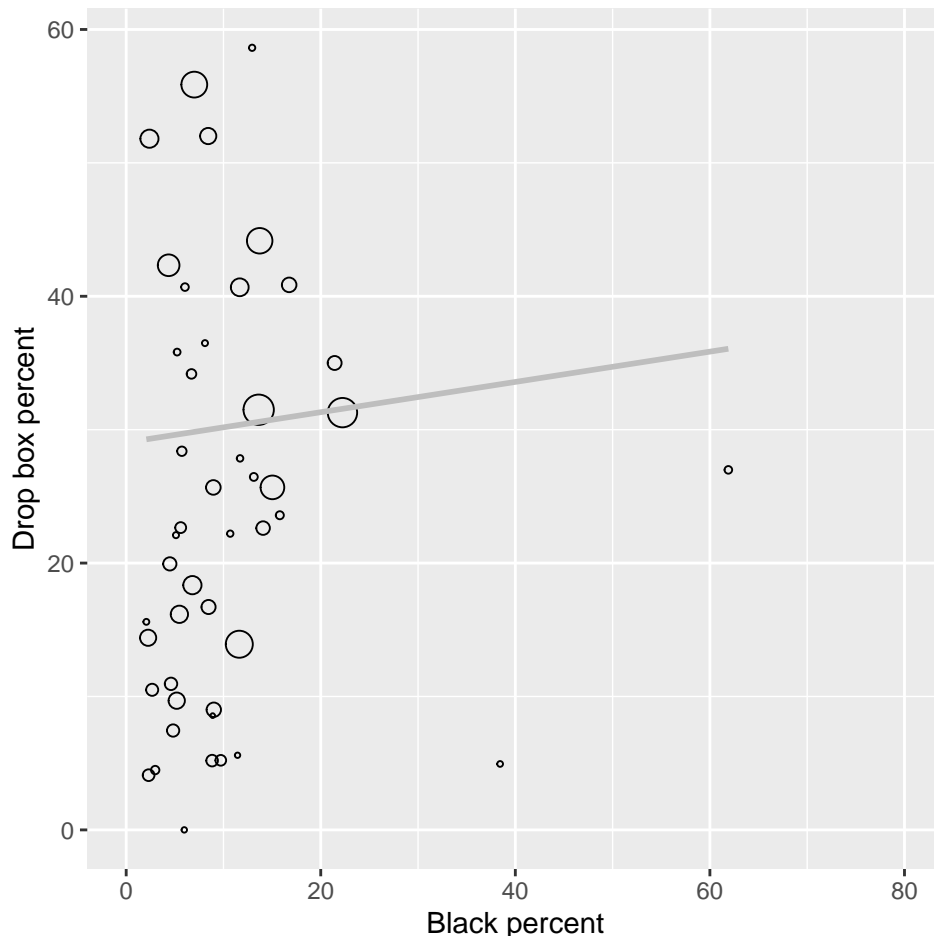
Note: each point denotes on county, and points are sized proportionally to VBM ballots cast. Weighted regression line is shown in grey.

sloped upward.[40] That said, there are only 46 observations in Figure 4, and the figure plots county aggregates (percent Black and percent drop box use among VBM voters) against one another. For most of the counties in Table 10, an aggregate VBM rate is all that is available. Faced with this situation, Figure 4 is suggestive of a relationship between race and drop box use but not definitive on this point.

---

[40]The regression line is weighted by VBM ballots cast. This is appropriate because drop box percent is a ratio of counts of drop box ballots and VBM ballots.

9.3.2   Race and drop box use among individual vote-by-mail voters

128   Of the 46 counties that appear in Table 10, six of them produced lists of drop box voters from the 2020 elections. Three—Lake, Santa Rosa, and Sarasota—produced lists of drop box voters from the 2020 PPP, the 2020 Primary, and the 2020 General; one—Columbia—produced data from the 2020 Primary and 2020 General; and, two counties—Franklin and Madison—produced lists only for the 2020 General. Appendix H describes how I processed individual-level information on drop box voters from the six aforementioned counties, merging county drop box lists with official statewide election recap reports—discussed in Appendix F—maintained by the Department of State.

129   The six counties of interest here are listed in Table 11 along with their racial breakdowns based on registered voter pools in the June 2021 voter file. As the registered voter pool in Florida was 61.2 percent White as of June 2021, the six counties are disproportionately White. The exception is Madison County, which is similar to Florida with respect to White voters but unlike the state vis-a-vis Hispanic registered voters. In Florida, 17.4 percent of the registered voter pool as of June 2021 was Hispanic, but, as Table 11 makes evident, Madison County contains relatively few Hispanic voters (1.75 percent of its registered voter pool).

Table 11: Summary of counties that produced drop box voter lists

County	Total	Percent Black	Percent Hispanic	Percent White	Percent Other
Sarasota	359,682	3.24	4.24	85.32	7.21
Lake	278,109	8.73	10.80	74.31	6.16
Santa Rosa	154,757	4.45	2.79	86.82	5.93
Columbia	46,031	14.14	3.31	78.68	3.88
Madison	12,772	33.29	1.75	60.63	4.33
Franklin	8,666	7.02	0.81	90.33	1.85

130   As shown in Figure 5, the six counties are distributed across Florida although only one—Sarasota County—can plausibly be thought of as located in the south of the state. The six counties that produced drop box voter lists are not among the largest and most racially diverse counties in

Florida, e.g., Miami-Dade County and Broward County, both of which are in southeast Florida.

Figure 5: Map of six counties that produced drop box voter lists
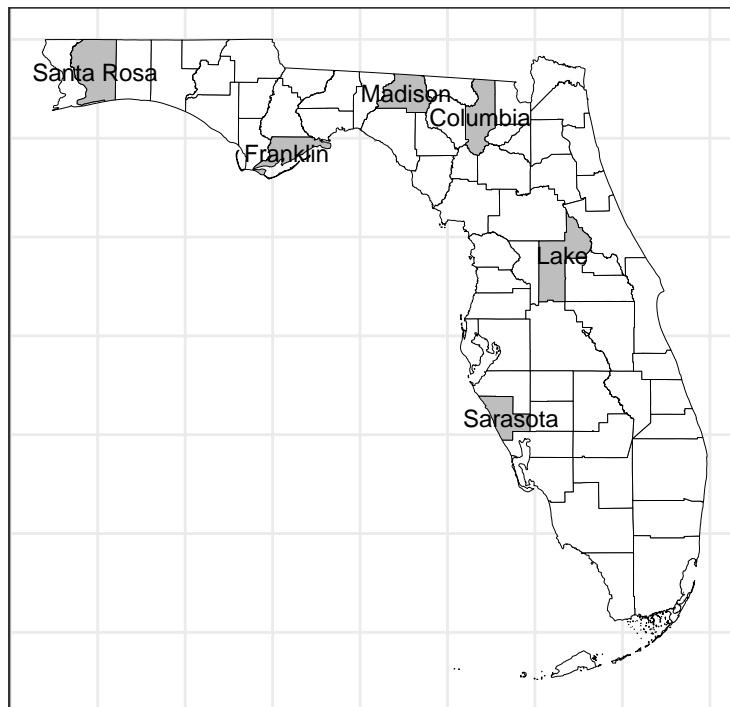
131   My analyses that rely on Columbia, Franklin, Lake, Madison, Santa Rosa, and Sarasota Counties to study drop box usage in Florida thus incorporate relatively few minority voters. Because of this, it is possible that, while differences in patterns of drop box use by racial groups may exist, they will nonetheless be difficult to detect.

132   Table 12 reports the number of processed VBM voters and drop box voters across counties and elections.[41] The rightmost column reports the percentage of VBM voters who cast their ballots via drop box.

---

[41] Appendix H describes how I merged produced drop box voter lists with election recap reports, and it notes that a limited number of drop box voters in the lists thereof produced by Franklin, Lake, Madison, Santa Rosa, and Sarasota Counties could not be matched to registered voters in a corresponding election recap report. This implies that the counts of total drop box voters in Table 12 are slightly lower than what they actually are.

Table 12: VBM and processed drop box counts in selected counties, 2020 elections

County	Election	VBM	Drop box	Percent
Columbia	Primary	5,232	466	8.91
Columbia	General	9,794	2,260	23.08
Lake	PPP	13,785	110	0.80
Lake	Primary	30,683	1,026	3.34
Lake	General	69,970	10,546	15.07
Santa Rosa	PPP	7,060	207	2.93
Santa Rosa	Primary	12,075	1,152	9.54
Santa Rosa	General	30,774	6,397	20.79
Sarasota	PPP	51,849	6,177	11.91
Sarasota	Primary	74,677	10,243	13.72
Sarasota	General	141,509	72,471	51.21
Franklin	General	2,568	872	33.96
Madison	General	2,084	101	4.85

Note: counties listed alphabetically.

133   There are, roughly, two types of counties in Table 12. Columbia, Lake, Santa Rosa, and Sarasota Counties had thousands of VBM and drop box voters, and these counties produced data that spans multiple 2020 elections. As detailed in Appendix H, Columbia and Sarasota County produced the most comprehensive drop box voter lists among all the counties in Table 12. These counties' lists included Florida voter identification numbers, which was not the case for the drop box voter lists produced by Lake, Franklin, Madison, and Santa Rosa counties.

134   Franklin and Madison are relatively small in terms of VBM counts (and overall number of registered voters), and these two counties produced data only for the 2020 General.[42] I return to these two counties later after analyzing drop box usage in the first set of counties, Columbia, Lake, Santa Rosa, and Sarasota.

9.3.3   Drop box usage in Columbia, Lake, Santa Rosa, and Sarasota Counties

135   Table 13 reports drop box usage rates in Columbia, Lake, Santa Rosa, and Sarasota Counties, broken down by VBM voter race and by election. Race groups (Black, Hispanic, White,

---

[42]In the June 2021 voter file and ignoring all records with duplicated voter identification numbers, Franklin is the sixth least populated county in Florida (8,666 registered voters) and Madison, the 12th (12,772 registered voters).

and Other) appear on left of the table, which has three panels, one per 2020 election. Each displayed rate is a percentage of VBM voters. For example, in Columbia County in the 2020 General, approximately 20.62 percent of Black VBM voters cast their ballots via drop box. Appendix I contains a table which reports the raw numbers of VBM voters and drop box voters by race and election that together yield the percentages in Table 13.

Table 13: Race and drop box rates in Columbia, Lake, Santa Rosa, and Sarasota Counties, 2020 elections

Race	Columbia	Lake	Santa Rosa	Sarasota
		PPP		
Black		1.11	1.28	23.51
Hispanic		0.14	1.46	18.04
White		0.82	3.05	11.38
Other		0.59	2.38	15.11
		Primary		
Black	9.53	4.44	8.33	24.10
Hispanic	6.31	2.46	9.22	16.43
White	8.85	3.29	9.76	13.11
Other	8.97	3.40	6.74	17.80
		General		
Black	20.62	17.22	20.77	61.48
Hispanic	15.86	17.28	17.48	53.33
White	24.00	14.42	21.13	50.92
Other	20.60	16.87	18.03	50.52

136   The percentages in Table 13 normalize for race group size, meaning that the table reports percentages rather than raw counts of drop box voters by election and race. This is because, in Florida, the four race groups considered in this report—Black, Hispanic, White, and Other—are not of equal size.

137   In Lake and Sarasota Counties, Black drop box rates were greater than White drop box rates across the 2020 PPP, the 2020 Primary, and the 2020 General. In Santa Rosa County, White drop box rates were greater than Black rates. For example, in the 2020 General, the *Black-White* gaps in drop box rates among VBM voters in Lake and Sarasota Counties were 17.22 - 14.42 = 2.8 and 61.63 - 51.24 = 10.39 percentage points, respectively. In Santa Rosa County, the *White-Black*

gap was 21.13 - 20.77 = 0.36 percentage points. Columbia County does not have consistent results regarding Black and White drop box rates in the 2020 Primary and 2020 General.

138   Turning now to age, I calculate drop box rates by age by county and election. Figure 6 shows the relationship between age and drop box use for Sarasota County in the 2020 General Election. Each point in the figure is sized proportionally to the number of VBM votes it describes. Larger points are more meaningful statistically.

Figure 6: Age and drop box use in Sarasota County, 2020 General Election
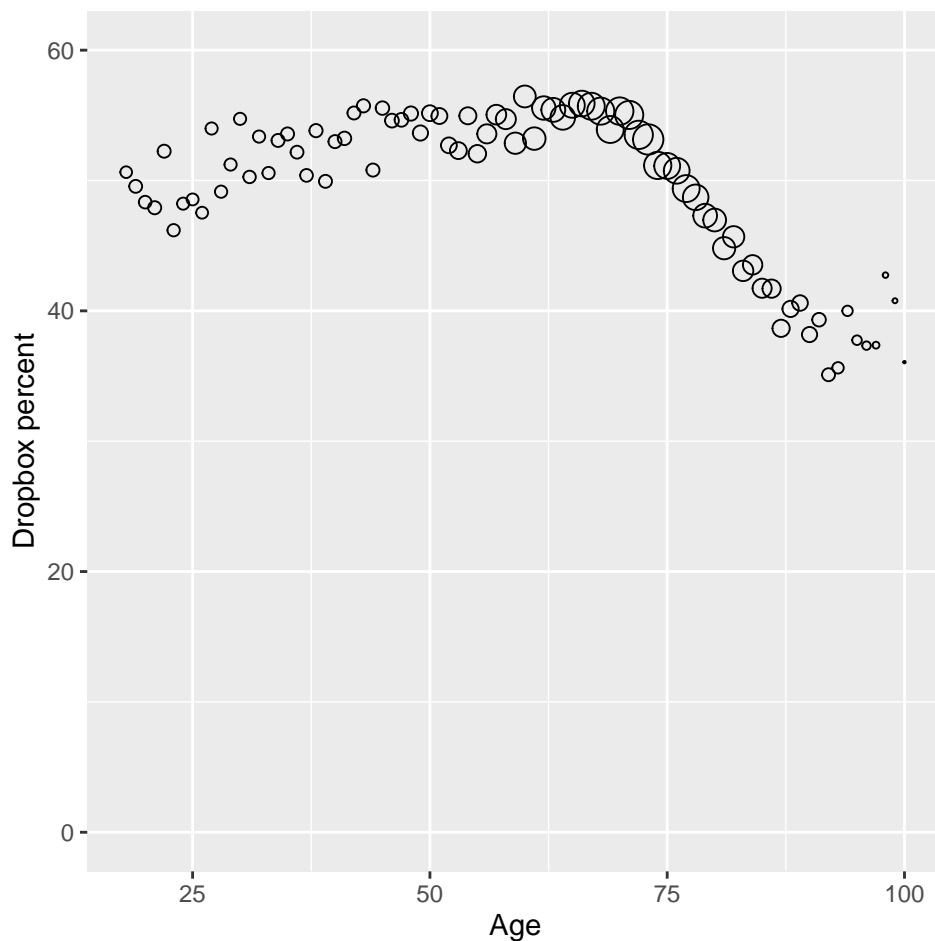
Note: each point is sized proportionally to the number of VBM voters of a corresponding age. Does not show ages greater than 100.

139   Appendix J contains an expanded version of Figure 6, one with 12 total panels (four counties cross three elections). Across these panels, there appears to be a cubic relationship between age and drop box usage among VBM voters. Generally speaking, a cubic function is one that can have at most two bends in it. This is in contrast to a linear function (cannot have any bends) and a quadratic function (can have at most one bend).

140   The relationship between age and drop box use appears cubic for the following reasons. The youngest VBM voters in Florida sometimes have relatively elevated drop box usage rates; middle age VBM voters often have among the highest such rates; and, drop box rates trend downward from middle age. In other words, there is a bend in the age-drop box relationship between young and middle age VBM voters and then a second bend between middle age VBM voters and older VBM voters. The importance of these apparent cubic relationships will become clear in the next section, where I use a regression analysis to study drop box usage among VBM voters, controlling for the effect of age.

9.3.4   Regression analysis of drop box usage among vote-by-mail voters

141   The race and age results discussed above are informative but limited in that Table 13 and Figure 13 describe bivariate (or two variable) relationships, i.e., how drop box usage rates vary by race and age, respectively. This table and figure do not disentangle the relationship between race and drop box usage and between age and drop box use because VBM voters in one of the four race groups may, hypothetically, be relatively young. Put another way, VBM voter age may confound Table 13's statistics on relationship between VBM usage and race.

142   Accordingly, this section builds on my bivariate age and race results with a set of three multivariate statistical models that estimate the effects of multiple variables on drop box usage among VBM voters. The model on which I rely is a logistic (or logit) regression, which is a standard statistical tool used to study binary outcomes, i.e., outcomes restricted to have two possible values, like whether a VBM voter used a drop box to submit his or her ballot or did not. My logit

analysis consists of three separate logit regressions, one each for the 2020 PPP, the 2020 Primary, and the 2020 General.

143   The regression for the 2020 PPP incorporates data from Lake, Santa Rosa, and Sarasota Counties. The two regressions analyzing the 2020 Primary and 2020 General add data from Columbia County. The sample for each regression consists of the set of VBM voters from included counties.

144   As with all regressions, a logit regression has a *dependent variable*, i.e., the variable that the model seeks to explain. The dependent variable of interest here is whether a VBM voter in Columbia, Lake, Santa Rosa, or Sarasota County cast a drop box vote or did not. This variable is binary.

145   A logit model also has a set of *independent variables*, i.e., variables used to explain the model's dependent variable. The independent variables in the three logit regressions here are drawn from voter characteristics that are part of Florida election recap reports.

146   The independent variables I include in my logit models are as follows: race (Black, Hispanic, White, and Other); party affiliation (Democratic, Republican, No party affiliation, and other); gender (Male, Female, and Unknown); and, age. The role of race in American elections is well-documented (e.g., Sides, Tesler and Vavreck, 2019), and scholars regularly consider age in studies of election turnout and vote choice (e.g., Schaffner, Macwilliams and Nteta, 2018; Rentsch, Schaffner and Gross, 2020).

147   The independent variables race, party, and gender are called *categorical*, meaning that they break observations into categories. In contrast, age is a *continuous* independent variable, one with units (years) whose numerical values can be directly compared across observations.[43]

---

[43]If one voter is 50 years old and another voter is 40 years, the difference (10) of 50 and 40 is meaningful. In contrast, one cannot take differences of categorical variables like race.

148   Earlier I noted that in Figure 13 there was evidence of a cubic relationship between age and drop box usage among VBM voters. My regressions incorporate this.[44]

149   The logit models also include county and precinct fixed effects. A fixed effect for a geographical unit, like a county, is an independent variable that allows for the unit to have an elevated or decreased drop box usage rate. Fixed effects are often used in regression analyses when individual observations (here, VBM voters) are nested in larger units (precincts and counties). A given set of precincts in one could have low drop box usage rates if, for example, these precincts were disproportionately inhabited by older voters due to the presence of retirement facilities. To the extent that voters cluster in a collection or in collections of precincts, their having low (or high) drop box usage rates will be attributed in the logit models to precinct fixed effects and not attributed to voter age.

150   Another reason to include county and precinct fixed effects in the logit models is that the VBM voter data that I have, drawn from official Florida election recap reports, do not include variables that directly measure voter income or socioeconomic status. If some precincts in Lake, Santa Rosa, and Sarasota Counties contain higher income VBM voters than others, and if income is correlated with VBM usage, then this will be picked up in fixed effects.

151   My logit models also cluster standard errors (statistics that measure uncertainty in logit model estimates) at the precinct level. This means that the models incorporate the fact that VBM voters are nested within precincts. As a consequence of this nesting, the choices made by a precinct's collection of VBM voters about whether to use drop boxes may be correlated. Clustered standard errors control for this.

---

[44] As a cubic function is of order three, when I include age in my logit models, what I am actually including is age itself, age-squared (i.e., age raised to the second power), and age-cubed (i.e., age raised to the third power). In the logit models estimated in this section, age squared is divided by 1,000 and age cubed, by 10,000. This is done to maintain consistency in coefficient magnitudes, and these operations have no consequences for the interpretation of my logit models.

152   Including fixed effects and clustering standard errors make my logit results on independent variables like race and age conservative. Intuitively, if my models identify an effect of age on drop box usage, this effect will be one that exists even allowing for voter clustering in precincts and counties.

153   Including a categorical independent variable, like race or party affiliation, in a regression model requires specifying a base category, sometimes called an omitted category. The base category is withheld (i.e., omitted) from the regression model, and the other categories are interpreted with respect to the base category. Since, for example, I treat race as a four-category independent variable, omitting one category yields three remaining categories. Therefore, my logit models include three race variables. In general, a categorical independent variable that has k categories will contribute $k-1$ variables to a regression. It is a mathematical feature of regression analysis that the choice of a base category for a categorical independent variable is without loss of generality, i.e., has not substantive implications for the regression's results.[45]

154   Table 14 displays logit regression results for three models: the 2020 PPP (left column), the 2020 Primary (middle column), and the 2020 General (right column). Independent variables are listed on the left of the table, and the table has three columns on results, one for each 2020 election. Under each coefficient estimate in Table 14 is an estimated standard error in parentheses. Standard errors reflect how much uncertainty there is surrounding a given coefficient estimate.

155   My analysis of the results in Table 14 focuses on which coefficient estimates are statistically significant, that is, which estimates are associated with standard errors that are relatively small. I do not focus on the precise magnitudes of the coefficient estimates in the table, and this is because these estimates are not easily interpreted. Logit models are non-linear. Thus, what ís most important is whether a coefficient estimate is positive—indicating that the associated inde-

---

[45]The logit regressions in this section of the report drop observations (VBM voters) who have missing data in their independent variables. The reasons for missingness in these variables are the same as those that affect the June 2021 voter file. See the end of Appendix B for a discussion of missing data in this file.

Table 14: Logit analysis of drop box usage in the 2020 elections among VBM voters in Columbia, Lake, Santa Rosa, and Sarasota Counties

	Election		
	PPP	Primary	General
Race: Black	0.380***	0.210***	0.059
	(0.110)	(0.073)	(0.043)
Race: Hispanic	0.200**	−0.123	−0.134***
	(0.096)	(0.078)	(0.037)
Race: Other race	0.191**	0.189***	−0.090***
	(0.074)	(0.056)	(0.025)
Party: Republican	−0.538***	0.111***	−0.146***
	(0.041)	(0.030)	(0.019)
Party: Other party	−15.812***	−0.449***	−0.218***
	(0.697)	(0.160)	(0.045)
Age	−0.154***	−0.043**	−0.024***
	(0.025)	(0.020)	(0.009)
Age-squared	3.042***	0.955**	0.801***
	(0.460)	(0.383)	(0.189)
Age-cubed	−0.189***	−0.074***	−0.067***
	(0.026)	(0.023)	(0.012)
Voting assistance	0.239	0.115	0.025
	(0.147)	(0.101)	(0.051)
Male	0.058***	0.022	−0.069***
	(0.020)	(0.017)	(0.011)
Unknown gender	0.170	−0.077	−0.061
	(0.117)	(0.091)	(0.048)
Constant	−15.926***	−1.481***	−1.201***
	(1.084)	(0.307)	(0.149)
Observations	71,280	105,037	197,604

Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$
Standard errors clustered by precinct
and county and precinct fixed effects not displayed.

pendent variable leads to an *increase* in the probability that a VBM voter used a drop box—or negative—indicating that the associated independent variable leads to a *decrease* in the probability that a VBM voter used a drop box.

156 Throughout my discussion of drop box log results, I use 0.05 as the cutoff for statistical significance. This is standard in applied statistical exercises. In Table 14, coefficient estimates that are statistically significant have either two or three asterisks next to them. Three asterisks denote coefficient estimates that are significant at the 0.01 level. Estimates significant at the 0.01 level are even more compelling than those significant at the 0.05 level.

157 Turning first to the independent variables in the top of Table 14, there are three variables related to race: Black, Hispanic, and Other. The omitted race category is White.

158 Across the three elections considered in Table 14, two Black voter estimates in the table are positive. This means that, in the 2020 PPP and 2020 General, Black VBM voters were more likely than White VBM voters to use drop boxes, *ceteris paribus*. Here, the term *ceteris paribus* means, holding all other independent variables constant. These results on Black VBM voters are statistically significant. Some Hispanic estimates in Table 14 are positive and significant (2020 PPP) and others, negative and significant (2020 General). A similar statement applies to the drop box usage rates of Other race voters.

159 Now turning to party, the omitted category is Democratic. Thus, Table 14's estimates are with respect to Democratic drop box usage races. The political party estimates in Table 14 are for the most part negative, implying that Republican VBM voters, VBM voters with no party affiliation, and VBM voters registered with a third party tend to use drop boxes less than Democratic VBM voters, *ceteris paribus*.

160 In terms of the implications of Table 14 for the relationship between age and drop box usage among VBM voters, Figure 13 plots aggregate age coefficients for the age range of 18 to

100. The aggregate age coefficient captures the effect of age on drop box usage, incorporating the fact that age appears in three ways (linearly, squared, and cubed) in each logit model in Table 14.[46]

Figure 7: Aggregate age coefficients in Columbia, Lake, Santa Rosa, and Sarasota logit models
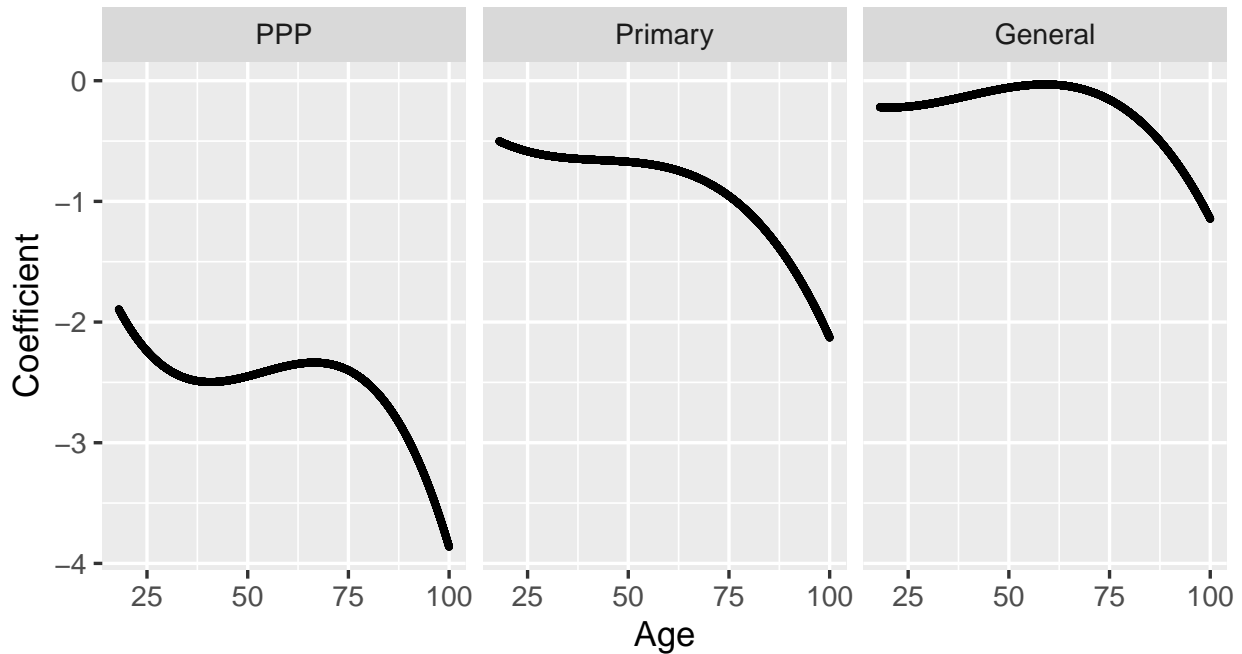
161   A consistent finding in Figure 7 across elections is that older VBM voters are disproportionately less likely to vote via drop box, *ceteris paribus*. The youngest VBM voters are either the most likely VBM voters to use drop boxes (2020 PPP and 2020 Primary), *ceteris paribus*, or are slightly less likely than old-to-middle age voters to do this (2020 General), *ceteris paribus*.

162   I find no evidence that VBM voters who stated upon registering to vote that they require voting assistance were more or less likely to use drop boxes, *ceteris paribus* (I discuss the matter of voting assistance below). And I find no consistent gender effects on drop box usage among VBM voters, *ceteris paribus*.

---

[46]Consider, for example, the 2020 PPP and a VBM voter of age 18. The aggregate age coefficient for this individual is $-0.155 + 3.059 \times 18^2 / 1000 - 0.190 \times 18^3/10000$. The three coefficients in this expression (-0.155, 3.059, and -0.190) can be found in the "PPP" column of Table 14. The division by 1,000 and 10,000 is discussed in fn. 44, was done for numerical reasons only, and has no substantive consequences.

9.3.5   Regression analysis restricted to Columbia and Sarasota Counties

163   In Appendix H, I noted that, of Columbia, Lake, Santa Rosa, and Sarasota Counties, the most comprehensive drop box usage data I have is from Columbia and Sarasota. These two counties included Florida voter identification numbers in their produced drop box voter logs, and Lake and Santa Rosa Counties did not. Therefore, to ensure that my logit results are not idiosyncratic to the drop box data from Lake and Santa Rosa Counties, I re-estimate the models, this time using Columbia and Sarasota VBM voters only. In this new set of regressions, I include precinct fixed effects and cluster standard errors by precinct. This section's 2020 PPP regression covers one county only—Sarasota—as I lack a drop box list from Columbia County for the 2020 PPP. A regression with only one county cannot include a county fixed effect. However, in the section's 2020 Primary and 2020 General logit regressions, there are county fixed effects. Table 15 contains regression results, as before broken down by 2020 PPP, 2020 Primary, and 2020 General.

164   The values of the coefficient estimates in Table 15 (Sarasota County only for the 2020 PPP regression and Columbia and Sarasota Counties for the 2020 Primary and 2020 General regressions) differ from those in Table 14 (which covered Columbia, Lake, Santa Rosa, and Sarasota Counties). However, the qualitative conclusions based on the two tables are similar.

165   Briefly, Black VBM voters use drop boxes more frequently than White VBM voters, *ceteris paribus*. This finding is consistent across all elections in Table 15, not just two of them as observed earlier. Democratic VBM voters use drop boxes more frequently than voters with other party affiliations or with no party affiliation, *ceteris paribus*; again, there is greater consistency in this result in Table 15 than in Table 14. There are no consistent findings about gender and drop box use, *ceteris paribus*. And, there is no evidence that a stated need for voting assistance is associated with drop box voting, *ceteris paribus*.

166   Figure 8 plots aggregate age coefficients for the three Columbia and Sarasota County-only regressions. While the values of the aggregate coefficients differ from the aggregate age

Table 15: Logit analysis of drop box usage in the 2020 elections among VBM voters in Columbia and Sarasota Counties

		Election	
	PPP	Primary	General
Race: Black	0.460***	0.316***	0.170***
	(0.109)	(0.089)	(0.059)
Race: Hispanic	0.284***	−0.049	−0.044
	(0.094)	(0.082)	(0.045)
Race: Other race	0.216***	0.275***	−0.091***
	(0.076)	(0.059)	(0.030)
Party: Republican	−0.545***	0.165***	−0.204***
	(0.042)	(0.033)	(0.021)
Party: Other party	−10.448***	−0.426**	−0.259***
	(0.775)	(0.186)	(0.054)
Age	−0.144***	−0.012	−0.012
	(0.025)	(0.022)	(0.010)
Age-squared	2.813***	0.307	0.596***
	(0.452)	(0.417)	(0.193)
Age-cubed	−0.175***	−0.036	−0.057***
	(0.026)	(0.025)	(0.012)
Voting assistance	0.138	0.053	−0.025
	(0.157)	(0.119)	(0.063)
Male	0.078***	0.047***	−0.024**
	(0.020)	(0.018)	(0.011)
Unknown gender	0.142	−0.056	−0.064
	(0.119)	(0.096)	(0.053)
Constant	0.207	−1.878***	−1.538***
	(0.412)	(0.340)	(0.158)
Observations	50,744	68,002	118,504

Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$
Standard errors clustered by precinct
and county and precinct fixed effects not displayed.

coefficients calculated based on the combined Columbia, Lake, Santa Rosa, and Sarasota County regressions (note that the vertical axes in Figures 7 and 8 are not identical), the shapes of the three curves in the former are very similar to the shapes in the latter.

Figure 8: Aggregate age coefficients in Columbia and Sarasota-only logit models
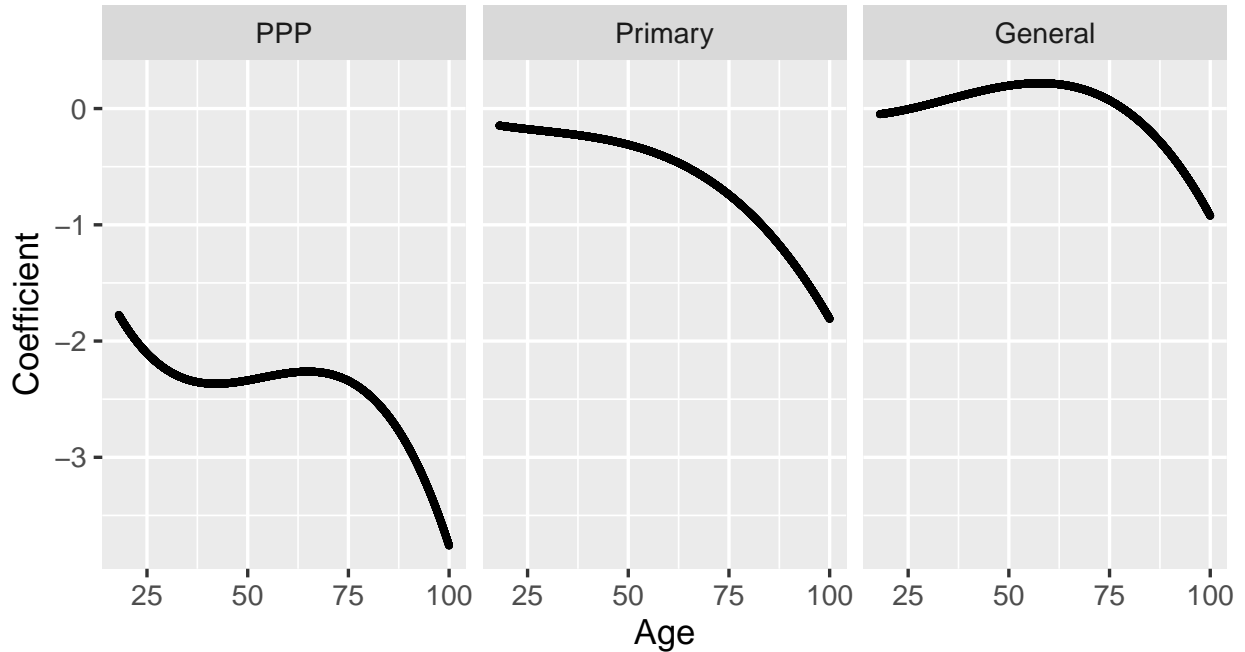
9.3.6   Drop box usage in Franklin and Madison Counties

167   I now comment briefly on rates of drop box usage among VBM voters in Franklin and Madison Counties. These two counties produced drop box voter lists from one election each (the 2020 General), and both of the counties are far less populated than Columbia, Lake, Santa Rosa, and Sarasota Counties.[47]

168   *Race*. Table 16 breaks down Franklin and Madison VBM voters by race. The key columns in the table are the two rightmost columns ("Drop box percent"), as they describe the rates at which VBM voters of different race groups used drop boxes.

---

[47]See fn. 42.

Table 16: Race and drop box use in Franklin and Madison Counties, 2020 General

Race	VBM voters Franklin	Madison	Drop box voters Franklin	Madison	Drop box percent Franklin	Madison
Black	208	801	78	50	37.50	6.24
Hispanic	25	36	9	2	36.00	5.56
White	2,288	1,165	769	47	33.61	4.03
Other	47	82	16	2	34.04	2.44

169   The evidence in Table 16 of differences across racial groups in drop box usage is suggestive. In both Franklin and Madison Counties, Black VBM voters had the greatest drop box usage rates. While this conclusion is not statistically significant given the closeness of the race-based drop box rates in Table 16 and the sizes of Franklin and Madison Counties, it is the same conclusion as that found in my analysis of Columbia, Lake, Santa Rosa, and Sarasota Counties.[48]

170   *Age*. Table 17 reports the breakdown for three age groups of drop box voters in Madison and Franklin Counties. The key columns in the table are those on the right ("Drop box percent"); they report for age groups the percentage of VBM voters who cast their ballots via drop box. The table uses age groups on account of the relatively small number of VBM voters in Franklin and Madison Counties.

Table 17: Age and drop box use in Franklin and Madison Counties, 2020 General

Age group	VBM voters Franklin	Madison	Drop box voters Franklin	Madison	Drop box percent Franklin	Madison
[18,25)	91	81	39	5	42.86	6.17
[25,65)	994	913	352	58	35.41	6.35
[65,101)	1,479	1,083	481	38	32.52	3.51

171   Keeping in mind the coarseness of the age groups in Table 17, the table suggests that drop box usage among VBM voters is lower for older voters. This evidence is suggestive, given the small sizes of Franklin and Madison Counties, yet consistent with the statistically compelling

---

[48]I calculated chi-squared statistics and p-values for the drop box counts in Table 16. The p-values for Franklin and Madison Counties are 0.72 and 0.11, respectively, neither of which reaches the conventional significance level of 0.05.

analysis of Lake, Santa Rosa, and Sarasota Counties.[49]

172   *Age.* Lastly, Table 18 reports the breakdown for four partisan groups of drop box voters in Madison and Franklin Counties. As in previous tables, the key columns in the table are those on the right ("Drop box percent"); they report for partisan groups the percentage of VBM voters who cast their ballots via drop box.

Table 18: Party and drop box use in Franklin and Madison Counties, 2020 General

Party	VBM voters		Drop box voters		Drop box percent	
	Franklin	Madison	Franklin	Madison	Franklin	Madison
Democrat	1,280	1,287	492	67	38.44	5.21
Republican	926	609	259	23	27.97	3.78
NPA	308	176	100	9	32.47	5.11
Other party	54	12	21	2	38.89	16.67

173   The evidence in Table 18 of differences across partisan groups in drop box usage is suggestive. In both Franklin and Madison Counties, Democratic VBM voters had greater drop box usage rates than Republican VBM voters. While this conclusion is not statistically significant in both Franklin and Madison Counties, it is the same conclusion as that found in my analysis of Columbia, Lake, Santa Rosa, and Sarasota Counties.[50]

174   In this section of the report, I have described drop box usage rates in two relatively small counties in Florida, Franklin and Madison, that produced drop box voter lists for the 2020 General. My brief analysis of these counties shows that their drop box voter lists, while accounting for only a small number of VBM voters, embody racial, age, and partisanship patterns that are consistent

---

[49]Parallel to the race-based chi-squared statistics described in fn. 48, I calculated chi-squared statistics by age group based on the counts of drop box voters in Table 17. The Franklin County p-value is 0.0638, and the Madison County p-value, 0.011. One of these values lies above the standard statistical significance cutoff of 0.05, although the Franklin County value is close to it. This reinforces the comment in the text that Table 17's evidence on the relationship in Franklin and Madison Counties between age and drop box usage is suggestive but not definitive.

[50]Parallel to the race-based chi-squared statistics described in fn. 48, I calculated chi-squared statistics and p-values for the drop box counts in Table 18. The p-values for Franklin and Madison Counties are 0.0000055 and 0.14, respectively, only one of which reaches the conventional significance level of 0.05.

with the statistically significant conclusion about drop box voting that I drew from an analysis of Columbia, Lake, Santa Rosa, and Sarasota Counties, one that covered three elections in 2020.

9.3.7 Concluding thoughts on the characteristics of drop box voters

175 In this section of my report, I have sought to characterize the types of VBM voters who cast ballots using drop boxes during the 2020 elections in Florida. To address this subject, I brought to bear data from six Florida counties that produced drop box voter lists during discovery.

176 Two of these counties produced comprehensive lists of drop box voters that could be straightforwardly merged with official Florida statewide election data. Two other counties produced lists of drop box voters that were more challenging to merge with official Florida statewide election data. And, two counties that produced drop box voter lists were relatively small, limiting their statistical value.

177 Despite this variance in data, there is broad consistency in the implications of the drop box voter lists to which I have access. Namely, Black VBM voters, Democratic VBM voters, and young voters are heavy users of drop boxes. The six counties that contribute to this conclusion have relatively few minority voters compared to Florida as a whole, which makes results based on them even more compelling.

178 SB 90 has restricted the ability of Florida counties to utilize drop boxes in future elections. This has raised the cost of VBM voting in Florida and thus the overall cost of voting in the state. The burdens of SB 90's restrictions on drop boxes will fall disproportionately on Black voters, voters affiliated with the Democratic party, and younger voters.

9.4 Timing of drop box ballot submissions

179 I now consider daily submissions of drop box ballots. There are two reasons for this timing analysis.

180   First, SB 90 restricts when drop boxes can be accessed by voters: except for drop boxes at supervisors' offices, drop boxes are permitted only during early voting days and hours. VBM voters who submitted their drop box ballots before early voting started will thus be burdened by this aspect of SB 90, and this raises the question of how many such voters did this in the 2020 General Election, if any did so at all.

181   Second, a weakness inherent in VBM ballot submission via mail is a dependence on mail delivery (Herron and Smith, 2021). When a VBM voters places his or her ballot in a mail box, it is out of the voter's control. In Florida, late-arriving VBM ballots are rejected even if postmarked on or prior to Election Day. On its web page, the Florida Department of State provides this guidance from the United States Postal Service: "The United States Postal Service recommends that domestic nonmilitary voters mail back their voted ballots at least one (1) week before the Election Day deadline to account for any unforeseen events or weather issues." [51] A VBM voter in Florida who receives his or her ballot from a supervisor's office within a week of Election Day cannot follow this guidance. Similarly, a VBM voter who receives his or her ballot before the one-week suggested mail date, yet decides on candidates for whom to vote within seven days of Election Day, is likewise stymied. These two types of voters will be burdened by decreased drop box availability, and this raises the question of how many VBM voters in the 2020 General Election submitted their ballots in drop boxes within a week of Election Day, if any did this at all.

9.4.1   Analysis of counties that produced drop box voter lists

182   I start with Columbia, Franklin, Lake, Madison, Santa Rosa, and Sarasota Counties because these counties produced drop box ballot logs that I analyzed above. These logs include dates of ballot submissions, and I focus here on submissions 15 days prior to Election Day to Election Day itself.[52]

---

[51]See fn. 8.

[52]Election days for the 2020 PPP, the 2020 Primary, and the 2020 General were March 17, August 18, and November 3, respectively. Some of the drop box ballots tracked by these counties were submitted more than 15 days before Election Day. To standardize my analysis across counties, though, I restrict attention to two weeks plus a day.

Table 19: Timing of drop box ballot submissions, 2020 PPP

Date submitted	Ballots submitted	Cumulative total	Cumulative percent
March 03 (Tuesday)	87	87	1.80
March 04 (Wednesday)	231	318	6.58
March 05 (Thursday)	101	419	8.67
March 06 (Friday)	289	708	14.65
March 07 (Saturday)	171	879	18.19
March 08 (Sunday)	59	938	19.41
March 09 (Monday)	329	1,267	26.22
March 10 (Tuesday)	234	1,501	31.06
March 11 (Wednesday)	368	1,869	38.68
March 12 (Thursday)	279	2,148	44.45
March 13 (Friday)	402	2,550	52.77
March 14 (Saturday)	363	2,913	60.29
March 15 (Sunday)	173	3,086	63.87
March 16 (Monday)	799	3,885	80.40
March 17 (Tuesday)	947	4,832	100.00

Note: includes only those ballots placed in drop boxes within 15 days of Election Day.

183　　　Table 19 describes drop box submissions for the 2020 PPP. The table lists dates of submission ("Date submitted"), counts of ballots submitted per day ("Ballots submitted"), the cumulative number of ballots submitted up to a day ("Cumulative total"), and the cumulative percent ("Cumulative percent").[53] The last cumulative percent in Table 19 is 100, reflecting the fact that all drop box ballots submitted within 15 days of Election Day are, by definition, submitted no later than Election Day itself.

184　　　Table 19 shows that, in the 2020 PPP, drop box voters in Florida submitted ballots on every day in the 15 day period up to and including weekends and Election Day. Approximately 56 percent of drop box ballots were submitted on the final Thursday and afterward.

This is within the window of early voting in Florida. See "Early Voting," *Florida Department of State*, available at `https://dos.myflorida.com/elections/for-SB90voters/voting/early-SB90voting/` (last accessed August 27, 2021).

[53]Table 19 does not include ballots with missing or erroneous submission dates that I cannot confidently correct or infer. This applies to the other two tables in this section, those pertaining to drop box submissions in the 2020 Primary and the 2020 General.

Table 20: Timing of drop box ballot submissions, 2020 Primary

Date submitted	Ballots submitted	Cumulative total	Cumulative percent
August 04 (Tuesday)	253	253	2.66
August 05 (Wednesday)	374	627	6.60
August 06 (Thursday)	481	1,108	11.65
August 07 (Friday)	520	1,628	17.12
August 08 (Saturday)	458	2,086	21.94
August 09 (Sunday)	183	2,269	23.87
August 10 (Monday)	824	3,093	32.53
August 11 (Tuesday)	703	3,796	39.93
August 12 (Wednesday)	602	4,398	46.26
August 13 (Thursday)	685	5,083	53.47
August 14 (Friday)	765	5,848	61.51
August 15 (Saturday)	841	6,689	70.36
August 16 (Sunday)	456	7,145	75.16
August 17 (Monday)	866	8,011	84.26
August 18 (Tuesday)	1,496	9,507	100.00

Note: includes only those ballots placed in drop boxes within 15 days of Election Day.

185   Table 20 is a similar table but for the 2020 Primary. It shows that drop box ballots were submitted every day, weekends included, starting 15 days prior to Election Day. Approximately 47 percent of drop box ballots were submitted on the Thursday before Election Day and thereafter.

Table 21: Timing of drop box ballot submissions, 2020 General

Date submitted	Ballots submitted	Cumulative total	Cumulative percent
October 20 (Tuesday)	5,614	5,614	12.43
October 21 (Wednesday)	4,667	10,281	22.76
October 22 (Thursday)	4,171	14,452	31.99
October 23 (Friday)	4,175	18,627	41.24
October 24 (Saturday)	1,733	20,360	45.07
October 25 (Sunday)	1,253	21,613	47.85
October 26 (Monday)	3,927	25,540	56.54
October 27 (Tuesday)	3,824	29,364	65.01
October 28 (Wednesday)	3,223	32,587	72.14
October 29 (Thursday)	3,005	35,592	78.79
October 30 (Friday)	3,587	39,179	86.73
October 31 (Saturday)	2,026	41,205	91.22
November 01 (Sunday)	909	42,114	93.23
November 02 (Monday)	1,588	43,702	96.75
November 03 (Tuesday)	1,469	45,171	100.00

Note: includes only those ballots placed in drop boxes within 15 days of Election Day.

186 Lastly, Table 21 reports drop box submissions for the 2020 General. In this election, approximately 22 percent of drop box ballots were submitted on the Thursday prior to Election Day and thereafter.

9.4.2 Extending drop box timing to additional counties

187 A number of counties produced documents during discovery which describe daily drop box submissions for the 2020 General. These counties appear in Table 22, which lists total drop box submissions by county ("Ballots"), the number of drop box submissions from September 1 up to and including October 18 ("Earlier"), and the number of drop box submission from October 27 up to and including November 3 ("Later").[54],[55]

188 What I am calling the "Earlier" drop box submission window precedes early voting in Florida. And, what I defining as the "Later" window starts on the Tuesday one week before Election Day. This date reflects the aforementioned guidance from the United States Postal Service.

189 From Table 22, it is evident that in the 2020 General there was variance across Florida counties as to how many drop box ballots were submitted well before Election Day ("Earlier") and closer to it ("Later"). In some counties (e.g., Indian River County), the fraction of drop box submissions well before Election Day exceeded 60 percent. In other counties, the majority of drop box voters submitted their ballots within a week of Election Day (e.g., Bay County).

190 The key results in Table 22 are as follows. Across the counties listed in the table, approximately 23.4 percent of drop box submissions (over 109,000 ballots) were made between September 1 and October 18. This is a window of time during which, had SB 90 been in effect prior to the 2020 General Election, drop boxes would not have been available. Moreover, approximately 27.61

---

[54]For Columbia, Franklin, Lake, Madison, Santa Rosa, and Sarasota Counties, a drop box submission is only incorporated in Table 22 if it has a valid submission date field. This is parallel to fn. 53.

[55]Nassau County produced a document, "Attachment 2.pdf," that appears to contain daily totals of drop box ballots. I am not certain that I could interpret this document correctly, however, and thus Nassau County is not included in Table 22. Pinellas County produced a spreadsheet that lists drop box submissions by day, but it aggregates all submissions from September 18 - October 18. This precludes my including Pinellas in Table 22.

Table 22: Drop box submission timing in the 2020 General Election

County	Total	Earlier		Later	
		Ballots	Percent	Ballots	Percent
Broward	148,747	0	0.00	50,435	33.91
Lee	95,063	44,881	47.21	21,926	23.06
Sarasota	71,040	35,108	49.42	13,115	18.46
St. Lucie	31,481	7,923	25.17	8,145	25.87
Volusia	26,344	0	0.00	8,026	30.47
Pasco	20,098	0	0.00	7,285	36.25
St. Johns	11,547	8,154	70.62	1,501	13.00
Lake	11,462	0	0.00	3,930	34.29
Manatee	10,242	0	0.00	3,575	34.91
Highlands	6,731	3,261	48.45	1,392	20.68
Marion	6,683	0	0.00	1,632	24.42
Santa Rosa	5,743	945	16.45	1,585	27.60
Hernando	5,212	2,669	51.21	1,221	23.43
Indian River	3,409	2,468	72.40	480	14.08
Putnam	2,398	950	39.62	584	24.35
Columbia	2,309	832	36.03	770	33.35
Gadsden	2,078	205	9.87	766	36.86
Taylor	1,825	976	53.48	468	25.64
Bay	1,515	0	0.00	1,001	66.07
Okeechobee	1,319	428	32.45	371	28.13
Franklin	937	560	59.77	176	18.78
Hendry	737	0	0.00	306	41.52
Walton	528	0	0.00	284	53.79
Holmes	190	106	55.79	39	20.53
Union	105	0	0.00	79	75.24
Madison	102	0	0.00	55	53.92
Calhoun	87	30	34.48	34	39.08
Total	467,932	109,496	23.40	129,181	27.61

Note: counties in descending order by total drop box ballots.

percent of all drop box submissions (over 129,000 ballots) were made within a week of Election

Day. These latter ballots, had they been placed in the mail, would be at risk of late delivery (and

thus ballot rejection), based on United States Postal Service guidance.

9.5 Permitted locations of drop boxes

191 Earlier I reviewed how SB 90 restricts the locations of drop boxes to offices of supervisors of elections, permanent branch offices of supervisors, and early voting sites. The latter consist of sites used for early voting and those that qualify for being used in this way.

192 To investigate the potential consequences of these restrictions, I calculated the following for each Florida county: the number of early voting sites used in the 2020 General Election; the number of supervisor of elections offices, including main and branch offices; and, the number of registered voters as of June 2021, broken down by race and party.[56]

193 Above I referred to "potential" consequences of SB 90's restrictions on drop box location, the reason being that SB 90 permits drop boxes at locations that qualify for usage as early voting sites but are nonetheless not used this way. For a county to install a drop box in such a location, the county would have to have a elections' office employee monitor it in addition to staffing its regular early voting sites. This would impose financial costs on the county. While it is technically possible that, in the future, Florida counties will create and staff new drop box locations at qualified early voting sites that are not used for early voting, assuming that they do not do this provides a baseline for assessing which counties in Florida have the fewest drop box sites per voter and thus are prone to being disproportionately burdened by SB 90.

---

[56]To determine the number of early voting sites per county in the 2020 General, I consulted the document "statewide-early-voting-locations-for-2020-gen.pdf," produced by the Florida Department of State during discovery. For the number of supervisor offices, main plus branch, I directed a research assistant to a spreadsheet maintained by the Department of State: https://www.dos.myflorida.com/media/704679/qrycountyinfo_excel-SB9020210818.xlsx (last accessed August 23, 2021). This spreadsheet consists of contact information for county supervisors of elections, and this information include supervisor websites. I instructed my research assistant to visit each such website and ascertain from it how many supervisor offices there are, main and branch. For example, Pinellas County has three total supervisor offices, as evident in https://www.votepinellas.com/General-SB90Information/Office-SB90Locations (last accessed August 23, 2021). St. Lucie County has four, as shown in https://www.slcelections.com (last accessed August 23, 2021). Palm Beach County has four offices as well, as evident in https://www.votepalmbeach.gov (last accessed September 1, 2021), plus an equipment service center that I do not treat as an office for the purposes of voting. Charlotte County lists three offices, as in https://www.soecharlottecountyfl.gov (last accessed August 23, 2021), but two appear to be temporarily closed. I do not know how long this closure will last and whether it reflects the ongoing pandemic; to be conservative, I assume that Charlotte has one main office and two branch offices.

Table 23: Potential locations of drop boxes, by county

County	Voters	SOE	Rate	County	Voters	SOE	Rate
Miami-Dade	1,588,831	33	48,146	Flagler	99,604	3	33,201
Broward	1,310,816	23	56,992	Nassau	78,141	5	15,628
Palm Beach	1,033,824	21	49,230	Highlands	69,126	3	23,042
Hillsborough	982,261	26	37,779	Monroe	62,926	5	12,585
Orange	921,523	20	46,076	Walton	60,492	4	15,123
Pinellas	738,496	5	147,699	Putnam	52,270	3	17,423
Duval	686,685	20	34,334	Columbia	46,031	3	15,344
Lee	531,765	12	44,314	Gadsden	32,108	4	8,027
Polk	491,559	11	44,687	Levy	31,853	1	31,853
Brevard	477,518	12	39,793	Jackson	30,453	3	10,151
Volusia	430,870	7	61,553	Suwannee	28,850	4	7,212
Pasco	412,090	14	29,435	Wakulla	23,540	1	23,540
Sarasota	359,682	8	44,960	Okeechobee	22,864	1	22,864
Seminole	342,581	8	42,823	Hendry	20,366	2	10,183
Manatee	285,991	6	47,665	DeSoto	18,454	1	18,454
Marion	278,565	9	30,952	Bradford	18,066	2	9,033
Lake	278,109	12	23,176	Baker	17,675	1	17,675
Osceola	263,838	8	32,980	Washington	17,427	2	8,714
Collier	261,218	10	26,122	Taylor	13,708	1	13,708
Escambia	243,496	10	24,350	Hardee	13,238	2	6,619
St. Lucie	239,643	8	29,955	Gilchrist	12,841	1	12,841
Leon	227,001	10	22,700	Madison	12,772	4	3,193
St. Johns	223,691	10	22,369	Holmes	11,895	1	11,895
Alachua	198,565	6	33,094	Gulf	11,248	2	5,624
Clay	170,317	7	24,331	Dixie	10,736	1	10,736
Okaloosa	163,998	6	27,333	Jefferson	10,233	1	10,233
Charlotte	156,920	5	31,384	Calhoun	9,041	2	4,520
Santa Rosa	154,757	6	25,793	Franklin	8,666	2	4,333
Hernando	150,577	5	30,115	Hamilton	8,345	1	8,345
Bay	134,481	14	9,606	Union	8,033	1	8,033
Indian River	125,178	3	41,726	Glades	7,707	1	7,707
Citrus	124,586	4	31,146	Lafayette	4,683	2	2,342
Martin	124,364	6	20,727	Liberty	4,623	2	2,312
Sumter	112,706	7	16,101				

Note: SOE denotes number total of supervisor of elections offices plus early voting sites; rate is registered voters divided by supervisor offices, rounded to nearest integer; counties sorted by number of registered voters.

194   For each Florida county, Table 23 reports the number of registered voters as of June 2021

("Voters"), the number of supervisor of elections offices plus early voting sites from the 2020

General ("SOE"), and the registered voter per office location plus early voting site rate ("Rate").[57]

195   The most populous Florida counties are those at the top left of Table 23. Miami-Dade has more than 1.5 million registered voters as of June 2021; its supervisor of elections has one main office and one branch office.[58] The county operated 33 early voting sites in the 2020 General, and both its administrative offices doubled as early voting sites. Hence Table 23 credits Miami-Dade County with a total of 33 total locations.

196   It is clear from Table 23 that the more populous counties in Florida have more locations at which drop boxes may be situated per SB 90. However, the rate at which these counties have more locations does not keep up with the sizes of the counties' registered voter pools. In Miami-Dade County, for example, there are 48,146 registered voters per possible drop box location (this figure is rounded). Reading across Table 23 to Flagler County, this county has 33,201 registered voters per location. Thus, Miami-Dade County has 1.45 times as many registered voters per location than does Flager.[59] The least populous county in Florida in terms of registered voters is Liberty, and this county has a ratio of voters to possible drop box locations of 2,312. Miami-Dade County has over 20.8 times as many registered voters per drop box location compared to Liberty County.[60]

197   Table 23 shows that Florida counties vary dramatically in the number of locations where drop boxes are permitted and plausibly likely to be located, per SB 90. Insofar as more voters per location can result in greater congestion per location, counties with more voters per location impose greater voting costs on their residents who want to vote via drop box. With respect to restrictions on drop box voters, the burdens imposed by SB 90 will thus vary by county, the greatest burdens

---

[57]For the purposes of Table 23, I use the June 2021 voter file to count the number of registered voters in Florida. I ignore the 527 records in this file that are associated with non-unique voter identification numbers. Based on this, Table 23 reflects 15,104,517 registered voters. To the extent that a supervisor main office was also an early voting site in the 2020 General, I counted this location only once.

[58]The single branch office for the Miami-Dade supervisor of elections is evident in the supervisor's contact information; see `https://www.miamidade.gov/global/elections/contact-SB90elections.page` (last accessed August 23, 2021).

[59]This calculation is based on dividing 48,146 by 33,201.

[60]This calculation is based on dividing 48,146 by 2,312.

being felt by residents of Pinellas, Volusia, Broward, Palm Beach, and Miami-Dade Counties. These counties have the five greatest rates of registered voters per possible drop box location.

198   Figure 9 plots the number of possible drop box locations per thousands of registered voters by county against the percentage of a county that is registered Democratic. Each point in the figure is a single county, and points are sized proportional to the number of registered voters in the county. Larger points are more meaningful statistically for the reason that larger samples in a statistical analysis are more meaningful. The color of each county point reflects the percentage of a county's registered voter pool that is White, as in indicated in the figure's legend. Counties that are at most 65 percent White are labeled.[61]

199   In Figure 9, there is a group of small counties that are primarily majority White although not exclusively so (e.g., Hendry, Madison and Gadsden Counties). These points appear as relatively small circles in the bottom portion of the figure. Among such low-populated counties, ratios of registered voters per possible drop box location are low.

200   There is a second cluster of points in Figure 9 that consists of relatively large and rather non-White counties with many Democratic affiliates. These counties are associated with large circles (because they have many registered voters) and are shaded (because they are no more than 65 percent White). These counties have much higher ratios of registered voters to possible drop box locations than the less populated counties discussed above.

201   And, there is a third set of counties that have fewer Democratic affiliates (e.g., are less than 40 percent Democratic), are more than 65 percent White, and have ratios of registered voters to possible drop box locations that span small to large. These counties are medium sized (reflecting their population size) and colored white (reflecting that they are at least 65 percent White).

---

[61] Figure 9 incorporates the largest racial group in Florida (White registered voters) and the largest partisan affiliation (Democratic). See Tables 1 and 2 for my earlier discussion of the demographics of the Florida registered voter pool as of June 2021.

Figure 9: Party, race, and possible drop box locations per registered voter
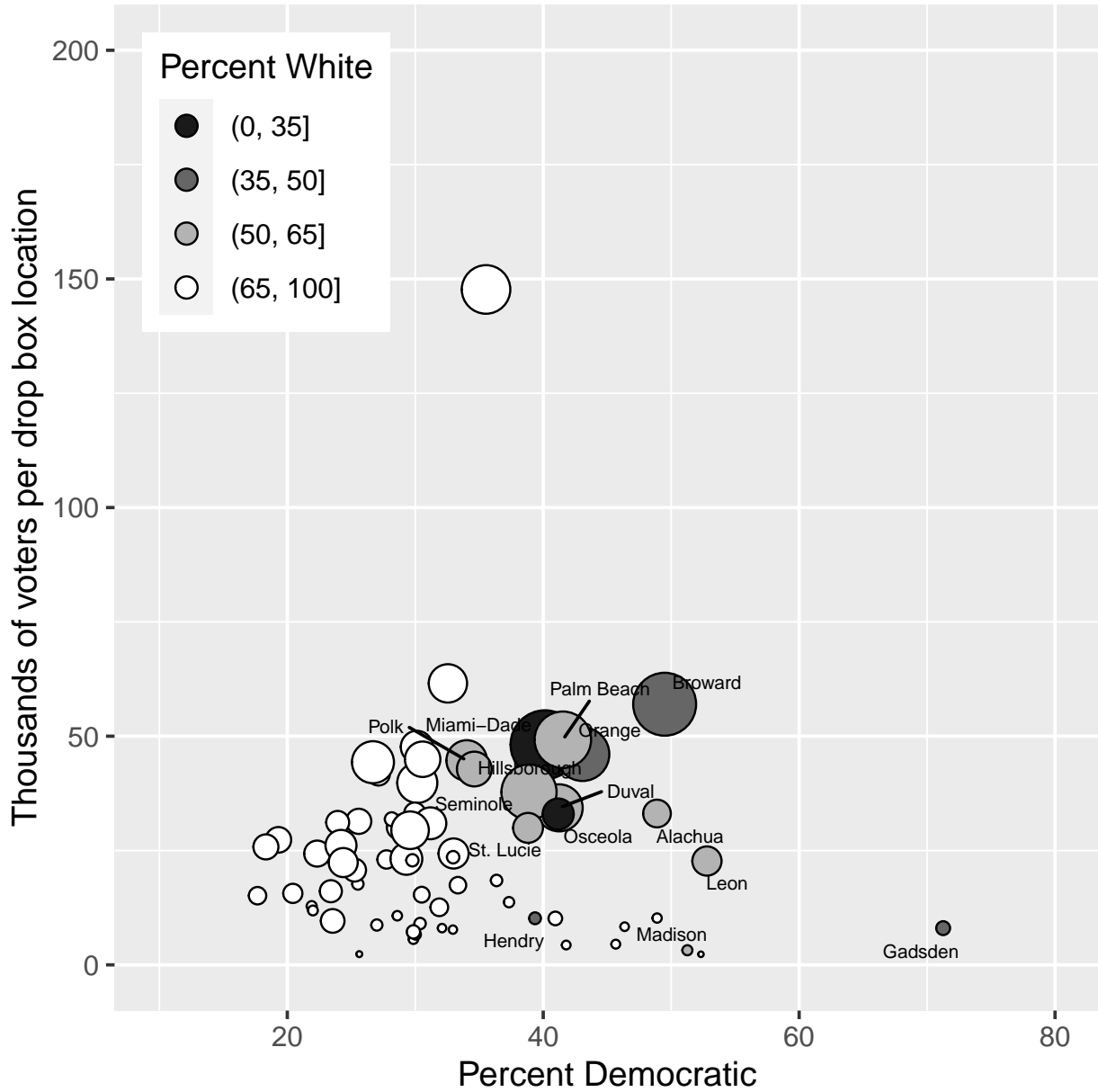
Note: each point denotes a county in Florida, and points are sized proportionally to number of registered voters per county.

202   The largest counties in Florida based on registered voter pool have relatively high ratios of registered voters to possible drop box locations. This can be seen in the fact that the points in Figure 9 associated with counties that are no more than 65 percent White are, for the most part, above the horizontal line at 25. The counties that break this pattern are either extremely small

(meaning, few voters reside in them, like Hendry, Madison, and Gadsden Counties) or are roughly medium sized (like Leon County). Thus, the most populous Florida counties are both non-White in terms of registered voter pools and have relatively high registered voter to possible drop box location rates.

203   I have noted above that SB 90 restricts the locations in which county supervisors of elections are permitted to install drop boxes. And in response to this, many Florida counties have already announced plans to reduce drop boxes. Figure 9 shows that SB 90's restrictions on drop box locations will aggravate the already existing burdens on drop box voters who reside in heavily Democratic and non-White counties in Florida.

9.6   Drop box security

204   To the best of my knowledge, the Florida Department of State does not maintain comprehensive records on the security arrangements and procedures that the state's counties used in 2020 to operate and secure their drop boxes. As part of discovery, Plaintiffs' Counsel requested information on this subject, and now I summarize what a set of counties reported as to how they implemented drop box security.

> Brevard County: "Dropboxes located at the main and branch offices were monitored in person by staff and/or security cameras. Security guards monitored the drop boxes located outside after office hours during the 2020 General Election. Early voting drop boxes for all 2020 Elections were monitored in person by a poll deputy and/or drop box inspector" (red text removed from original).[62]
>
> Collier County: Among other drop box security procedures that stipulate how ballots placed in drop boxes are accounted for and protected, "An election worker will be assigned to monitor the drop box and assist voters with depositing their ballot (sic) during Early Voting hours."[63]
>
> Dixie County: "DROP BOXES WERE ON MONITORED BY 24/7 VIDEO SURVEILLANCE" (bold removed from original).[64]
>
> Hernando County: Regarding drop box locking, "The [ImageCast Evolution Unit] Key and security token, the key to the Mobile Ballot Printer cart, and the key to the Vote-By-Mail Drop

---

[62]The source for this passage is, "Brevard Affidavit-BREVARD.pdf" (p. 3).

[63]See "Drop Box Sec Procedures-COLLIER.pdf."

[64]See "LOW - Dixie County Response to P's First RFP-DIXIE.pdf."

Box must all be locked in the combination lock box."[65]

Indian River: Drop box security procedures for elections officials included the following five-step opening procedure (emphasis in original):[66]

- Retrieve the **Mail Ballot Drop Box** from the **Blue Transfer Cart** and place near the entrance to the **EV Site**

- Retrieve the key from the **Official Results Bag** location in the **Blue Transfer Cart**

- Unlock and confirm **Mail Ballot Drop Box** is empty

- Re-lock the **Mail Ballot Drop Box** with **Pad Lock**

- Store **Mail Ballot Drop Box** key in **Official Results Bag** that is kept at the **EV Site**

The four-step corresponding closing procedure is:

- Unlock and remove **Vote-by-Mail Ballots** from **Drop Box**

- Count the # of **VBM Ballots** and record # on the **EV Chain of Custody Log** and the **EV Audit Form**

- Place **VBM Ballots** in the **Red Clerk's Bag**

- **Re-lock** the **Vote-by-Mail Ballot Drop Box** and store in the **Blue Transfer Cart**

Lafayette County: "DROP BOXES WERE MONITORED BY 24/7 VIDEO SURVEILLANCE THROUGH COORDINATION WITH THE LAFAYETTE COUNTY CLERK OF COURT AND COUNTY MAINTENANCE DEPARTMENT" (bold removed from original).[67]

Levy County: "Both the Front Office Drop Box and the Early Voting Entrance Drop Box were under video surveillance for twenty-four (24) hours a day, seven (7) days a week. Additionally, the boxes were in the Supervisor of Elections' office guarded by an alarm system."[68]

Liberty County: "DROP BOXES WERE ON MONITORED BY 24/7 VIDEO SURVEILLANCE" (bold removed from original).[69]

Manatee County: "Vote by Mail ballots are deposited in locked, ballot boxes at the drop-off locations (Early Voting Sites), which are staffed by poll workers at all times during Early Voting hours only. Bags secured with numbered seals are used to transfer the Vote by Mail ballots to the MCEC each day. When the Vote by Mail ballots arrive at the MCEC, the bags are opened and the security seal numbers and the number of Vote by Mail ballots are verified. Vote by Mail ballots are date/time stamped, recorded as received in the voter registration database and place in the Vote by Mail secure storage area."[70]

Miami-Dade County: Election officials were instructed that, "You cannot leave the Drop-Box unattended as ballots are deposited inside them. Should you need to leave your station (i.e. breaks), inform the Clerk (call the Clerk before leaving the Drop Box unattended) and the Assistance Coordinator will relieve you."[71]

---

[65] See "Early Vote 2020 - PC - FINAL-HERNANDO.pdf."

[66] See "Request for Production #6-INDIAN RIVER.pdf."

[67] See "LOW - Lafayette County Response to P's First RFP-LAFAYETTE.pdf."

[68] See "Tammy Jones Levy SOE Affidavit-LEVY.pdf" (p. 3).

[69] See "LOW - Liberty County Response to P's First RFP-LIBERTY.pdf."

[70] See "SecurityProceduresPage-MANATEE.pdf."

[71] See "VBM Attendant Manual rev-MIAMI DADE.pdf" (paragraph 5, p. 6).

Okaloosa County: "Drop boxes at early voting sites are always situated to be under the direct supervision of an early voting worker. Drop boxes at my office locations during COVID were placed outside of the office but within direct view of my staff. None of these boxes were ever monitored by any other method of surveillance."[72]

Pasco County: Election officials were instructed that, "Vote-by-Mail (VBM) Drop Box must be manned at all times...it can NEVER be left unattended" and that "You may go inside for a short break or to use the facilities HOWEVER, you MUST have the Site Supervisor, or an Attendant relieve you because the Vote-by-Mail Drop Box cannot be left unattended."[73]

Pinellas County: "From July 2019 to the present day, Pinellas County has staffed drop boxes during hours of operation."[74]

Polk County: In email correspondence, Lake Alfred City Clerk Linda Bourgeois wrote, "Our Public Works Director has secured the drop box to the tile floor and put a bicycle cable lock through the eyelet. In addition, it was moved to be in direct sight of our security camera."[75] Polk County also instructed its officials as follows: "Do not leave the VBM drop box unattended. If you need to use the restroom or take your lunch break, notify your Branch Manager and wait until they or another election worker covers you before you leave your station."[76]

Union County: The Supervisor of Elections stated that, "WE HAD TWO DROP BOXES. ONE WAS MONITORED BY CAMERAS AND A DEPUTY DURING EARLY VOTING FOR THE 2020 GENERAL ELECTION AND THE OTHER WAS MONITORED BY CAMERAS" (bold text removed from original document).[77]

205   As evidenced by the above, Florida counties employed drop box security measures. They varied as to how they monitored drop boxes during the 2020 election cycle, some using video surveillance and others, direct monitoring of drop boxes. Variance notwithstanding, the counties noted above have protocols for drop box security.

206   During discovery, Plaintiffs' Counsel requested that counties produce documentation of security issues associated with drop boxes.[78] No such information was produced.

---

[72] See "Okaloosa Affidavit-OKALOOSA.pdf."

[73] See "Req 6 EV Deputy Guidelines General 2020-PASCO.pdf."

[74] See "Declaration [Affidavit] of Julie Marcus, Pinellas County SOE.pdf-PINELLAS.pdf."

[75] See "Polk_Co_SOE_LWV_RTP_6 (9)-POLK.pdf."

[76] See "Polk_Co_SOE_LWV_RTP_6 (4)-POLK.pdf."

[77] See "LOW - Union County Response to P's First RFP-UNION.pdf."

[78] See fn. 24.

9.7   Drop box reductions in response to SB 90

207   In response to SB 90, county elections officials in Florida must locate and staff drop boxes under revised statutes. Video surveillance of drop boxes is now prohibited, and drop boxes not located at early voting sites can be available to voters only during early voting hours.

208   Table 24 is an accounting of some of the consequences of SB 90 for drop boxes in Florida. Appendix L contains details on the source documents behind this table.

209   The first three columns Table 24 are under the heading "Drop boxes." These columns describe the number of drop boxes that each county offered on a 24 hour basis ("24h"), the number of drop boxes available during early voting, or fewer, hours ("Standard"), and the total number of drop boxes in the county ("Total").

210   Beyond the 424 drop boxes whose availability to voters was connected to early voting, there were 65 24-hour drop boxes in Florida during the 2020 General Election, spread out across 48 counties. In two counties, the number of 24 hour drop boxes exceeds the number of supervisor of elections offices (main plus branch). Franklin County has one main offices but offered two 24-hour drop boxes during the 2020 General Election. SB 90 makes this arrangement impossible. The same is true in Union County.

211   Turning to the second group of column in Table 24 ("Surveillance"), the table indicates that 41 counties employed video surveillance of drop boxes during the 2020 General Election. This is now prohibited by SB 90. I have earlier reviewed evidence on fraud in Florida in the 2020 General, and there is no evidence that voter fraud was executed in Florida during this election using drop boxes.

212   Many of the counties that used video surveillance—30 of them—used this form of surveil-lance for one or more 24-hour drop boxes. This is now prohibited by SB 90. To maintain these

Table 24: Drop box reductions across Florida counties

County	24h	Drop boxes Standard	Total	Surveillance Video	24h video	Reductions Hours	Locations
Alachua	1	6	7	x		x	
Baker	1	0	1	x		x	
Bay	1	13	14				
Bradford	1	0	1	x			x
Brevard	4	8	12	x	x		
Broward	2	22	24	x		x	
Calhoun	1	1	2	x	x		
Charlotte	0	3	3				
Citrus	1	4	5	x			
Clay	1	6	7	x	x	x	
Collier	1	9	10	x	x		
Columbia	2	0	2	x	x		
DeSoto	2	0	2				
Dixie	1	0	1	x	x		
Duval	1	20	21				
Escambia	1	10	11	x	x		
Flagler	1	2	3	x	x	x	
Franklin	2	0	2	x	x		
Gadsden	1	3	4				x
Gilchrist	1	0	1	x	x		
Glades	1	2	3				
Gulf	0	2	2				
Hamilton	1	0	1	x	x		
Hardee	0	1	1				
Hendry	1	1	2				
Hernando	2	5	7	x	x	x	
Highlands	0	4	4	x			
Hillsborough	1	25	26				x
Holmes	1	0	1	x	x		
Indian River	1	3	4	x	x	x	
Jackson	0	3	3				
Jefferson	1	0	1	x	x		
Lafayette	1	1	2	x	x		x
Lake	1	12	13	x			x
Lee	0	11	11				
Leon	0	10	10				
Levy	1	2	3	x	x		
Liberty	2	0	2	x	x		x
Madison	1	0	1	x	x		
Manatee	1	5	6	x	x		
Marion	1	8	9	x	x		x
Martin	0	6	6				
Miami-Dade	0	33	33				x
Monroe	0	5	5				
Nassau	1	5	6	x	x		
Okaloosa	0	6	6				
Okeechobee	1	0	1				
Orange	1	19	20	x			
Osceola	1	7	8	x	x		
Palm Beach	4	25	29	x	x	x	
Pasco	0	15	15				
Pinellas	0	26	26				x
Polk	1	10	11	x	x		
Putnam	1	4	5	x	x		
Santa Rosa	0	6	6				
Sarasota	0	8	8				
Seminole	0	8	8				
St. Johns	1	10	11	x	x		x
St. Lucie	4	6	10			x	x
Sumter	0	8	8				
Suwannee	1	3	4	x	x		
Taylor	1	1	1	x	x		
Union	2	0	2	x	x		x
Volusia	0	7	7	x			
Wakulla	1	0	1	x			
Walton	0	4	4	x			
Washington	2	0	2				
Total	65	424	488	41	30	10	11

Page 79 of 121

drop boxes for the time periods they were offered in 2020, they must now be staffed in-person, 24-hours a day, by employees of a Supervisor of Elections office.

213   As part of discovery in this litigation, Plaintiffs' Counsel served interrogatories on Florida county supervisors of elections, inquiring about their drop box plans for the future. Details on these responses are under the "Reductions" heading in Table 24. According to the responses from the interrogatories, ten counties have decided to reduce drop box hours in future elections and 11 to diminish the number of drop box locations available to voters. Thus, at least 20 of Florida's counties have already planned to reduce drop box availability as a result of SB 90.

214   Interrogatory responses show that SB 90 is responsible for these changes. For example, Lake County explains its decision to remove a 24-hour drop box: "the drop box previously provided outside of the elections office will no longer be available because of the requirement that the drop box be continuously monitored in person by an employee of the Supervisor's office when accessible for deposit of ballots." Lafeyette County similarly explained: "Barring a reversal of the law in the 2022 Legislative Session regarding drop boxes, the [Supervisor of Elections] will remove the drop box currently located at the courthouse." Marion County said: "The drop box previously provided outside of the elections office will no longer be available because of the requirement that the drop box be continuously monitored in person by an employee of the Supervisor's office when accessible for deposit of ballots." Palm Beach stated: "we will limit the time during which voters will be able to drop off ballots, due to the expense and safety concerns implicated in staffing those drop boxes overnight by Supervisor of Elections employees." St. Johns said: "The 24/7 drop box located outside the Supervisor of Elections office will no longer be available as it was previously monitored by security cameras." These statements exemplify the impact of SB.[79]

215   Table 24 provides concrete evidence that the availability of drop boxes in Florida, both in terms of number of hours of accessibility, will be reduced on account of SB 90's restrictions.

---

[79]For the sources of these passages, see Table 54 in Appendix L.

According to what counties are already planning in response to SB 90, voters in Florida in future elections will have less access to drop box voting. This burdens all voters in Florida but in particular those who use drop boxes to submit their ballots. Based on the evidence adduced earlier, these individuals are disproportionately Black, disproportionately Democratic, and disproportionately young.

10   Assistance with vote-by-mail ballots

216   VBM ballots can be submitted via mail or directly to elections officials. Drop box voting, reviewed above, is an example of the latter. A VBM voter may need assistance with ballot submission due to a disability (e.g., the voter's physical conditions makes traveling to a drop box or to a post office difficult), the voter's socioeconomic situation (e.g., transportation costs are challenging or a voter's work schedule constrains when the voter can return a ballot himself or herself), or other reasons.

10.1   SB 90's restrictions on ballot delivery assistance

217   SB 90 changed the Florida statutes that govern the extent to which third parties are permitted to assist voters in the state with VBM ballot delivery. Accordingly, § 104.0616(2) now reads

> Any person who distributes, orders, requests, collects, delivers or otherwise physically possesses more than two vote-by- mail ballots per election in addition to his or her own ballot or a ballot belonging to an immediate family member, except as provided in § 101.6105-101.694, including supervised voting at assisted living facilities and nursing home facilities as authorized under § 101.655, commits a misdemeanor of the first degree (lines 1356-1366)

218   Prior to SB 90, third-party organizations, family members not immediately related to voters (i.e., cousins), and individuals who took it upon themselves to assist voters with VBM ballot delivery were permitted to help in this way. Paid VBM ballot delivery assistance was prohibited in Florida before SB 90 and remains prohibited now.

219   By prohibiting third-party organizations, family members not immediately related to voters, and interested individuals from assisting others with VBM ballot delivery, SB 90 has raised the cost of voting for the types of individuals who rely on this form of assistance.

220   To the best of my knowledge, neither the Florida Department of State nor the 67 county supervisors of elections in Florida maintain records that identify the voters who received assistance with VBM ballot delivery in given elections. Therefore, to ascertain the types of voters who are burdened by SB 90's new prohibitions on VBM ballot delivery assistance, I carry out two analyses.

221   First, I leverage the fact that, as part of registering to vote in Florida, registrants stipulate whether they need assistance voting. Ballot submission is one part of voting. Therefore, I posit that individuals who state that they need assistance voting are the types of individual who are disproportionately likely to avail themselves of assistance with VBM ballot delivery.

222   Second, I leverage a national survey that, following midterm and presidential elections, asks American voters about their voting experiences. One question that the survey has posed to respondents is whether these individuals relied on others for VBM ballot delivery. I use this question to characterize the types of individuals most likely to seek assistance with VBM ballot delivery.

10.2   Characterizing Florida voters who need assistance voting

223   Florida election recap reports list all registered voters in the state as of a given statewide election. They also contain basic demographic data on registered voters (e.g., race, gender, and

age) as well as partisan affiliation.

224   Recap reports also identify those voters who, when they registered to vote, indicated that they need assistance voting. To the extent that a voter registered with a paper form, such an individual checked the box next to the statement, "I will need assistance with voting."[80] The Florida Department of State refers to these individuals as needing assistance to vote "due to a disability."[81]

225   Drawing on election recap reports produced by Secretary of State during discovery, Table 25 contains the total number of registered voters per report, the number of voters who indicated that they need assistance voting, and the percentage of the latter. In this section of the report, I ignore the small number of registered voters for whom official election recap reports do not specify whether said individuals need voting assistance.[82]

Table 25: Registered voters and those needing voting assistance

Election	Registered voters	Need assistance	Percent
2014 Primary	12,762,304	374,255	2.93
2014 General	11,889,054	354,200	2.98
2016 Primary	12,320,994	349,206	2.83
2016 General	13,852,633	403,594	2.91
2018 Primary	13,690,621	398,424	2.91
2018 General	14,103,585	415,225	2.94
2020 PPP	14,478,390	424,303	2.93
2020 Primary	14,717,750	429,350	2.92
2020 General	15,220,391	445,922	2.93

---

[80]This statement appears on the "Florida Voter Registration Application," available at `https://files.floridados.gov/media/702217/dsde39-SB90pre-SB907066.pdf` (last accessed August 31, 2021).

[81]See "Accessible Voting for Persons with Disabilities," *Florida Department of State*, available at `https://dos.myflorida.com/elections/for-SB90voters/voting/accessible-SB90voting-SB90for-SB90persons-SB90with-SB90disabilities/` (last accessed August 17, 2021).

[82]The reasons for missingness in voting assistance data in Florida election recap reports are the same as those associated with data missingness in the June 2021 voter file, namely, voter participation in an official program in Florida which makes voting data private and idiosyncratic database errors. See the end of Appendix B for a discussion of missing data in the June 2021 voter file.

226   Table 25 has two implications. First, since the elections of 2014 and through 2020, tens of thousands of Florida registered voters have indicated that they need assistance voting. The raw numbers of voters needing assistance voting have grown over time, the greatest such number having been reached in November 2020. Second, the percentage of voters needing assistance voting has remained roughly constant since 2014, hovering at slightly more than 2.9 percent of all registered voters in Florida.

227   The counts in Table 25 of voters who need voting assistance are conservative. A voter who did not when registering to vote indicate that he or she needs assistance voting can still, if voting in-person early or on Election Day, receive such assistance. Such a voter would have to fill out a declaration, as described by the Department of State: "You will have to fill out a declaration affirming that you need help unless you wrote on your voter registration application that you would need assistance at the polls."[83]

228   Having established that there are tens of thousands of voters in Florida who need assistance voting, I now assess these voters' characteristics. To do this, I turn to a set of logit regressions, one per election recap report listed in Table 25.

229   In these logit regressions, the dependent variable is whether a voter reported needing assistance voting. This variable is binary, a voter either needing assistance or not. The independent variables in the logit regressions are as follows: race (Black, Hispanic, White, and other); party affiliation (Democratic, Republican, No party affiliation, and other); gender (Male, Female, and unknown); and, age. Each categorical variable is associated with an omitted category, and I use the same omitted categories as in the drop box regressions in Section 9 of this report. My logit models contain county fixed effects with standard errors clustered at the county level.

---

[83]Ibid.

230   Table 26 contains voting assistance logit results for the three election recap reports cor-

responding to the 2020 PPP, the 2020 Primary, and the 2020 General. This table omits regression

results based on election recaps dating to 2014, 2016, and 2018, and this is because the results of

these latter regressions are effectively identical to those in Table 26. Appendix K includes a table

that reports results for all nine voting assistance regressions.

Table 26: Logit analysis of need for voting assistance

	PPP	Primary	General
Race: Black	1.56***	1.56***	1.56***
	(0.10)	(0.10)	(0.10)
Race: Hispanic	1.25***	1.25***	1.24***
	(0.07)	(0.07)	(0.07)
Race: Other race	0.99***	0.98***	0.96***
	(0.03)	(0.03)	(0.03)
Party: Republican	-0.27***	-0.26***	-0.22***
	(0.01)	(0.01)	(0.01)
Party: No party affiliation	-0.12***	-0.12***	-0.12***
	(0.03)	(0.03)	(0.03)
Party: Other party	-0.23***	-0.22***	-0.21***
	(0.04)	(0.04)	(0.03)
Male	-0.15***	-0.15***	-0.15***
	(0.03)	(0.03)	(0.03)
Unknown gender	-0.58***	-0.57***	-0.58***
	(0.04)	(0.04)	(0.04)
Age	-0.05***	-0.05***	-0.05***
	(0.00)	(0.00)	(0.00)
Age-squared	0.70***	0.68***	0.67***
	(0.02)	(0.02)	(0.02)
Observations	14,478,387	14,717,750	15,220,391

*Note: county fixed effects not shown; standard errors clustered
by county; *p<0.1; **p<0.05; ***p<0.01*

231   Looking across columns in Table 26, there are several consistent results on the effect of

voter characteristics on the likelihood of needing voting assistance. Among the four race groups

considered in the table, White registered voters are the least likely to need voting assistance, *ceteris

paribus*. This result, which is statistically significant across all three 2020 elections, is evident in

the fact that the race group coefficient estimates in Table 26 are positive, indicating a tendency

for all types of voters to need voter assistance in comparison to the omitted race category, which

is White. Similarly, among the four partisan affiliations in Table 26, Democratic affiliates are the most likely to need voting assistance, *ceteris paribus*. This result is also statistically significant and follows from the fact that, one, the partisan affiliation estimates in Table 26 are negative and, two, Democratic is the omitted partisan affiliation.

232   It also follows from Table 26 that men are less likely to need voter assistance than women, *ceteris paribus*, and that age increases the likelihood of needing voter assistance, *ceteris paribus*.[84]

233   From Table 26 it follows that, to the extent registered voters in Florida needing assistance voting are disproportionately likely to avail themselves of assistance with VBM ballot submission, non-White voters, Democratic voters, female voters, and older voters are disproportionately burdened by SB 90's restrictions on VBM ballot delivery.

234   The nature of official statewide election data in Florida (and across the United States) is that these data do not contain measures of income and education, two factors that scholars regularly include when studying vote participation in elections. When eligible Floridians register to vote, they are not queried regarding their income or education levels. Accordingly, as a check on the robustness of the results in Table 26, I estimated a set of linear probability models that include fixed effects by voter city and which clusters standard errors by city.[85] The estimates from these models are even more conservative than those in Table 26 given the number of cities in Florida compared to the counties. For example, in the 2020 General linear probability model with city fixed effects, there are 1,487 clusters of registered voters. This compares to 67 clusters in Table 26.[86] The greater

---

[84]Linear age ("Age") estimates in Table 26 are negative, but quadratic terms ("Age-square") are positive.

[85]A linear probability model is a linear regression in which a binary dependent variable (here, whether a voter needs voting assistance) is regressed against a set of independent variables. For the purpose of modeling a binary dependent variable, linear probability models are less efficient than logit models because they do not incorporate the fact that binary dependent variables can only take on two distinct values. However, the mathematical conditions needed for consistency of logit model estimates imply consistency of linear probability model estimates as well. Moreover, linear probability models are computationally less intensive than logit models, and this is important given that the models in Table 26 have millions of observations. I use linear probability models in this section of the report only when including city fixed effects, which are much more numerous than county fixed effects, as noted in the body of the report.

[86]The regressions I estimate with city fixed effects and clustered standard errors by city are linear probability models as opposed to logit models. The computational burden of estimating a logit model with over 14 million observations and close to 1,500 independent variables is extensive. The demands for estimating a corresponding linear probability

the number of fixed effects in a regression, the more conservative are the estimates associated with independent variables of interest. This is because a large number of fixed effects makes it more difficult for a regression to generate significant results on independent variables that are not fixed effects.

235   The results of the nine linear probability models—one for each election in Table 26—are qualitatively identical to those discussed above. That is, these models indicate that non-White voters, Democratic voters, female voters, and older voters are disproportionately burdened by SB 90's restrictions on VBM ballot delivery. Therefore, to the extent that the logit regressions summarized in Table 26 do not model factors like voter income and education, if voters cluster in cities based on these factors, the results in Table 26 are robust.

236   As an additional robustness check on Table 26, I re-estimated the logit models summarized in the table using VBM voters only.[87] Since SB 90 restricts the form of voter assistance to which VBM voters have access, it is important to ensure that the conclusions I have drawn from Table 26 are not the result of including non-VBM voters in my regressions.

237   Restricting attention to VBM voters, Appendix D contains the counterpart of Table 26, albeit including nine regressions (one per each election recap report) as opposed to just three (one per each election recap report in 2020). The qualitative results of the table in the appendix are identical to those drawn from Table 26. I also estimated a set of nine linear probability models that have VBM voters only, include city fixed effects, and cluster standard errors on city. The results of these models are qualitatively identical to those produced by the nine linear probability models that incorporated all registered voters.

---

model are not as severe.

[87]See fn. 29 on how I identified VBM voters in Florida election recap reports.

10.3 Voters who rely on others for vote-by-mail ballot delivery

238   The Survey of the Performance of American Elections (SPAE) is a national survey conducted after midterm and presidential elections.[88] Here I draw on versions of the SPAE from 2008, 2012, 2014, 2016, and 2020.[89] See Appendix E for details on how I processed these surveys.

239   The SPAE regularly includes a question about how VBM voters submitted their ballots. The wording of this question in the 2020 SPAE was, "Who returned ballot?" Possible answers were, "I did, personally," "Someone else did," and "I don't remember."[90] I treat the response, "Someone else did" as evidence that a third-party returned a VBM voter's ballot.

240   Table 27 reports the number of observations in each iteration of the SPAE as well as the number of VBM voters in each survey and the number that submitted their ballots via third-party. The year 2020 is clearly unique: the rate of VBM voting increased dramatically during the COVID-19 pandemic.

Table 27: Coverage of the Survey of the Performance of American Elections

SPAE	Respondents	VBM voters	Percent	Third party delivery
2,008	12,000	2,091	17.43	218
2,012	10,200	1,770	17.35	198
2,014	10,000	3,740	37.40	365
2,016	10,200	2,039	19.99	234
2,020	18,200	8,256	45.36	917

241   Among VBM voters in the various SPAE surveys used here, I define a binary dependent variable based on whether a person other than the voter returned the voter's ballot. Then, I use a logit regression to study the effect of voter race (four categories: Black, Hispanic, White, and

---

[88]For details on the SPAE, see "Survey of the Performance of American Elections," *MIT Election Data + Science Lab*, available at `https://electionlab.mit.edu/research/projects/survey-SB90performance-SB90american-SB90elections` (last accessed August 17, 2021).

[89]There are two versions of the 2014 SPAE. I used the version that oversampled voters from Florida, and this is because Florida is the subject of this report.

[90]This question was posed only to SPAE respondents to said that they voted in the 2020 General Election and cast a VBM or absentee ballot.

Other), disability status (two categories: Yes and No), party affiliation (three categories: Demo-cratic, Republican, and other), age, gender (two categories), and family income (four categories, each of which is an income range) on this dependent variable.[91] The SPAE covers multiple states, my logit models include state fixed effects, and they cluster standard errors on state. In addition, observations are weighted by sampling weights.[92] Logit model results are in Table 28.[93]

242   The most consistent result in the table pertains to disability: in all but the 2008 version of the SPAE, VBM voters individuals with disabilities were disproportionately likely to have a third party submit their VBM ballots, *ceteris paribus*. With respect to race, there are no consistent findings although there is a strong and statistically significant finding that Black VBM voters were disproportionately likely to use third party ballot delivery in 2020, *ceteris paribus*.

243   Table 28 does not have any statistically meaningful results about the relationship between education, income, and third party VBM ballot submission. With respect to age, in two versions of the SPAE (2008 and 2020), older voters were disproportionately likely to have a ballot submitted by a third party, *ceteris paribus*.

244   Most of Table 28's coefficient estimates are not statistically significant, and this is not surprising given the relatively small number of VBM voters across versions of the SPAE who submitted their VBM ballots by third parties. The SPAE only covers several hundred such voters per election (an exception being the 2020 General), spread over 50 states. The small number of third-party VBM deliveries, in conjunction with missing data in some of the SPAE fields, means

[91]Both age and age-squared appear in the logit regressions. The latter is divided by 1000, which has no substantive impact on interpretation.

[92]The SPAE often includes roughly 250 respondents per state, many of whom did not vote via VBM, as Table 27 makes clear. Consequently, there are states in each iteration of the survey in which no VBM voter arranged for a third party to submit his or her ballot. Corresponding state fixed effects were dropped so as to avoid the phenomenon known as perfect separation. This occurs when the predictor of a binary dependent variable model is perfectly correlated with the model's dependent variable.

[93]The logit models in this table drop observations that have missing or invalid data for voter education, family income, age, disability status, or whether a voter used a third party to submit his or her VBM ballot. I treat a refusal to answer a SPAE question as an invalid response.

Table 28: Logit analysis of someone else delivering VBM ballot

	2008	2012	2014	2016	2020
Disability	0.45	0.58*	0.63**	1.19***	0.72***
	(0.27)	(0.26)	(0.22)	(0.19)	(0.06)
Race: Black	-1.40*	-0.94	-0.83	-0.14	0.44**
	(0.56)	(0.75)	(0.62)	(0.37)	(0.17)
Race: Hispanic	0.32	-0.16	-0.07	-0.86	-0.36*
	(0.58)	(0.35)	(0.44)	(0.67)	(0.15)
Race: Other race	0.20	-0.05	0.09	0.69	0.11
	(0.52)	(0.37)	(0.12)	(0.41)	(0.19)
Party: Republican	-0.24	0.08	-0.03	0.33	0.17
	(0.22)	(0.22)	(0.18)	(0.20)	(0.16)
Party: Other party	0.10	0.40	0.00	-0.28	-0.02
	(0.16)	(0.22)	(0.07)	(0.24)	(0.10)
High school graduate	-0.19	0.45	-0.18	-0.16	-0.15
	(0.55)	(0.48)	(0.34)	(0.74)	(0.35)
Some college	-0.70	-0.02	-0.56	-0.70	-0.14
	(0.58)	(0.45)	(0.37)	(0.72)	(0.36)
Two year college	0.00	-0.51	-0.49	-0.56	-0.18
	(0.55)	(0.44)	(0.33)	(0.74)	(0.37)
Four year college	-0.85	-0.09	-0.32	-0.54	-0.31
	(0.55)	(0.44)	(0.35)	(0.73)	(0.39)
Post grad	-0.47	-0.25	-0.49	-0.81	-0.30
	(0.52)	(0.59)	(0.25)	(0.80)	(0.42)
Male	0.25	-0.44*	-0.25	-0.02	-0.41***
	(0.15)	(0.20)	(0.17)	(0.16)	(0.08)
Income: $50-$100	0.25	0.19	0.05	0.66***	0.17
	(0.15)	(0.14)	(0.11)	(0.16)	(0.10)
Income: $100-$150	-0.01	0.70	0.48***	-0.26	0.15
	(0.29)	(0.50)	(0.12)	(0.29)	(0.15)
Income: $150+	0.10	0.22	0.57*	1.11**	0.52**
	(0.32)	(0.64)	(0.23)	(0.35)	(0.17)
Age	-9.49***	0.01	-0.06	-0.06	-0.09***
	(1.90)	(0.04)	(0.03)	(0.03)	(0.01)
Age-squared	9.47***	-0.22	0.43	0.46	0.76***
	(1.79)	(0.40)	(0.26)	(0.26)	(0.12)
Observations	1,738	1,405	3,266	1,703	7,292

Note: state fixed effects not shown; standard errors clustered by state;
$*p<0.05$; $**p<0.01$; $***p<0.001$

that the SPAE is unlikely to detect subtle variation in the characteristics of VBM voters whose

ballots were submitted via third-party.[94]

---

[94]For example, in the 2020 SPAE, there are 1,975 voters who lack usable family income data.

11 Voter registration and third party registration organizations

245 In Florida, as in all states but North Dakota, registration is required prior to voting. All costs of voter registration are therefore also costs of voting.

246 Florida does not offer same-day voter registration, by which eligible voters can register to vote on the day of an election and then vote in it. Rather, the deadline to register to vote in Florida is 29 days prior to an election.[95]

11.1 Third party voter registration organizations

247 One way that eligible residents of Florida can register to vote is via a third-party voter registration organization (3PVRO). A 3PVRO is "any person, entity, or organization that collects any voter registration application" (not including elections officials who work with registrants and close family members who help each other with voter registration).[96]

248 3PVROs make voter registration in Florida less costly and thus facilitate voter registration. This was evident in an article I published, Herron and Smith (2013), which analyzed patterns in Florida voter registrations after a piece of election reform legislation in 2011 (House Bill 1355) restricted the activities of 3PVROs, raising the cost of voter registration and thus voting in Florida. HB 1355's restrictions on 3PVROs was subsequently struck down, but its restrictions were in effect for some time. By comparing Florida voter registrations in 2007 (pre-HB 1355) and in 2011 (post-HB 1355), I show that this legislation led to a drop in total voter registrations of roughly

---

[95]For this deadline, see the section "Deadline to Register (Book Closing)" in "Election Dates," *Florida Department of State*, available at `https://dos.myflorida.com/elections/for-SB90voters/election-SB90dates` (last accessed August 6, 2021).

[96]For this definition, see "Third-Party Voter Registration Organizations," *Florida Department of State*, available at `https://dos.myflorida.com/elections/for-SB90voters/voter-SB90registration/third-SB90party-SB90voter-SB90registration-SB90organizations` (last accessed August 6, 2021).

five percentage points.[97] HB 1355 had stronger effects on the rates at which young individuals registered to vote ("young" being defined in Herron and Smith as 20 years of age or younger), and there is some evidence as well in this article that Black registration numbers dropped as well when HB 1355 went into effect.

11.2   SB 90's new regulations on third party voter registration organizations

249   SB 90 modified the Florida statutes that regulate 3PVROs. In particular, this legislation requires a 3PVRO to explain to individuals whom it is helping register to vote that it might fail to return the individuals' registration paperwork in a timely fashion, thus jeopardizing the individuals' ability to vote in an upcoming election. And, the legislation requires a 3PVRO to explain to individuals whom it is helping register that they can register online, i.e., without the services of the 3PVRO in the first place. SB 90 states as follows:

> A third-party voter registration organization must notify the applicant at the time the application is collected that the organization might not deliver the application to the division or the supervisor of elections in the county in which the applicant resides in less than 14 days or before registration closes for the next ensuing election and must advise the applicant that he or she may deliver the application in person or by mail. The third-party voter registration organization must also inform the applicant how to register online with the division and how to determine whether the application has been delivered (lines 397-407).

250   With this language, SB 90 has reduced the value of voter registration via 3PVRO, and this has raised the cost of voter registration in Florida. Since registration in the state is required prior to voting, increases in the cost of registration are also increases in the cost of voting. To the extent

---

[97]Compared to 2007, voter registrations in Florida in the first-half of 2011 were down 11 percent among all voters. However, they were down 16 percent in the second half of 2011, when HB 1355 took effect. This means that the marginal effect of HB 1355 on voter registrations in Florida was five percentage points. See Herron and Smith (2013, p. 290).

that any particular group of voters in Florida uses 3PVROs disproportionately often, SB 90 raise the costs of voting for members of this group.

11.3   Recent trends in 3PVRO voter registrations

251   The Florida Department of State has tracked the number of statewide 3PVRO registrations since 2018, and these numbers are reported in Table 29.[98]

Table 29: Voter registrations in Florida, 2018 - June 2021

Year	3PVRO registrations	Total registrations	Percent
2018	96,516	844,119	11.4
2019	63,212	712,207	8.878
2020	59,805	1,176,509	5.08
2021	1,132	298,612	0.379

252   There are three full years of voter registrations covered in the table. The years 2018 and 2019 were pre-COVID-19 pandemic, and the 159,728 combined 3PVRO registrations in these two years constituted approximately 10.3 percent of all Florida voter registrations in this time period. 3PVRO registrations in general require person-to-person contact, and it is not surprising that the number of instances of this form of registration dropped considerably starting in 2020. The data for 2021 in Table 29 is confounded by COVID and only includes six months of registrations. These points notwithstanding, Table 29 shows that voter registration via 3PVRO has been used by tens of thousands of voting-eligible residents of Florida.

11.4   Statewide characterization of voters who registered via 3PVRO

253   To the best of my understanding, the Florida Department of State maintains records on the registration methods used by registered voters in Florida. However, publicly accessible voter

---

[98]Source for the data in this table is "Voter Registration - Method and Location," *Florida Department of State*, June 30, 2021, available at `https://dos.myflorida.com/elections/data-SB90statistics/voter-SB90registration-SB90statistics/voter-SB90registration-SB90reportsxlsx/voter-SB90registration-SB90method-SB90and-SB90location` (last accessed August 13, 2021).

files released by the department do not include data on voter registration methods. It is my under-standing that these are considered confidential. As such, the June 2021 voter file that I described earlier does not include a field for voter registration method.

11.4.1   3PVRO registrations across Florida

254   During discovery, the Florida Department of State produced a confidential statewide voter file that I believe has an effective date of August 2, 2021. Henceforth I refer to this file as the August 2021 voter file; Appendix C describes this file and how I processed it. Unlike the June 2021 voter file, the August 2021 file includes a field for voter registration method. There are nine such methods, one of which is via 3PVRO.

255   In this section of the report, references to voter registration method means the method that a voter most recently used to update his or her voter registration records in Florida. If a hypothetical voter were to register at an office of the Department of Motor Vehicles (DMV), her initial voter registration would be classified as via DMV. However, if the voter were to move within Florida and update her registration records via mail, then this voter's registration record would now indicate via mail. To the best of my understanding, the Florida Department of State does not maintain records on initial voter registration records used by new voter registrants in Florida.

256   As a consequence of how the Florida Department of State maintains is records of voter registrations, the number of registered voters in the August 2021 voter file who have a registration method of 3PVRO is a conservative estimate of the number of registered voters who have interacted with 3PVROs prior to August 2021.

257   Table 29 describes the distribution of voter registration methods in the August 2021 voter file. This table has two sections, one of which characterizes all registered voters in the voter file ("All") and the other of which characterizes voter registration from January 2012 onward ("Post-January 2012"). I explain the latter section below.

Table 30: Registration methods in August 2021 voter file

Method	All		Post-January 2012	
	Voters	Percent	Voters	Percent
DMV	5,855,333	38.62	3,080,090	46.11
Missing	2,604,341	17.18	508,178	7.61
Other	2,190,018	14.45	716,726	10.73
Mail	2,015,312	13.29	752,402	11.26
Online	1,556,352	10.27	1,060,611	15.88
3PVRO	763,240	5.03	491,552	7.36
Library	87,041	0.57	42,091	0.63
Public assistance agency	66,770	0.44	25,731	0.39
Disability agency	20,325	0.13	1,662	0.02
Armed forces office	1,844	0.01	749	0.01
Total	15,160,576	100.00	6,679,792	100.00

258   There are roughly 15.1 million records in the August 2021 voter file. Of these, the most common method of voter registration is via DMV; approximately 5.9 million registered voters used this method, consisting of 38.62 percent of all registrations in the voter file.

259   There are roughly 760,000 voter registrations via 3PVRO in the August 2021 voter file, approximately five percent of all voter registrations. Thus, any restrictions on 3PVRO registrations in Florida will raise the cost of voter registration, and thus the cost of voting, for hundreds of thousands of eligible Floridians.

260   Approximately 2.6 million records in the August 2021 voter file do not contain registration details; these appear in Table 30 as missing. Many of these records have registration dates prior to January 2012, which is when the Florida Department of State started maintaining records on voter registration methods.[99] The second panel in Table 30 includes post-January 2012 voter registrations only.

261   Post-January 2012, the rate of 3PVRO registrations is higher than in the overall August 2021 voter file, roughly 7.36 percent versus five percent. Moreover, the missing data rate for voter

---

[99]Based on communications with Counsel for the Florida Secretary of State.

registration method drops post-January 2012 to approximately 7.61 percent.

11.4.2   3PVRO registrations across Florida, by race

262   I now disaggregate statewide voter registration methods by race, and results are in Table 31. This table has two panels, all registered voters and those whose registrations were executed post-January 2012. Each figure in the table is the percentage at which registered voters of a given race used a particular voter registration method.

Table 31: Race and rates of registration methods in August 2021 voter file

Method	Black	Hispanic	White	Other race
All				
DMV	31.59	31.95	44.39	20.49
Missing	18.67	14.35	18.02	14.36
Other	17.62	13.93	13.30	19.11
Mail	11.80	14.98	12.82	15.83
Online	7.90	14.04	8.58	19.13
3PVRO	10.86	9.57	1.87	9.63
Library	0.62	0.55	0.54	0.82
Public assistance agency	0.86	0.59	0.30	0.51
Disability agency	0.09	0.03	0.18	0.09
Armed forces office	0.01	0.01	0.01	0.04
Post-January 2012				
DMV	37.43	36.32	56.93	20.87
Missing	9.02	7.48	7.41	7.23
Other	13.38	11.43	8.49	17.50
Mail	10.26	12.90	10.25	14.34
Online	13.05	19.33	13.29	25.40
3PVRO	15.37	11.33	2.79	13.39
Library	0.70	0.62	0.58	0.82
Public assistance agency	0.75	0.57	0.23	0.40
Disability agency	0.04	0.03	0.02	0.03
Armed forces office	0.01	0.01	0.01	0.04

263   Focusing attention on post-January 2012 registrations, Table 31 shows that approximately 15.37 percent of Black registered voters registered to vote via 3PVRO. The comparable figure for White registered voters is approximately 2.79 percent. Therefore, Black registered voters use

3PVRO registrations more than 5.5 times as often as White registered voters.[100]

264   Table 31 disaggregates this result by county. There are 67 rows in this table and each row reports the percentage of a race group that used 3PVRO registration. Counties are ordered by size of post-January 2012 registered voter pool.

265   In this table, 62 of 67 counties have Black 3PVRO rates greater than White rates. Four of the five others—Gilchrist, Dixie, Glades, and Union—have Black 3PVRO rates of zero.[101]

266   Similarly, 52 counties have Hispanic 3PVRO rates greater than White rates. Of the 15 other counties, nine have Hispanic 3PVRO rates of zero. Thus, Table 32 shows that 3PVRO registration in Florida is disproportionately used by minority voters.

267   In some cases, the Black-White gap in 3PVRO rates is sizable. For example, in Miami-Dade County, which is listed first in Table 32, the Black 3PVRO rate is approximately 24.37, meaning that 24.37 percent of Black registered voters in Miami-Dade County registered via 3PVRO. The corresponding White rate is 5.18 percent. This implies that Black registered voters in Miami-Dade use 3PVRO registration 4.7 times as often as White registered voters.

268   The extent of the post-January 2012 Black-White gap in 3PVRO usage is visualized in Figure 10. This figure plots White and Black 3PVRO rates against each other. Each point in the figure is a county, and points with Black 3PVRO rates greater than ten percent are labeled.

269   Figure 10 includes a gray 45-degree line. Points that lie *above* the line connote counties that had White 3PVRO rates greater than Black rates. In contrast, points that lie *below* the line connote counties that had Black 3PVRO rates greater than White rates.

---

[100]The Black to White 3PVRO ratio from the top half of Table 31 is 5.81 percent, slightly greater than 5.5 percent. The figure of 5.5 percent is a more conservative estimate of the Black-White gap is 3PVRO usage, however, because it is based on post-January 2012 voter registrations.

[101]I verified that, in the August 2021 voter file, each county in Florida has at least one post-2012 voter registration from each of the four race groups considered in this report.

Table 32: Percent 3PVRO registration by race and county among post-January 2012 registrations

County	Black	Hispanic	White	Other
Miami-Dade	24.37	13.33	5.18	25.33
Palm Beach	13.97	9.41	3.30	16.97
Pinellas	15.20	5.56	3.31	11.12
Hillsborough	15.49	9.28	3.73	11.76
Lee	6.17	3.00	1.39	8.13
Broward	15.03	7.24	3.90	12.75
Orange	16.08	17.47	4.24	12.50
Brevard	8.56	4.91	2.95	8.94
Duval	19.77	6.94	4.10	16.91
Sarasota	10.15	3.99	1.42	6.17
Volusia	21.21	16.99	4.77	18.47
Pasco	5.64	4.79	3.55	8.45
Polk	10.04	11.40	2.39	10.60
Collier	10.19	3.80	0.83	5.88
Manatee	14.38	8.03	2.29	10.91
Marion	6.90	3.96	1.62	8.18
St. Johns	9.00	3.28	1.59	7.01
Lake	5.17	7.42	1.60	8.08
Osceola	12.13	25.42	3.45	12.52
Seminole	16.89	15.16	5.87	18.09
Escambia	17.22	3.42	1.94	13.30
Charlotte	3.44	1.99	0.50	3.90
St. Lucie	8.98	3.02	1.42	6.55
Okaloosa	5.45	2.11	0.98	4.16
Santa Rosa	3.04	1.45	1.10	3.91
Sumter	6.83	3.11	0.54	2.60
Alachua	19.28	10.61	6.31	18.86
Bay	5.88	4.36	2.06	6.92
Leon	29.26	18.46	8.97	22.05
Indian River	11.69	4.75	1.58	8.28
Hernando	3.24	2.80	1.85	4.83
Clay	4.05	2.61	1.41	5.67
Citrus	3.26	1.83	2.03	5.00
Martin	8.05	3.03	1.03	4.87
Flagler	4.22	2.32	1.34	5.35
Nassau	5.38	2.13	0.88	5.42
Walton	5.54	1.96	1.15	3.20
Monroe	4.15	2.04	0.92	4.63
Highlands	7.77	4.05	1.60	6.82
Putnam	10.63	6.18	2.14	9.43
Columbia	8.19	3.51	3.53	8.69
Levy	5.51	0.92	0.78	5.94
Suwannee	3.77	2.45	0.85	5.09
Wakulla	12.73	4.08	1.72	8.16
Okeechobee	3.32	1.32	1.38	2.93
Jackson	7.27	2.87	1.66	4.05
DeSoto	1.11	0.14	0.06	0.71
Gadsden	1.74	0.57	0.22	0.32
Baker	5.32	0.78	0.64	5.51
Washington	3.40	0.00	2.03	2.32
Bradford	12.17	5.65	1.57	11.05
Gulf	14.85	0.00	0.59	1.98
Gilchrist	0.00	0.00	0.03	1.62
Hendry	2.57	2.14	0.50	6.50
Holmes	13.56	9.43	12.77	7.30
Taylor	9.75	0.00	2.40	3.97
Franklin	0.50	0.00	0.03	0.00
Dixie	0.00	0.00	0.13	0.00
Hardee	0.33	0.06	0.08	0.00
Glades	0.00	0.00	0.04	0.45
Union	0.00	0.00	0.05	0.00
Calhoun	2.23	0.00	0.10	0.00
Madison	16.98	4.63	2.64	7.89
Jefferson	19.78	9.33	2.28	10.24
Hamilton	3.44	2.70	0.95	5.83
Liberty	1.50	4.65	0.98	5.08
Lafayette	1.43	1.96	2.88	6.12

Figure 10: Post-January 2012 Black and White 3PVRO rates by race as of August 2021
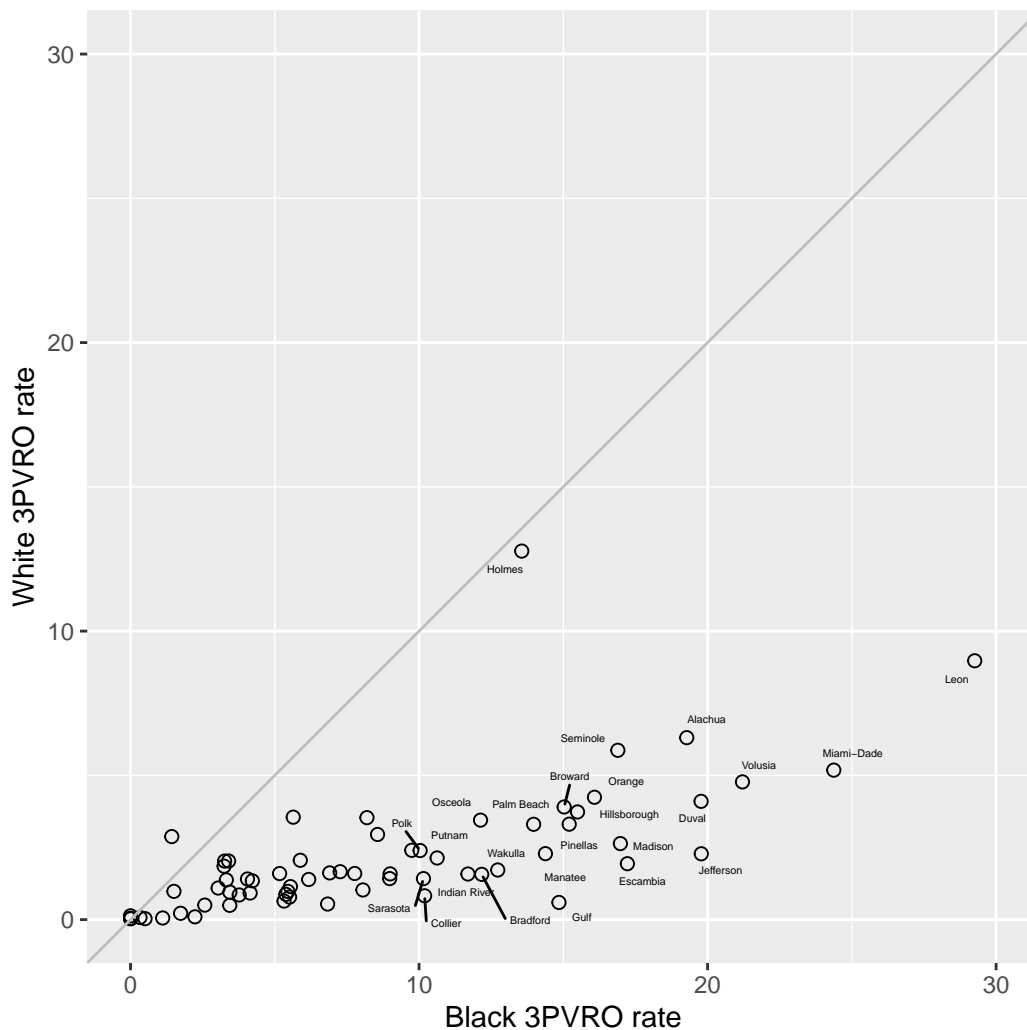
Note: each point denotes one county, and the figure includes a gray 45-degree line. Counties with Black 3PVRO rates greater than ten percent are labeled.

270   There is a single point in the figure noticeably above the 45-degree line and four points above the line but barely so. These latter four, which have Black 3PVRO rates of zero, have White 3PVRO rates that are also almost zero. These four points, representing Gilchrist, Dixie, Glades, and Union Counties, are very close to coincidental in Figure 10.

11.4.3   3PVRO registrations across Florida, by party

271   Table 33 displays voter registration method rates by party as of August 2021. Its format mirrors the earlier table which presented race-based voter registration results.[102]

Table 33: Party and rates of registration methods in August 2021 voter file

Method	Democratic	Republican	NPA	Other
All				
DMV	32.94	40.46	43.07	50.23
Missing	19.02	17.55	14.94	5.83
Other	15.73	15.10	12.51	4.31
Mail	13.73	13.93	12.22	7.93
Online	10.35	9.13	10.36	30.40
3PVRO	6.98	2.72	5.72	1.00
Library	0.62	0.55	0.57	0.18
Public assistance agency	0.52	0.31	0.53	0.09
Disability agency	0.09	0.24	0.06	0.02
Armed forces office	0.01	0.01	0.01	0.01
Post-January 2012				
DMV	39.07	51.41	47.70	52.18
Missing	7.97	6.29	8.60	5.05
Other	11.79	10.59	10.40	3.04
Mail	12.35	11.27	10.55	6.66
Online	17.16	15.65	13.73	31.79
3PVRO	10.48	3.97	7.83	1.05
Library	0.70	0.60	0.62	0.15
Public assistance agency	0.43	0.20	0.53	0.06
Disability agency	0.03	0.02	0.03	0.01
Armed forces office	0.01	0.01	0.01	0.01

272   With respect to 3PVRO registrations, the greatest usage rates are among individuals who affiliate with the Democratic party. In particular, among post-January 2012 voter registrations, the Democratic 3PVRO rate was approximately 9.19 percent; the Republican rate, 3.69 percent; the NPA rate, 6.91 percent; and, members of other political parties used 3PVRO registration with a rate of 1.06 percent. Compared to Republicans, Democrats used 3PVRO registrations roughly 2.6 times as often.

---

[102]I verified that, in the August 2021 voter file, each county in Florida has at least one post-2012 voter registration from each of the four partisan groups considered in this report.

Figure 11: Post-January 2012 Democratic and Republican 3PVRO rates by party as of August 2021
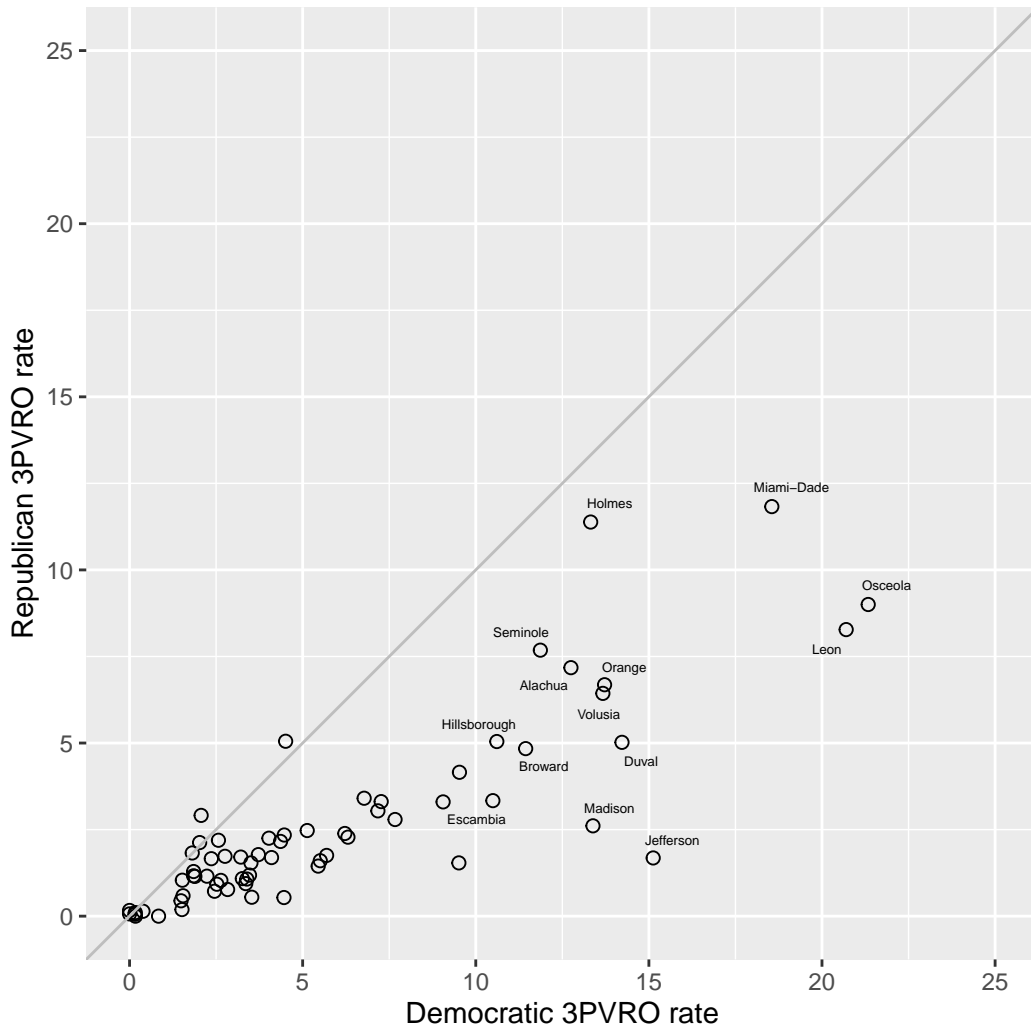
Note: each point denotes one county, and the figure includes a gray 45-degree line. Counties with Democratic 3PVRO rates greater than ten percent are labeled.

273   Figure 11 visualizes these results, disaggregated by county.

274   Of Florida's 67 counties, 61 have Democratic 3PVRO rates greater than Republican rates. This is evident in the mass of points in Figure 11 below the pictured 45-degree line. The six counties with Republican 3PVRO rates greater than Democratic rates are Citrus, Franklin, Gilchrist, Lafayette, Okeechobee, and Pasco.

11.4.4   Concluding thoughts on statewide 3PVRO registration rates

275   My analysis of a confidential voter file, produced by the Florida Secretary of State and dated August 2021, shows that Black registered voters and registered voters with Democratic affiliations are disproportionately heavy users of 3PVRO registration. Individuals of these two types are thus disproportionately burdened by SB 90's changes to Florida election statutes, which place restrictions on 3PVROs.

276   A caveat to my analysis of the confidential voter file produced by the Florida Secretary of State is that its records on voter registrations are not complete. Even among voter registrations that date to January 2012 and thereafter, the Department of State apparently does not know the registration methods for approximately 7.23 percent of the state's registered voters. To ensure that my results on race and partisan affiliation are not unduly confounded by this type of missingness, I turn to a second analysis of 3PVRO vote registrations, one that relies on data produced by Florida counties themselves.

11.5   Characterizing 3PVRO registrants using county-produced lists

277   During discovery, a set of counties produced lists of individuals who have registered with the assistance of 3PVROs. These counties along with associated numbers of 3PVRO registrations per county appear in Table 34. Appendix M describes the lists of 3PVRO registrants produced by counties and explains how I used these lists to determine characteristics, like race, of voters who registered via 3PVRO.

278   There are 201,860 voter registrations accounted for in Table 34. Table 34 contains 20 counties, roughly 30 percent of Florida's 67 such jurisdictions.

279   As in my statewide analysis of voter registration methods, what I am calling here a voter registration may not be a new voter registration in Florida. Any 3PVRO registration (and similarly

Table 34: 3PVRO registrations in Florida counties that produced voter registration lists

County	Registrations
Leon	67,613
Miami-Dade	51,253
Duval	26,759
Brevard	12,400
Lee	9,900
Seminole	9,296
Escambia	7,817
Alachua	5,343
Pinellas	4,384
Pasco	2,335
Marion	1,974
Indian River	887
Highlands	487
Flagler	441
Hernando	262
Lake	251
Charlotte	240
Monroe	121
Gulf	76
Hamilton	21
Total	201,860

for a DMV registration and so forth) could consist of either a new or an updated voter registration.

11.5.1   Race and 3PVRO registrants

280   Parallel to my earlier analysis of the August 2021 voter file, I disaggregate the 3PVRO registrations in Table 34 by registrant race. To this end, Table 35 reports the number of 3PVRO voter registrations for which voter race can be determined, and it includes eight columns of percentages that span the four race groups—Black, Hispanic, White, and Other—considered in this report. There are two columns of percentages under Black, two under Hispanic, and similarly under the other race headings. One percentage is titled "All," and the other, "3PVRO." The percentage under "All" in the Black column is the percentage of registered voters in a county that, as of the June 2021 voter file, were Black. And, the percentage under "3PVRO" is the percentage of 3PVRO registrations in a county that I could identify as being associated with Black registered

voters.

281   For example, in Brevard County as of June 2021, approximately 8.6 percent of registered voters were Black. And, approximately 17.4 percent of 3PVRO registrations were for Black voting-eligible residents of Brevard County. Thus, in Brevard, Black registered voters are disproportionately represented among 3PVRO registrants. A similar statement applies to Hispanic registered voters (because 10.5 is greater than 6.7), but the opposite characterizes White registered voters (because 52.5 is less than 78.4). In other words, White registered voters in Brevard are disproportionately absent among 3PVRO registrants.

Table 35: Registered voter race in counties that supplied 3PVRO registration lists

County	3PVRO	Black All	Black 3PVRO	Hispanic All	Hispanic 3PVRO	White All	White 3PVRO	Other All	Other 3PVRO
Leon	39,797	28.8	55.5	4.5	6.8	58.9	25.9	7.9	11.7
Miami-Dade	34,289	16.3	24.0	58.4	42.8	17.2	4.6	8.1	28.7
Duval	15,573	28.3	50.4	5.8	5.5	56.6	18.4	9.2	25.8
Seminole	9,263	10.5	14.9	15.9	27.5	62.6	26.3	11.1	31.3
Brevard	8,295	8.6	17.4	6.7	10.5	78.4	52.2	6.3	19.9
Escambia	7,800	19.6	72.0	2.6	1.3	70.2	16.6	7.7	10.0
Lee	5,958	5.9	12.7	11.8	14.1	76.9	37.4	5.4	35.9
Alachua	5,333	16.9	30.2	7.8	8.1	64.9	25.9	10.4	35.8
Pinellas	4,379	8.6	23.8	5.6	6.8	78.3	42.7	7.5	26.6
Pasco	2,329	5.6	7.0	11.0	15.6	76.5	47.1	6.9	30.4
Marion	1,965	10.0	25.6	9.6	15.2	75.6	40.9	4.8	18.4
Indian River	885	6.3	23.5	5.8	12.9	83.3	42.6	4.5	21.0
Highlands	487	8.1	19.3	13.0	19.1	74.7	50.3	4.2	11.3
Flagler	425	8.8	17.9	6.4	8.0	78.2	44.0	6.6	30.1
Hernando	262	4.7	7.6	10.0	18.3	80.4	50.8	4.9	23.3
Charlotte	240	3.8	11.2	3.9	11.2	88.0	59.2	4.4	18.3
Lake	231	8.7	19.5	10.8	9.1	74.3	37.7	6.2	33.8
Monroe	120	3.5	10.0	12.4	10.0	79.1	53.3	5.0	26.7
Gulf	54	9.4	70.4	0.8	0.0	87.2	22.2	2.7	7.4
Hamilton	21	28.2	57.1	2.6	19.0	67.2	9.5	2.0	14.3

282   What holds in Brevard County obtains across almost every county in Table 35: Black registered voters are disproportionately represented among 3PVRO-registered voters, and White

voters are disproportionately unrepresented. Since SB 90 raised the cost of voter registration in Florida by changing the Florida statutes that govern 3PVROs, these costs fall disproportionately on Black residents of the state.

283   As explained in Appendix M, I determined the races of the 3PVRO-registered voters who appear on county-produced lists of registrants by merging these 3PVRO lists with records in the June 2021 voter file. Not all records of 3PVRO registrations merged, however, presumably reflecting geographical mobility. That is to say, a voting-eligible individual in Florida who registered to vote in the state in, say, 2020 but moved out of Florida prior to June 2021 will not be present in the June 2021 voter file, confounding my ability to use this file to determine the voter's race.

284   The counties in Table 34 that had merge rates of 99 percent or greater are as follows: Seminole, Escambia, Alachua, Pinellas, Pasco, Marion, Indian River, Highlands, Hernando, Charlotte, Monroe, and Hamilton (counties listed in decreasing order of 3PVRO registrations). If I restrict attention to these counties, the conclusions I draw from Table 35—that Black registered voters are disproportionately represented among 3PVRO registrants and White voters have the opposite relationship—still holds. Thus, I determine that this conclusion is not an artifact of the merge rates between 3PVRO lists and the June 2021 voter file.

285   In Appendix M, I present evidence that rates of geographical mobility (i.e., moving) vary by race. Black individuals have higher geographical mobility rates than Whites and similarly for Hispanics. This means that the merge between county-produced 3PVRO lists and the June 2021 voter file selects against non-White registered voters. Put another way, non-merged 3PVRO records not included in Table 35 are disproportionately non-White, implying that my conclusion about the relative abundance of Black registered voters among 3PVRO registrants (and the opposite with respect to White registered voters) is conservative.

11.5.2   Party and 3PVRO registrants

286   For the counties that produced 3PVRO registration lists, Table 36 reports breakdowns by party affiliation. In every county listed except for Seminole, Democrat-affiliated registered voters are overly represented among 3PVRO registrants. For example, in Leon County (the top row in Table 36), Democratic affiliates make up 52.8 percent of registered voters but 64.6 percent of such voters who registered via 3PVRO. In contrast, in every Florida county in the table, Republican affiliates are disproportionately unrepresented among 3PVRO registrants. Again consulting Leon County, these individuals make up 26.1 percent of registered voters but only 8.8 percent of 3PVRO-registered voters.

Table 36: Registered voter partisanship in counties that supplied 3PVRO registration lists

County	3PVRO	DEM All	DEM 3PVRO	REP All	REP 3PVRO	NPA All	NPA 3PVRO	Other All	Other 3PVRO
Leon	39,797	52.8	64.6	26.1	8.8	19.6	25.6	1.5	1.0
Miami-Dade	34,289	40.1	43.7	27.2	18.9	31.3	37.1	1.4	0.3
Duval	15,573	41.2	50.0	34.9	12.6	22.0	36.9	1.8	0.5
Seminole	9,263	34.6	32.7	34.5	17.7	28.9	49.2	1.9	0.4
Brevard	8,295	30.2	43.3	41.7	28.7	25.9	27.6	2.3	0.4
Escambia	7,800	33.0	69.6	43.8	10.9	21.4	19.2	1.8	0.3
Lee	5,958	26.7	29.7	42.3	24.9	29.4	44.9	1.6	0.5
Alachua	5,333	48.9	52.3	26.5	12.7	23.1	34.5	1.5	0.5
Pinellas	4,379	35.5	43.0	34.6	15.4	28.1	41.2	1.8	0.3
Pasco	2,329	29.6	30.5	39.8	32.5	28.7	36.8	2.0	0.2
Marion	1,965	31.2	43.0	45.2	23.2	22.0	33.7	1.5	0.1
Indian River	885	27.1	37.4	46.5	29.6	24.2	32.8	2.1	0.2
Highlands	487	27.8	40.7	47.3	44.6	23.7	14.6	1.2	0.2
Flagler	425	30.0	34.4	42.8	28.7	25.7	36.2	1.5	0.7
Hernando	262	28.7	31.3	43.3	24.0	26.1	44.7	1.9	0.0
Charlotte	240	25.6	31.7	46.1	25.4	26.2	42.9	2.1	0.0
Lake	231	29.3	30.7	43.3	40.7	26.0	28.6	1.4	0.0
Monroe	120	31.9	55.8	40.2	14.2	25.7	30.0	2.2	0.0
Gulf	54	29.9	51.9	55.0	16.7	12.8	31.5	2.4	0.0
Hamilton	21	46.4	71.4	39.1	4.8	13.3	19.0	1.3	4.8

Note: DEM and REP refer to the Democratic and Republican parties, respectively.

287   If I restrict attention to the counties in Table 34 that had merge rates of 99 percent or greater, the conclusions I draw from Table 36—that Democratic registered voters are disproportionately represented among 3PVRO registrants and Republican voters have the opposite relationship—still holds. Thus, I conclude that this conclusion is not an artifact of the merge rates between 3PVRO lists and the June 2021 voter file.

11.6   Concluding thoughts on 3PVRO voter registrations

288   This section of the report considered the types of voters in Florida who register with the assistance of 3PVROs. To address this issue, I brought to bear two distinct data sources: a confidential statewide voter file produced by the Florida Department of State that contains voter registration details and a set of lists of 3PVRO-registered voters produced by counties.

289   From both of these data sources I draw the same qualitative conclusions: Black and Hispanic registered voters in Florida use 3PVRO registration more heavily than Whites; and, Democratic registered voters in Florida use 3PVRO registration more heavily than Republicans.

290   Every method of analysis has strengths and weaknesses. In my study of 3PVRO voter registration in Florida, that I was able to conduct two analyses of this issue strengthens the common conclusion that comes from both of them. Moreover, that different data sources yield the same qualitative results implies that idiosyncrasies in either of the sources are unlikely to affect the conclusions drawn from them.

291   Insofar as SB 90 places restrictions on 3PVROs, it has raised the cost of registering to vote in Florida with the assistance of these organizations. The burdens associated with these costs will fall more heavily on Black registered voters in comparison to White registered voters and on Democratic registered voters in comparison to Republican registered voters.

12   Voting lines

292   When a voter arrives at an in-person polling place to cast a ballot, there is a risk of voting lines. These lines can form outside of check-in locations, where voters authenticate themselves to local elections officials, or inside. Voting processes have a variety of potential bottlenecks, as documented by Spencer and Markovits (2010).

12.1   SB 90 limits third party engagement with voters waiting in line to vote

293   I have already noted that SB 90 limits the forms of engagement that third parties can have with individuals standing in line to vote. In particular, the bill changed Florida statutes so that third parties may not "[engage] in any activity with the intent to influence or effect of influencing a voter" (lines 1227-1228). Third parties, here, excludes elections officials.

294   To the extent that, through the above language, SB 90 makes it illegal for third parties to provide Floridians waiting in line to vote with food, water, or assistance that might be desired or needed due to a health exigency, SB 90 burdens voters who must wait in line to vote and disproportionately burdens those voters who face longer voting lines than others.

12.2   Minority voters have historically faced greater voting lines than White voters

295   I have already noted that time spent waiting to vote is a time tax, which contributes to the cost of voting. In addition, waiting in line to vote can have consequences for future electoral participation. Namely, waiting in this way can depress turnout in an upcoming election. This is shown in Pettigrew (2021), a study drawing on data from Boston and from Florida, and in my own work on Florida (Cottrell, Herron and Smith, 2021). Voting lines can also lead to reneging, when a voter in a line departs without casting a ballot (Stein et al., 2020).

296   Historically in the United States, minority voters have faced relatively longer lines (Stewart III, 2013; Chen et al., 2020). This has been true in Florida as well (Herron and Smith, 2015; Cottrell, Herron and Smith, 2021). And, it was the case in 2020, even in an election where voting by mail surged in usage due to the coronavirus pandemic.[103]

12.3   Voting line lengths in Florida in the 2020 General Election

297   Table 37 reports voter responses to a voting line question that was part of the 2020 SPAE. This survey covered 1,000 individuals in Florida, of whom 490 provided answer to a question that asked about time spent in line to vote. SPAE respondents who cast VBM ballots were not asked about voting line length and neither were survey respondents who said they did not vote in the 2020 General.

298   Table 37 contains percentages that describe the rates at which voters of different race groups waited in line to vote in the 2020 General Election. Time in line ranges from "No line" to more than one hour.[104] The groupings in Table 37 are part of the SPAE. To make the SPAE's race categories as close as possible to those in the election data that I have already invoked in this report, I create four race categories for the SPAE: Black, Hispanic, White, and Other. And, to be broadly consistent with my earlier approach, I focus in what follows on Black, Hispanic, and White voters.

299   Table 37 indicates that approximately 35.6 percent of White in-person voters in Florida did not wait at all when they arrived at their polling places. All other race groups had lower percentages of not waiting to vote. Moreover, the magnitudes of the race-based gaps in the "No line" category are sizable. Roughly 28.34 percent of Black voters found themselves in this category along with

---

[103]On wait times in the 2020 General Election, see the report in "Election Day Voting in 2020 Took Longer in America's Poorest Neighborhoods," *The New York TImes*, January 4, 2021, available at https://www.nytimes.com/interactive/2021/01/04/upshot/voting-SB90wait-SB90times.html (last accessed September 1, 2021). This report draws on the methodology used in Chen et al. (2020).

[104]Observations in the table are weighted by sampling weights. The name of the voting line length question in the 2020 SPAE is Q14. Values of this variable that are "Not at all" are reported in Table 37 as "No line." Table 37 does not cover SPAE respondents who were not asked about waiting in line to vote (508 respondents) and individuals who said they could not remember how long they waited (2).

Table 37: Voting line length and race, 2020 General Election

Race	No line	Up to 10 min.	Up to 30 min.	Up to 1 hour	More than 1 hour
Black	28.34	22.79	30.48	15.31	3.08
Hispanic	23.59	24.23	31.63	17.45	3.10
White	35.60	25.49	18.13	16.14	4.64
Other	30.63	35.95	31.09	2.33	0.00

Note: shows percentages at which voters of each race group had to wait in line.

23.59 percent of Hispanic voters. Corresponding gaps with White voters are approximately seven percentage points and roughly 12 percentage points, respectively.

300   Beyond the "No line" category, Black voters (22.79 percent) were less likely than White voters (25.49 percent) to have to wait in a short line, one no longer than ten minutes. The same is true for Hispanic voters (24.23 percent).

301   Therefore, in the 2020 General Election, in-person Black and Hispanic voters were less likely than in-person White voters to either have no wait at all or have to wait a short time.

302   Now consider voters in Table 37's "Up to 30 min." group. It must be the case that any individual in this group waited between ten and 30 minutes to vote. Of Black voters, approximately 30.48 percent had waits in this range. Of White voters, though, only 18.13 percent. Hispanic voters were similar to Black voters. Therefore, classifying a wait of ten to 30 minutes as of medium length, it follows that Black and Hispanic voters were more likely than Whites to have medium wait times.

303   Of the rightmost two categories of waits in Table 37, up to one hour and more than one hour, Black, Hispanic, and White voters had similar rates albeit White voters had slightly lower percentages. The gaps between race groups in such long wait columns are smaller than those between race groups in the no wait and medium wait categories.

304   To summarize the implications of the 2020 SPAE for voting lines in Florida, there were fewer instances of Black and Hispanic voters not waiting in line to vote compared to White voters; more instances of Black and White voters waiting in line a medium length of time; and marginally fewer instances of Black and White voters waiting a long period of time. These findings are roughly consistent with cited literature on voting lines, which shows that Black and Hispanic voters tend to have longer wait times than White voters.

12.4   Suggestive evidence on voting line lengths in Florida prior to 2020

305   While the 2020 SPAE sampled 1,000 Florida residents, previous editions of the survey included fewer—only 200—Florida respondents. In what follows I present line length tables drawing on the 2016 and 2012 versions of the SPAE. However, the conclusions from these tables should be considered suggestive and not definitive. I include them to be consistent with my use of multiple versions of the SPAE earlier in this report.

306   Using the 2016 SPAE, Table 38 breaks down voting line lengths and race in Florida, this time for the 2016 General Election. The patterns in the table are qualitatively similar to those discussed above in the context of the 2020 General Election.[105]

Table 38: Voting line length and race, 2016 General Election

Race	No line	Up to 10 min.	Up to 30 min.	Up to 1 hour	More than 1 hour
Black	40.14	30.46	18.81	0.00	0.00
Hispanic	27.88	25.31	32.51	14.30	0.00
White	45.74	34.35	17.03	1.40	1.48
Other	67.14	25.62	0.00	7.24	0.00

Note: shows percentages at which voters of each race group had to wait in line.

---

[105]Observations in Table 38 are weighted by sampling weights. The name of the voting line length question in the 2016 SPAE is Q13. Values of this variable that are "Not at all" are reported in Table 38 as "No line." This table does not cover SPAE respondents who have missing responses in Q13 (these individuals were presumably not asked about time spent in voting lines) and those that have a Q13 value of six. According to the 2016 SPAE questionnaire, the value of nine indicates that the respondent does not know how long he or she waited in line to vote. I believe that, in the 2016 SPAE data, nine was recorded as six.

307   Notwithstanding Other race voters, White voters in Florida had the greatest likelihood of

not havint to wait in line at all in November 2016 (the White percentage in the "No line" column

of Table 38 is greater than those for other races) and also the greatest likelihood of experiencing

a short voting line (the White percentage in the "Up to 10 min." column of Table 38 is greater

than those for other races). Medium length voting lines were disproportionately faced by Hispanic

voters, who also disproportionately encountered voting lines of between 30 and 60 minutes.

308   Press reports confirm that voting lines were a problem in 2016 in Florida. During the

2016 Primary, many voters in Volusia County, Florida waited in line for over one hour because

only three poll workers were available to assist voters in two precincts.[106] As a result of the long

lines, many voters, including some seniors, left the polling location without casting a ballot.[107]

Similarly in Orange County, malfunctioning electronic poll books at multiple polling locations led

to long wait times, causing some voters renege.[108]

309   Turning to the 2012 SPAE, line lengths by race for the 2012 General Election in Florida

appear in Table 39.[109]

310   There are many more voters in Table 39 who encountered long lines ("More than 1 hour")

than in 2016 and 2020. Of voters in this group, Black and Hispanic voters are disproportionately

represented. A similar statement applies to voters in the "Up to 1 hour" group. In contrast, among

---

[106]See "Preventing Problems at the Polls: Florida," *Center for American Progress*, October 5, 2016, available at `https://www.americanprogress.org/issues/democracy/reports/2016/10/05/145435/` `preventing-SB90problems-SB90at-SB90the-SB90polls-SB90florida` (last accessed September 1, 2021).

[107]See "Voters Face Challenges at Polls During March 15 Primary Election," *Lawyers' Committee For Civil Rights Under Law*, March 15, 2016, available at `https://www.lawyerscommittee.org/north-` `SB90carolina-SB90voters-SB90face-SB90complications-SB90polls-SB90first-` `SB90time-SB90implementation-SB90restrictive-SB90voter-SB90id-SB90requirement` (last accessed September 1, 2021).

[108]Ibid.

[109]Observations in Table 39 are weighted by sampling weights. The name of the voting line length question in the 2012 SPAE is `q10`. Values of this variable that are "Not at all" are reported in Table 39 as "No line." This table does not cover SPAE respondents who have missing responses in `q10` (these individuals were presumably not asked about time spent in voting lines) and those that have a `q10` value of " I don't know."

Table 39: Voting line length and race, 2012 General Election

Race	No line	Up to 10 min.	Up to 30 min.	Up to 1 hour	More than 1 hour
Black	20.94	6.08	23.55	17.09	32.33
Hispanic	0.00	0.00	31.09	23.89	37.82
White	18.96	19.56	27.67	15.43	18.38
Other	20.60	0.00	38.21	41.19	0.00

Note: shows percentages at which voters of each race group had to wait in line.

voters who had to wait in short lines ("Up to 10 min."), there were disproportionately many White voters.

311   The 2016 and 2012 version of the SPAE contain suggestive evidence that non-White voters in Florida were disproportionately affected by long voting lines. This evidence is consistent with results drawn from the 2020 SPAE, which sampled five times as many Floridians as did the 2016 and 2012 versions of this survey, and consistent as well with academic literature on voting lines.

12.5   Concluding thoughts on voting lines

312   In the United States and in Florida itself, minority voters—and in particular Black and Hispanic voters—have faced longer voting lines in major elections than have White voters. This regularity has been identified in numerous academic studies—some of which focus on Florida—and characterized the 2020 General Election as well.

313   SB 90 has raised the cost of voting by mail in Florida. This should be expected to lead to fewer voters choosing this method of voting, all things equal. A voter in Florida who does not want to cast a VBM ballot must vote in-person, either on Election Day or during the voter's permitted early voting period. Therefore, as SB 90 makes voting by mail in Florida more costly, any resulting polling place congestion risks exacerbating the already disproportionately long voting lines faced by Florida's non-White voters, burdening these individuals in the process.

13 Conclusion

314   This report characterizes how Florida Senate Bill 90 (SB 90) burdens voters and how the bill was publicly motivated by its legislative supporters. In the report I have detailed how SB 90 tightened regulations associated with voting by mail; placed limits on how ballot drop boxes can be used; restricted the assistance that vote-by-mail voters can receive from others; added requirements to third party voter registration organizations; and, limited the types of engagements that third parties can have with voters waiting in line to vote.

315   In the Florida legislature, SB 90 was publicly justified with concerns about voter fraud. However, there is no evidence that voter fraud poses a systematic risk to election integrity in Florida. Though counties were asked for information about fraud by the Florida Legislature and by Counsel in this litigation, almost no concerns about fraud were reported. Florida is no different than other states in the country, where voter fraud is rare. The academic literature on voter fraud, with its varied research methodologies, is clear on this conclusion.

316   Voting-by-mail increased significantly in Florida during the 2020 election cycle. Most notably, the rates at which Black and Democratic voters cast vote-by-mail ballots surged in 2020. SB 90 was introduced roughly three months after the 2020 election cycle concluded.

317   SB 90 has nonetheless raised the cost of voting by mail in Florida and thus the overall cost of voting in the state. This burdens all Florida voters. In addition, SB 90 has raised the cost of voter registration in Florida through its new requirements on third party voter registration organizations, again burdening Florida voters. When the cost of voting by mail increases in a state, it should be expected that voters will shift away from this form of voting, all things equal. And with an increase in the cost of voting overall, it should be expected that registered voters shift away from voting at all, all things equal. This is the conclusion of academic literature on the cost of voting, which documents how voter turnout tends to be greater in jurisdictions where voting is less costly.

318   While SB 90 burdens all eligible Florida voters, it does not do so equally. Its restrictions on drop boxes will disproportionately burden voters who submit their ballots via drop box. Since Black voters and voters affiliated with the Democratic party tend to be heavy users of drop boxes, SB 90's burdens will fall on these types of individuals disproportionately. Florida counties are have already reacted to SB 90's requirements: at least 20 counties have announced drop box location or hours reduction as a result of SB 90, and at least another 20 counties offered 24-hour drop boxes that were surveilled by video. These drop boxes are not be allowed under SB 90 and can only be offered if staffed in-person 24-hours a day by an employee of a Supervisor of Elections office.

319   Similarly, the increased burdens wrought by SB 90 via its restrictions on who can assist Florida vote-by-mail voters with ballot delivery will in particular burden voters who needs this form of assistance. These voters tend to be older, disproportionately Black, and disproportionately affiliated with the Democratic party. And, national survey evidence shows that a key predictor for voters who rely on third parties for ballot delivery is disability status, thus implying that SB 90's burdens will fall disproportionately on Florida voters with disabilities.

320   Through its restrictions on third party voter registration organizations, SB 90 burdens voters who use these organizations for facilitating voter registration. Eligible Black voters and Democratic voters rely disproportionately on third party voter registration organizations, and thus these types of individuals will be burdened by SB 90's news restrictions.

321   The limits that SB 90 imposes on the extent to which third parties can engage with voters in line to vote will disproportionately affect the types of individuals most prone to facing long voting lines. In Florida, this means minority voters. Moreover, as SB 90 has increased the cost of voting by mail in Florida, it should be expected that voters in the state will shift to in-person voting, all things equal. The greater the number of in-person voters in Florida, the greater the risk for polling place congestion and voting lines. Florida's recent history—and the country's as well—is one in which minority voters have had to wait in voting line longer that White voters.

There is even evidence of this in Florida from the 2020 General Election, an election in which voting-by-mail surged at the expense of in-person voting on account of a public health crisis.

References

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.

Brennan, Geoffrey and Alan Hamlin. 1998. "Expressive voting and electoral equilibrium." *Public choice* 95(1-2):149–175.

Brians, Craig L. and Bernard Grofman. 2001. "Election Day Registration's Effect on U.S. Voter Turnout." *Social Science Quarterly* 82:170–83.

Chen, M. Keith, Kareem Haggag, Devin G. Pope and Ryne Rohla. 2020. "Racial Disparities in Voting Wait Times: Evidence from Smartphone Data." *The Review of Economics and Statistics* pp. 1–27.
  URL: *https://doi.org/10.1162/rest_a_01012*

Christensen, Ray and Thomas J. Schultz. 2014. "Identifying Election Fraud Using Orphan and Low Propensity Voters." *American Politics Research* 42(2):311–337.

Collingwood, Loren, William McGuire, Benjamin Gonzalez O'Brien, Katherine Baird and Sarah Hampson. 2018. "Do Drop Boxes Improve Voter Turnout? Evidence from King County, Washington." *Election Law Journal* 17(1):58–72.

Cottrell, David, Michael C. Herron and Daniel A. Smith. 2021. "Voting Lines, Equal Treatment, and Early Voting Check-In Times in Florida." *State Politics & Policy Quarterly* 21(2):109–138.

Cottrell, David, Michael C. Herron and Sean J. Westwood. 2018. "An exploration of Donald Trump's allegations of massive voter fraud in the 2016 General Election." *Electoral Studies* 51:123–142.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper and Row.

Drinkwater, Stephen and Colin Jennings. 2007. "Who are the expressive voters?" *Public Choice* 132(1-2):179–189.

Eggers, Andrew C., Haritz Garrob and Justin Grimmer. 2021. "No Evidence for Voter Fraud: A Guide To Statistical Claims About the 2020 Election." Unpublished working paper, Stanford University.

Famighetti, Christopher, Douglas Keith and Myrna Pérez. 2017. "NONCITIZEN VOTING: THE MISSING MILLIONS." Report published by the Brennan Center for Justice at *New York University School of Law*.

Goel, Sharad, Marc Meredith, Michael Morse and David Rothschild. 2020. "One Person, One Vote: Estimating the Prevalence of Double Voting in U.S. Presidential Elections." *American Political Science Review* 114(2):456–469.

Grimmer, Justin and Jesse Yoder. 2021. "The durable differential deterrent effects of strict photo identification laws." *Political Science Research and Methods* p. 1–17.

Gronke, Paul, Eva Galanes-Rosenbaum, Peter A. Miller and Daniel Toffey. 2008. "Convenience Voting." *Annual Review of Political Science* 11(1):437–455.

Herron, Michael C. and Daniel A. Smith. 2013. "The Effects of House Bill 1355 on Voter Registration in Florida." *State Politics & Policy Quarterly* 13(3):279–305.

Herron, Michael C. and Daniel A. Smith. 2015. "Precinct Closing Times in Florida During the 2012 General Election." *Election Law Journal* 14(3):220–238.

Herron, Michael C. and Daniel A. Smith. 2021. "Postal delivery disruptions and the fragility of voting by mail: Lessons from Maine." *Research & Politics* 8(1):2053168020981434.

Huefner, Steven F., Daniel P. Tokaji, Edward B. Foley and Nathan A. Cemenska. 2007. "From Registration to Recounts: The Election Ecosystems of Five Midwestern States." Report published by *Election Law@Moritz*, The Ohio State University, Moritz College of Law.

Hufford, Axel. 2021. "Ballot Drop Boxes in the 2020 Elections." Unpublished working paper, *HealthyElections.org*.

Kaplan, Ethan and Haishan Yuan. 2020. "Early Voting Laws, Voter Turnout, and Partisan Vote Composition: Evidence from Ohio." *American Economic Journal: Applied Economics* 12(1):32–60.

Knack, Stephen. 2001. "Election-day Registration The Second Wave." *American Politics Research* 29(1):65–78.

Knack, Stephen and James White. 2000. "Election-day registration and turnout inequality." *Political Behavior* 22(1):29–44.

Levitt, Justin. 2007. "The truth about voter fraud." Report published by the Brennan Center for Justice at *New York University School of Law*.

Levitt, Justin. 2014. "A comprehensive investigation of voter impersonation finds 31 credible incidents out of one billion ballots cast." *Washington Post*, August 6.
URL:
https://www.washingtonpost.com/news/wonk/wp/2014/08/06/a-comprehensive-investigation-of-voter-impersonation-finds-31-credible-incidents-out-of-one-billion-ballots-cast

Li, Quan, Michael J. Pomante, and Scot Schraufnagel. 2018. "The Cost of Voting in the American States." *Election Law Journal* 17(3):234–47.

Li, Quan, Michael J. Pomante II and Scot Schraufnagel. 2018. "Cost of Voting in the American States." *Election Law Journal* 17(3):234–247.

McGuire, William, Benjamin Gonzalez O'Brien, Katherine Baird, Benjamin Corbett and Loren Collingwood. 2020. "Does Distance Matter? Evaluating the Impact of Drop Boxes on Voter Turnout." *Social Science Quarterly* 101(5):1789–1809.

Minnite, Lori and David Callahan. 2003. "Securing the Vote: An Analysis of Election Fraud." Report published by Demos.

Minnite, Lorraine. 2007. "Election Day Registration: A Study of Voter Fraud Allegations and Findings on Voter Roll Security." Report published by Demos.
    URL: *http://www.demos.org/sites/default/files/publications/edr_fraud.pdf*

Minnite, Lorraine C. 2010. *The Myth of Voter Fraud*. Ithaca, NY: Cornell University.

Mukherjee, Elora. 2009. "Abolishing the time tax on voting." *Notre Dame Law Review* 85:177.

Neiheisel, Jacob R and Rich Horner. 2019. "Voter Identification Requirements and Aggregate Turnout in the US: How Campaigns Offset the Costs of Turning Out When Voting Is Made More Difficult." *Election Law Journal: Rules, Politics, and Policy* 18(3):227–242.

Pettigrew, Stephen. 2021. "The downstream consequences of long waits: How lines at the precinct depress future turnout." *Electoral Studies* 71:102188.

Pew Research Center. 2020. "Sharp Divisions on Vote Counts, as Biden Gets High Marks for His Post-Election Conduct." American Trends Panel 78.

Rentsch, Anthony, Brian F. Schaffner and Justin H. Gross. 2020. "The Elusive Likely Voter: Improving Electoral Predictions With More Informed Vote-Propensity Models." *Public Opinion Quarterly* 83(4):782–804.

Riker, William H. and Peter C. Ordeshook. 1968. "A Theory of the Calculus of Voting." *American Political Science Review* 62(1):25–42.

Rosenstone, Steven J. and Raymond E. Wolfinger. 1978. "The effect of registration laws on voter turnout." *American Political Science Review* 72(1):22–45.

Rosenstone, Steven and John M. Hansen. 1993. *Mobilization, Participation and Democracy in America*. New York: MacMillan Publishing.

Schaffner, Brian F., Matthew Macwilliams and Tatishe Nteta. 2018. "Understanding White Polarization in the 2016 Vote for President: The Sobering Role of Racism and Sexism." *Political Science Quarterly* 133(1):9–34.

Sides, John, Michael Tesler and Lynn Vavreck. 2019. *Identity Crisis: The 2016 Presidential Campaign and the Battle for the Meaning of America*. 2nd ed. Princeton, NJ: Princeton University Press.

Spencer, Douglas M. and Zachary S. Markovits. 2010. "Long Lines at Polling Stations? Observations from an Election Day Field Study." *Election Law Journal* 9(1):3–17.

Stein, Robert M., Christopher Mann, III Charles Stewart, Zachary Birenbaum, Anson Fung, Jed Greenberg, Farhan Kawsar, Gayle Alberda, R. Michael Alvarez, Lonna Atkeson, Emily Beaulieu, Nathaniel A. Birkhead, Frederick J. Boehmke, Joshua Boston, Barry C. Burden, Francisco Cantu, Rachael Cobb, David Darmofal, Thomas C. Ellington, Terri Susan Fine, Charles J. Finocchiaro, Michael D. Gilbert, Victor Haynes, Brian Janssen, David Kimball, Charles Kromkowski, Elena Llaudet, Kenneth R. Mayer, Matthew R. Miles, David Miller, Lindsay Nielson, Yu Ouyang, Costas Panagopoulos, Andrew Reeves, Min Hee Seo, Haley Simmons, Corwin Smidt, Farrah M. Stone, Rachel VanSickle-Ward, Jennifer Nicoll Victor, Abby Wood and Julie Wronski. 2020. "Waiting to Vote in the 2016 Presidential Election: Evidence from a Multi-county Study." *Political Research Quarterly* 73(2):439–453.

Stewart III, Charles. 2013. "Waiting to Vote in 2012." *Journal of Law & Politics* 28:439–463.

Tokaji, Daniel P and Ruth Colker. 2007. "Absentee voting by people with disabilities: Promoting access and integrity." *McGeorge Law Review* 38:1015–1046.

A   *Curriculum vitae* of Michael C. Herron

Michael C. Herron

Dartmouth College	Phone: +1 (603) 646-2693
6108 Silsby Hall	Mobile: +1 (603) 359-9731
Hanover, NH 03755-3547	Email: michael.c.herron@dartmouth.edu

Academic appointments

William Clinton Story Remsen 1943 Professor, Program in Quantitative Social Science, Dartmouth College. July 2021–present.

William Clinton Story Remsen 1943 Professor, Department of Government, Dartmouth College. July 2013–June 2021.

Chair, Program in Quantitative Social Science, Dartmouth College. July 2015–June 2020, July 2021 - present.

Visiting Scholar, Hertie School of Governance, Berlin, Germany. August 2016–July 2017.

Chair, Program in Mathematics and Social Sciences, Dartmouth College. July 2014– June 2015.

Professor, Department of Government, Dartmouth College. July 2009–June 2013.

Visiting Professor of Applied Methods, Hertie School of Governance, Berlin, Germany. August 2011–August 2012.

Associate Professor, Department of Government, Dartmouth College. July 2004–June 2009.

Visiting Associate Professor, Department of Government, Harvard University. July 2008–January 2009.

Visiting Associate Professor, Wallis Institute of Political Economy, University of Rochester. September 2006–December 2006.

Visiting Assistant Professor, Department of Government, Dartmouth College. July 2003–June 2004.

Assistant Professor, Department of Political Science, Northwestern University. September 1997–June 2004.

Faculty Associate, Institute for Policy Research, Northwestern University. September 2002–June 2004.

Education

PhD Business (Political Economics), Stanford University, January 1998.
Dissertation: Political Uncertainty and the Prices of Financial Assets
Committee: David Baron, Darrell Duffie, Douglas Rivers, and Barry Weingast

MS Statistics, Stanford University, June 1995.

MA Political Science, University of Dayton, August 1992.

BS Mathematics and Economics, with University Honors, Carnegie Mellon University, May 1989.

Fellowships

Elizabeth R. and Robert A. Jeffe 1972 Fellowship, Dartmouth College. September 2010–June 2011.

Fulbright Scholar Program fellowship for research and teaching at the Heidelberg Center for American Studies, Heidelberg University, September 2009 - February 2010 (declined).

Post–doctoral Research Fellow, Center for Basic Research in the Social Sciences, Harvard University. September 2000–August 2001.

Publications

Journal articles

"Auditing the 2020 General Election in Georgia: Residual Vote Rates and a Confusing Ballot Format (with David Cottrell, Felix E. Herron, and Daniel A. Smith). Forthcoming, *Election Law Journal*.

"Vote-by-mail ballot rejection and experience with mail-in voting" (with David Cottrell and Daniel A. Smith). Forthcoming, *American Politics Research*.

"Voting lines, equal treatment, and early voting check-in times in Florida" (with David Cottrell and Daniel A. Smith). *State Politics & Policy Quarterly* 21(2): 109-138. 2021.

"Postal Delivery Disruptions and the Fragility of Voting by Mail: Lessons from Maine" (with Daniel A. Smith). *Research & Politics* 8(1): 1-12. 2021.

"Voting by Mail and Ballot Rejection: Lessons from Florida for Elections in the Age of the Coronavirus" (with Anna Baringer and Daniel A. Smith). *Election Law Journal* 19(3): 289-320. 2020.

"Early voting changes and voter turnout: North Carolina in the 2016 General Election" (with Hannah L. Walker and Daniel A. Smith). *Political Behavior* 41(4): 841-869. 2019.

"Mail-in absentee ballot anomalies in North Carolina's 9th Congressional District." *Election Law Journal* 18(3): 191-213. 2019.

"Relative age effects in American professional football" (with Jack F. Heneghan). *Journal of Quantitative Analysis in Sports* 15(3): 185-202. 2019.

"Mortality, Incarceration, and African-American Disenfranchisement in the Contemporary United States" (with David Cottrell, Javier M. Rodriguez, and Daniel A. Smith). *American Politics Research* 47(2): 195-237. 2019.

"Pedagogical Value of Polling Place Observation By Students" (with 31 co-authors). *PS: Political Science & Politics* 51(4): 831-847. 2018.

"All in the family: German twin finishing times in the 2016 women's Olympic marathon" (with David Cottrell). CHANCE 31(3): 20-28. 2018.

"An Exploration of Donald Trump's Allegations of Massive Voter Fraud in the 2016 General Election" (with David Cottrell and Sean J. Westwood). *Electoral Studies* 51(1): 123-142. 2018.

"Student Sorting and Implications for Grade Inflation (with Zachary D. Markovich). *Rationality and Society* 29(3): 355-386. 2017.

"Race, *Shelby County*, and the Voter Information Verification Act in North Carolina" (with Daniel A. Smith). *Florida State University Law Review* 43: 465-506. 2016.

Michael C. Herron   3

"Precinct Resources and Voter Wait Times" (with Daniel A. Smith). *Electoral Studies* 42(2): 249-263. 2016.

"A Careful Look at Modern Case Selection Methods" (with Kevin M. Quinn). *Sociological Methods & Research* 45(3): 458-492. 2016.

"Precinct Closing and Wait Times in Florida during the 2012 General Election" (with Daniel A. Smith). *Election Law Journal* 14(3): 220-238. 2015.

"Race, Party, and the Consequences of Restricting Early Voting in Florida in the 2012 General Election" (with Daniel A. Smith). *Political Research Quarterly* 67(3): 646-665. 2014.

"The Effects of House Bill 1355 on Voter Registration in Florida" (with Daniel A. Smith). *State Politics & Policy Quarterly* 13(3): 279-305. 2013.

"Blacks, Hispanics, and Whites: A Study of Race-based Residual Vote Rates in Chicago." *American Politics Research* 41(2): 203-243. 2013.

"Alvin Greene? Who? How did he win the United States Senate nomination in South Carolina?" (with Joseph Bafumi, Seth J. Hill, and Jeffrey B. Lewis). *Election Law Journal* 11(4): 358-379. 2012.

"Souls to the Polls: Early Voting in Florida in the Shadow of House Bill 1355" (with Daniel A. Smith). *Election Law Journal* 11(3): 331-347. 2012.

"Leapfrog Representation and Extremism: A Study of American Voters and their Members in Congress" (with Joseph Bafumi). *American Political Science Review* 104(3): 519-542. 2010.

"Economic Crisis, Iraq, and Race: A Study of the 2008 Presidential Election" (with Seth J. Hill and Jeffrey B. Lewis). *Election Law Journal* 9(1): 41-62. 2010

"Prejudice, Black Threat, and the Racist Voter in the 2008 Presidential Election" (with Joseph Bafumi). *Journal of Political Marketing* 8(4): 334-348. 2009.

"Voting Technology and the 2008 New Hampshire Primary" (with Walter R. Mebane, Jr., and Jonathan N. Wand). *William & Mary Bill of Rights Journal* 17(2): 351-374. 2008.

"Ballot Formats, Touchscreens, and Undervotes: A Study of the 2006 Midterm Elections in Florida" (with Laurin Frisina, James Honaker, and Jeffrey B. Lewis). *Election Law Journal* 7(1): 25-47. 2008.

"Gerrymanders and Theories of Lawmaking: A Study of Legislative Redistricting in Illinois" (with Alan E. Wiseman). *Journal of Politics* 70(1): 151-167. 2008.

"Estimating the Effect of Redistricting on Minority Substantive Representation" (with David Epstein, Sharyn O'Halloran, and David Park). *Journal of Law, Economics, and Organization* 23(2): 499-518. 2007.

"Did Ralph Nader Spoil Al Gore's Presidential Bid? A Ballot-Level Study of Green and Reform Party Voters in the 2000 Presidential Election" (with Jeffrey B. Lewis). *Quarterly Journal of Political Science* 2(3): 205-226. 2007.

"Assessing Partisan Bias in Voting Technology: The Case of the 2004 New Hampshire Recount" (with Jonathan N. Wand). *Electoral Studies* 26(2): 247-261. 2007.

"Term Limits and Pork" (with Kenneth W. Shotts). *Legislative Studies Quarterly* 31(3): 383-404. 2006.

"Black Candidates and Black Voters: Assessing the Impact of Candidate Race on Uncounted Vote Rates" (with Jasjeet S. Sekhon). *Journal of Politics* 67(1): 154–177. 2005.

"Government Redistribution in the Shadow of Legislative Elections: A Study of the Illinois Member Initiatives Grant Program" (with Brett A. Theodos). *Legislative Studies Quarterly* 24(2): 287–312. 2004.

"Studying Dynamics in Legislator Ideal Points: Scale Matters." *Political Analysis* 12(2): 182–190. 2004.

"Logical Inconsistency in EI-based Second Stage Regressions" (with Kenneth W. Shotts). *American Journal of Political Science* 48(1): 172–183. 2004.

"Overvoting and Representation: An examination of overvoted presidential ballots in Broward and Miami-Dade Counties" (with Jasjeet S. Sekhon). *Electoral Studies* 22: 21–47. 2003.

"Using Ecological Inference Point Estimates as Dependent Variables in Second Stage Linear Regressions" (with Kenneth W. Shotts). *Political Analysis* 11(1): 44–64. 2003.

"Cross-contamination in EI-R" (with Kenneth W. Shotts). *Political Analysis* 11(1): 77–85. 2003.

"A Consensus on Second Stage Analyses in Ecological Inference Models" (with Christopher Adolph, Gary King, and Kenneth W. Shotts). *Political Analysis* 11(1): 86–94. 2003.

"The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida" (with Jonathan N. Wand, Kenneth W. Shotts, Jasjeet S. Sekhon, Walter R. Mebane, Jr., and Henry E. Brady). *American Political Science Review* 95(4): 793–810. 2001.

"Interest Group Ratings and Regression Inconsistency." *Political Analysis* 9(3): 260–274. 2001.

"Leadership and Pandering: A Theory of Executive Policymaking" (with Brandice Canes–Wrone and Kenneth W. Shotts). *American Journal of Political Science* 45(3): 532–550. 2001.

"Law and Data: The Butterfly Ballot Episode" (with Henry E. Brady, Walter R. Mebane, Jr., Jasjeet S. Sekhon, Kenneth W. Shotts, and Jonathan N. Wand). *PS: Political Science & Politics* 34(1): 59–69. 2001.

"Cutpoint–Adjusted Interest Group Ratings." *Political Analysis* 8(4): 346–366. 2000.

"Estimating the Economic Impact of Political Party Competition in the 1992 British Election." *American Journal of Political Science* 44(2): 326–337. 2000.

"Artificial Extremism in Interest Group Ratings and the Preferences versus Party Debate." *Legislative Studies Quarterly* 24(4): 525–542. 1999.

"Post–Estimation Uncertainty in Limited Dependent Variable Models." *Political Analysis* 8(1): 83–98. 1999.

"Measurement of Political Effects in the United States Economy: A Study of the 1992 Presidential Election" (with James Lavin, Donald Cram, and Jay Silver). *Economics & Politics* 11(1): 51–81. 1999.

"The Influence of Family Regulation, Connection, and Psychological Autonomy on Six Measures of Adolescent Functions" (with Melissa R. Herman, Sanford M. Dornbusch, and Jerald R. Herting). *Journal of Adolescent Research* 12(1): 34–67. 1997.

Book chapters

"Wait Times and Voter Confidence: A Study of the 2014 General Election in Miami-Dade County" (with Daniel A. Smith, Wendy Serra, and Joseph Bafumi). In *Races, Reforms, & Policy: Implications of the 2014 Midterm Elections*, Christopher J. Galdieri, Tauna S. Sisco, and Jennifer C. Lucas, eds. Akron, OH: University of Akron Press. 2017.

"A Dynamic Model of Multidimensional Collective Choice" (with David P. Baron). In *Computational Models in Political Economy*, Ken Kollman, John H. Miller, and Scott E. Page, eds. Cambridge, MA: The MIT Press. 2003.

"Law and Data: The Butterfly Ballot Episode" (with Henry E. Brady, Walter R. Mebane Jr., Jasjeet Singh Sekhon, Kenneth W. Shotts, and Jonathan Wand). In *The Longest Night: Polemics and Perspectives on Election 2000*, Arthur J. Jacobson and Michel Rosenfeld, eds. Berkeley: University of California Press. 2002.

Book reviews

The Timeline of Presidential Elections: How Campaigns Do (and Do Not) Matter, Robert S. Erikson and Christopher Wlezien. *Political Science Quarterly* 128(3): 552-553. 2013.

Voting Technology: The Not-So-Simple Act of Casting a Ballot, Paul S. Herrnson, Richard G. Niemi, Michael J. Hanmer, Benjamin B. Bederson, and Frederick C. Conrad. *Review of Policy Research* 25(4): 379-380. 2008.

Other publications

"In two political battlegrounds, thousands of mail-in ballots are on the verge of being rejected" (with Daniel A. Smith). *The Conversation*, October 23, 2020. Available at `https://theconversation.com/in-two-political-battlegrounds-thousands-of-mail-in-ballots-are-on-the-verge-of-being-rejected-148616`.

"Rejected mail ballots pile up in Florida" (with Daniel A. Smith). *Tampa Bay Times*, October 16, 2020. Available at `https://www.tampabay.com/opinion/2020/10/16/rejected-mail-ballots-pile-up-in-florida-column`.

"Minor postal delays could disenfranchise thousands of Florida vote-by-mail voters" (with Daniel A. Smith). *Tampa Bay Times*, August 14, 2020. Available at `https://www.tampabay.com/opinion/2020/08/14/minor-postal-delays-could-disenfranchise-thousands-of-florida-vote-by-mail-voters-column`.

"Want to know how many people have the coronavirus? Test randomly" (with Daniel N. Rockmore). *The Conversation*, April 13, 2020. Available at `https://theconversation.com/want-to-know-how-many-people-have-the-coronavirus-test-randomly-135784`.

"If more states start using Ohio's system, how many voters will be purged?" (with Daniel A. Smith). *The Washington Post*, Monkey Cage, June 17, 2018.

"Do we have a right not to vote? The Supreme Court suggests we don't" (with Daniel A. Smith). *New York Daily News*, June 12, 2018.

"Nearly 4 million black voters are missing. This is why" (with David Cottrell, Javier M. Rodriguez, and Daniel A. Smith). *The Washington Post*, Monkey Cage, April 11, 2018.

"We can't find any evidence of voting fraud in New Hampshire" (with David Cottrell and Sean Westwood). *The Washington Post*, Monkey Cage, February 28, 2017.

"We checked Trump's allegations of voter fraud. We found no evidence at all" (with David Cottrell and Sean Westwood). *The Washington Post*, Monkey Cage, December 2, 2016.

"High ballot rejection rates should worry Florida voters" (with Daniel A. Smith). *Tampa Bay Times*, October 28, 2012.

Michael C. Herron   6

"Logistic Regression." *The Encyclopedia of Political Science*, George Thomas Kurian, James E. Alt, Simone Chambers, Geoffrey Garrett, Margaret Levi, and Paula D. McClain, eds., Washington, D.C.: CQ Press. 2010.

"Using XEmacs Macros to Process ASCII Data Files." *The Political Methodologist* 13(2): 13–18. 2005.

"Ohio 2004 Election: Turnout, Residual Votes and Votes in Precincts and Wards" (with Walter R. Mebane, Jr.), in "Democracy At Risk: The 2004 Election in Ohio," report published by the Democratic National Committee. 2005.

"Poisson Regression." *The Encyclopedia of Social Science Research Methods*, Alan Bryman, Michael Lewis-Beck, and Tim Futing Liao, eds. Thousand Oaks, CA: Sage Publications, 2003.

"Pork barrel race to the bottom" (with Brett A. Theodos). *Illinois Issues* 29(2): 22–23. 2003.

"Teaching Introductory Probability Theory." *The Political Methodologist* 10(2): 2–4. 2002.

"Ballot cost Gore thousands of votes" (with Henry E. Brady and Jonathan N. Wand). *The San Diego Union–Tribune*, p. G3, November 19, 2000.

Work in progress

"Race and the Reduction of Early In-Person Voting in Georgia" (with Enrijeta Shino and Daniel A. Smith).

"Evidence from Maine on the effect of the COVID-19 pandemic on methods of absentee ballot delivery."

"Did ballot design oust an incumbent senator? A study of the 2018 midterm election in Florida" (with Michael D. Martinez and Daniel A. Smith).

Congressional testimony

"Voting in America: The Potential for Polling Place Quality and Restrictions on Opportunities to Vote to Interfere with Free and Fair Access to the Ballot," Subcommitee on Elections, Committee on House Administration, United States House of Representatives. June 11, 2021.

Awards

Elizabeth Howland Hand-Otis Norton Pierce Award for outstanding undergraduate teaching, Dartmouth College, 2020-21.

Best Paper Award, State Politics and Policy Section, 2013 Annual Meeting of the American Political Science Association. *Getting Your Souls to the Polls: The Racial Impact of Reducing Early In-Person Voting in Florida* (with Daniel A. Smith).

Grants

Committee for Scholarly Innovation and Advancement Awards, Dartmouth College, February, 2014. Project title: "The Dynamics of Voting Lines in Miami-Dade County." Financial support: $32,000.

The Rockefeller Center for Public Policy and the Social Sciences, Dartmouth College, May, 2006. Project title: "Large Scale Survey of Americans in Multiple Congressional Districts." Financial support: $8,500.

National Science Foundation, SES-041849, July, 2004. Project title: "A Ballot-Level Study of Intentional and Unintentional Abstention in Presidential Election Voting." Financial support: $65,749.

Nelson A. Rockefeller Center for the Social Sciences, Dartmouth College, January, 2004. Project title: "Intentional Invalid Votes in Leon County, Florida." Financial support: $1,115.

American Enterprise Institute, August, 1999. Project title: "Tenure in Office and Congressional Voting" (with Kenneth W. Shotts). Financial support: $182,500.

University Research Grants Committee, Northwestern University, February, 1999. Project Title: "Representation, Policy Uncertainty, and Divided Government." Financial support: $4,087.

Stanford University Graduate School of Business, 1997–1998 Academic Year. Dissertation Research Grant.

Recent conference presentations

"Auditing the 2020 General Election in Georgia: Residual vote rates and a confusing ballot format," 2021 Annual Meeting of the Southern Political Science Association, conducted remotely.

"Ballot design, voter intentions, and representation: A study of the 2018 midterm election in Florida," 2019 Annual Meeting of the American Political Science Association, Washington, DC.

"Ballot design, voter intentions, and representation: A study of the 2018 midterm election in Florida," Election Sciences, Reform, and Administration conference, 2019, University of Pennsylvania.

"Did ballot design oust an incumbent senator? A study of the 2018 midterm election in Florida," Congressional Elections & the Presidency: Politics in 2018, March 30, 2019, Saint Anselm College, Manchester NH.

"Estimating the Differential Effects of Purging Inactive Registered Voters," 2018 Annual Meeting of the American Political Science Association, Boston MA.

"Estimating the Differential Effects of Purging Inactive Registered Voters," Election Sciences, Reform, and Administration conference, 2018, University of Wisconsin-Madison.

Keynote address, "Mortality, Incarceration, and African-American Disenfranchisement," *Balancing the Scales: The United States in an Age of Inequality*, November 11, 2016, John F. Kennedy Institute, Freie Universität Berlin.

"Missing Black Men and Representation in American Political Institutions," 2016 Annual Meeting of the Midwest Political Science Association, Chicago, IL.

"A Simulation Study of Precinct Resources and Voter Wait Times in Hanover, New Hampshire," New Research on Election Administration and Reform, 2015, Massachusetts Institute of Technology, Cambridge, MA.

"Rejected Absentee Ballots in Florida," 2015 Annual Meeting of the Midwest Political Science Association, Chicago, IL.

Invited seminars

University of Iowa, 1999	University of Mannheim, 2011
Boston University, 2000	University of Heidelberg, 2011
Dartmouth College, 2000	University of Passau, 2012
Harvard University, 2000	University of Göttingen, 2012
University of Minnesota, 2000	Freie Universität Berlin, 2012
University of Rochester, 2000	Laval University, 2012
University of Wisconsin, Madison, 2000	University of Montreal, 2012
Yale University, 2000	Middlebury College, 2013
Columbia University, 2001	University of Illinois, Champaign, 2013
University of California, Berkeley, 2002	University of Illinois, Chicago, 2013
University of Illinois, 2002	University of Wisconsin, Madison, 2013
Brown University, 2003	Yale University, 2014
Temple University, 2003	University of Virginia, 2015
University of Chicago, 2003	University of California, San Diego, 2015
New York University, 2004	American University, 2015
Princeton University, 2004	Massachusetts Institute of Technology, 2015
University of Michigan, 2005	Princeton University, 2015
George Washington University, 2006	University of California, Los Angeles, 2016
Emory University, 2006	The Ohio State University, 2016
Harvard University, 2007	Freie Universität Berlin, 2016
Loyola Law School, 2007	Deutsch-Amerikanisches Institut, Nürnberg, 2017
Columbia University, 2007	Universität Bonn, 2018
University of Chicago, 2007	Freie Universität Berlin, 2018
Yale University, 2007	Northwestern University, 2018
Stanford University, 2008	University of Pittsburgh, 2019
Columbia University, 2008	University of Salzburg, 2019
Northwestern University, 2008	Universität Bonn, 2019
Princeton University, 2008	Freie Universität Berlin, 2019
Duke University, 2009	Humboldt University, 2019
Hertie School of Governance, 2010	University of North Carolina, Charlotte, 2019
Emory University, 2010	

Professional activities

Division Chair, Representation and Electoral Systems, 2017 Annual Meeting of the Midwest Political Science Association.

Associate Editor, *Research & Politics*. November, 2016–present.

Editorial Board, *American Politics Research*, September, 2015–present.

Editorial Board, *Political Analysis*, January, 2010–present.

Editorial Board, *USENIX Journal of Election Technology and Systems*, March 2013–June 2016.

Editorial Board, *American Political Science Review*, 2010–2012.

Editorial Board, *American Journal of Political Science*, 2006–2009.

"Race, Voting Procedures, and New Developments in Voting Rights," panel organized for the 2013 Annual Meeting of the Midwest Political Science Association.

Division Chair, Formal Theory, 2007 Annual Meeting of the American Political Science Association.

Co-editor, *The Political Methodologist*, Fall 2004–Spring 2006.

Publications Committee, Society for Political Methodology, 2005–2006, 2015–present.

Dartmouth College activities

Chair, American Politics Search Committee, Department of Government, August 2018–March 2019.

Chair, Committee on Priorities, July 2015–June 2016.

Committee on Priorities, July 2013–June 2015, Fall 2019–present.

American politics search committee, Department of Government, August 2014–December 2014.

Research Computing Director search committee, October 2013–October 2014.

Senior Search Committee, Department of Government, 2013.

Research Computing Advisory Committee, Spring 2013.

Chair, American Politics Search Committee, Department of Government, 2012-2013.

Recruitment Planning Committee, Department of Government, 2010 and 2012-2013.

Committee on Standards, 2008-2010.

Task Force on Collaboration and Social Software, 2007-2008.

Biostatistics search committee, Dartmouth Medical School, 2006-2007.

Research Computing Oversight Committee, 2006.

Council on Computing, 2005-2007.

Clement Chair search committee, Department of Government, 2005-2006.

Northwestern University activities

Program Committee, Mathematical Methods in the Social Sciences, 2001-2002.

American Politics Search Committee, Department of Political Science, 2000–2001, 2001-2002.

Formal Theory Search Committee, Department of Political Science, 1997–1998.

Teaching interests

Statistical methods: introductory and applied statistics, research design, computing in R.

American politics: representation, election irregularities, election administration.

Political economy: game theory.

Michael C. Herron   10

Reviewer for

American Journal of Political Science	*Political Analysis*
American Political Science Review	*Political Behavior*
American Politics Quarterly	*Political Research Quarterly*
American Politics Review	*Political Science Quarterly*
British Journal of Political Science	*Political Science Research and Methods*
Cambridge University Press	*Political Studies*
Chapman & Hall	*Politics & Gender*
Congress & the Presidency	*Politics, Groups, and Identities*
Du Bois Review	*Polity*
Economics & Politics	Prentice Hall Higher Education Group
Election Law Journal	*Proceedings of the National Academy of Sciences*
Electoral Studies	*Public Administration*
Emerging Markets Finance & Trade	*Public Choice*
Interest Groups & Advocacy	*Public Opinion Quarterly*
Int'l Journal of Environmental Research and Public Health	*PS: Political Science and Politics*
John Wiley & Sons, Inc.	*Quarterly Journal of Economics*
Journal of Legal Studies	*Quarterly Journal of Political Science*
Journal of Money, Credit and Banking	*Race and Social Problems*
Journal of Politics	*Science Advances*
Journal of Public Economics	*The Social Science Journal*
Journal of Quantitative Analysis in Sports	*Social Science Quarterly*
Journal of Race, Ethnicity, and Politics	*Sociological Methods & Research*
Journal of Theoretical Politics	*The Sociological Quarterly*
Journal of Women, Politics & Policy	Springer
Legislative Studies Quarterly	*State Politics & Policy Quarterly*
The National Science Foundation	Time-Sharing Experiments for the Social Sciences
Nonprofit Policy Forum	The University of Michigan Press
Perspectives on Politics	W. W. Norton & Company
Policy Studies Journal	*World Politics*

Foreign language

German: C1 (telc Prüfung, Ausstellung July 27, 2017).

Other employment

Intelligence Analyst and Military Officer, United States Air Force, Foreign Technology Division, Wright–Patterson Air Force Base, 1989–1992.

B   The June 2021 Florida voter file

322   During discovery, the Florida Secretary of State produced a statewide voter file with an effective date of June 15, 2021. Hereinafter I refer to this file as the June 2021 voter file.

323   A Florida voter file consists a set of 67 (one per county) "Details" files as well as a set of 67 "History" files. A details file contains individual-level information on the registered voters in a single Florida county as of a given date, here, June 15, 2021. A history file describes how these registered voters participated in recent Florida elections, i.e., whether they voted on Election Day, early in-person, did not vote, and so forth. Both details and history files contain Florida voter identification numbers, and these numbers can be used to link records in the former with records in the latter.

324   The Florida Secretary of State also produced a layout file, "10-2018 Voter Extract Disk File Layout.pdf," that describes how the aforementioned details and history files are organized.

325   I assembled the 67 details files in the June 2021 voter file into a single table. This table has 15,105,044 rows, one per registered voter in Florida as of June 2021. I checked to see if any Florida voter identification numbers are duplicated as, in principle, there should be no such numbers. I located 527 duplicated voter identification numbers. This means that there are 15,104,517 unique voter identification numbers in the June 2021 Florida voter file. Insofar as 15,104,517 is approximately 99.99 percent of 15,105,044, none of the conclusions in this report are a function of the tiny number of records in the June 2021 voter file that do not have unique voter identification numbers.

326   The June 2021 Florida voter file contains records that have missing data. A key reason for this is that the Florida Department of State restricts the release of data on registered voters who are part of the Florida Attorney General's Address Confidentiality Program or who are deemed "high-risk professionals," e.g., Justices of the Florida Supreme Court, judges of county

court, prosecutors, among others.[110] In the June 2021 voter file, registered voters for whom one of these two conditions applies have asterisks ("*") in data fields that are not publicly released. What appear to be idiosyncratic database errors constitute another reason for missing data in this voter file; the frequency of these errors is rare, however, and not substantively meaningful given the millions of records in the June 2021 voter file.

327   The June 2021 voter file has 72,572 records with missing names; 72,559 with missing birth dates, and zero records with missing race. When in this report I carry out calculations that rely on voter file variables that have missing values, I do not use the observations (i.e., registered voters) affected by missingness.

C   The August 2021 Florida voter file

328   During discovery, the Florida Department of State produced a statewide voter file that I treat as having an effective date of August 2, 2021. In this voter file, the most recent voter registration date is Saturday, July 31, 2021. I take the next business day after July 31 as the effective date of the file, and this is Monday, August 2.

329   In my discussion of the June 2021 Florida voter file in Appendix B, I noted that a voter file consists of 67 details files and 67 history files. The August 2021 voter file was produced, however, in a way that combined the 67 details files and the 67 history files. In particular, the August 2021 voter file consists of two separate text files: "PRR_NAACP_VoterDetail.txt" (15,160,576 lines) and "PRR_NAACP_VoterHistory.txt" (95,140,481 lines). When I received these files, they were in a zip archive named, "PRR_NAACP_2021.zip." The layout of the August 2021 voter file is contained in file, also produced by the Department of State, named, "PRR_NAACP_FileLayout.docx."

---

[110]See "Voter Information as a Public Record," *Florida Department of State*, available at https://dos.myflorida.com/elections/for-SB90voters/voter-SB90registration/voter-SB90information-SB90as-SB90a-SB90public-SB90record/ (last accessed August 11, 2021).

330   I confirmed that there are no duplicated voter identification numbers in the August 2021 voter file; no voter records missing race, party affiliation, or registration date; and, 2,604,341 records missing registration method. I discuss missing registration methods in the body of the report.

D   Regression table for models of voting assistance, restricting attention to VBM voters

331   This appendix includes a regression table that corresponds to Table 26 in the body of the report. However, Table 40 here is based on VBM voters only and incorporates all versions of the SPAE used in this report.

Table 40: Logit analysis of need for voting assistance, VBM voters only

	2014		2016		2018		2020		
	Primary	General	Primary	General	Primary	General	PPP	Primary	General
Race: Black	1.51***	1.61***	1.59***	1.59***	1.54***	1.61***	1.53***	1.64***	1.62***
	(0.08)	(0.08)	(0.09)	(0.08)	(0.07)	(0.07)	(0.06)	(0.07)	(0.08)
Race: Hispanic	1.32***	1.42***	1.37***	1.37***	1.33***	1.34***	1.33***	1.34***	1.31***
	(0.10)	(0.09)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)
Race: Other race	1.19***	1.16***	1.10***	1.06***	1.05***	1.05***	0.96***	1.09***	1.01***
	(0.09)	(0.06)	(0.07)	(0.06)	(0.07)	(0.05)	(0.05)	(0.04)	(0.03)
Party: Republican	-0.24***	-0.26***	-0.25***	-0.28***	-0.21***	-0.23***	-0.14***	-0.11***	-0.16***
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Party: No party affiliation	-0.06	-0.13***	-0.12**	-0.18***	-0.11**	-0.17***	-0.19	-0.09**	-0.14***
	(0.04)	(0.03)	(0.05)	(0.03)	(0.03)	(0.03)	(0.10)	(0.03)	(0.03)
Party: Other party	-0.17*	-0.24***	-0.24***	-0.37***	0.14	-0.08	-0.05	-0.09	-0.14*
	(0.09)	(0.04)	(0.07)	(0.04)	(0.35)	(0.12)	(0.50)	(0.08)	(0.06)
Male	-0.13**	-0.15***	-0.13***	-0.16***	-0.13***	-0.15***	-0.11***	-0.12**	-0.16***
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
Unknown gender	-0.05	-0.27***	-0.10*	-0.39***	-0.17**	-0.36***	-0.24***	-0.31***	-0.46***
	(0.09)	(0.05)	(0.05)	(0.06)	(0.06)	(0.04)	(0.07)	(0.07)	(0.04)
Age	-0.08***	-0.06***	-0.07***	-0.04***	-0.07***	-0.05***	-0.06***	-0.06***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Age-squared	0.87***	0.80***	0.81***	0.67***	0.82***	0.73***	0.76***	0.77***	0.67***
	(0.07)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)
Observations	928,090	1,892,640	1,305,472	2,749,683	1,368,225	2,645,892	1,409,475	2,366,023	4,858,152

Note: county fixed effects not shown; standard errors clustered by county; $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

E   The Survey of the Performance of American Elections

332   The Survey of the Performance of American Elections (SPAE) is a survey that is conducted roughly every two years. It queries voters across the country about their voting experiences.

333   This report draws on versions of the SPAE from 2008, 2012, 2014, 2016, and 2020. The data for these surveys is archived at the Harvard Dataverse, an online resource.[111] To the best of my knowledge, there was no 2018 SPAE. The 2014 SPAE used in this report is the version that oversamples ten states, one of which is Florida.

334   Each SPAE asks survey respondents a battery of questions. While the types of questions have been common across versions of the SPAE, within the SPAE datasets many variables names have changed.

335   Table 41 lists names and definitions for the variables that, one, are used in this report and, two, have common names across the versions of the SPAE analyzed here.

Table 41: Variables with common names across versions of the SPAE

Variable name	Definition
birthyr	Birth year of respondent
educ	Education level of respondent
gender	Gender of respondent
pid3	Party affiliation of respondent
race	Race of respondent
weight	Survey weight

336   The SPAE does not include a variable for age of respondent. For the purposes of this report, age is defined as survey year minus birth year.

---

[111]See `https://dataverse.harvard.edu/dataverse/SPAE` (last accessed August 9, 2021) for SPAE data.

337   Table 42 lists the names and definitions for the variables that, one, are used in this report and, two, do not have common names across the versions of the SPAE analyzed here.

Table 42: Variables lacking common names across versions of the SPAE

		SPAE			
2008	2012	2014	2016	2020	Definition
q45	q37	Q45	Q45	Q58	Disability status
income	income	income	faminc	faminc_new	Family income
q5	q4	Q4	Q4	Q4	How respondent cast ballot
q30	q21	Q25	Q25	Q25	How VBM was submitted
inputstate	regstate	inputstate	inputstate	inputstate	Respondent's state
q12	q10	Q13	Q13	Q14	Voting line length

338   Two notable variables in Table 42 are those measuring how a survey respondent cast his or her ballot and, for those respondents who cast a vote-by-mail (VBM) or absentee ballot, how said ballot was submitted. Regarding the former, the SPAE allows for the following responses: on Election Day; early in-person; via VBM ballot; or, unsure. Regarding the latter, the SPAE allows for the following responses: mailed in by a household member; returned to an elections office by a household member; mailed in by survey respondent; returned to an elections office by a survey respondent; or, unsure.

339   I downloaded versions of the SPAE from the Harvard Dataverse. I processed them so that variable names and definitions were comparable across surveys. The family income classes used across the 2008, 2012, 2014, 2016, and 2020 versions of the SPAE were not identical. I therefore created a four-class annual family income variable: up to and including $49,999; between $50,000 and $99,999, inclusive; between $100,000 and $149,999, inclusive; and, $150,000 or greater.

F   Florida election recap reports

340   Following statewide elections, the Florida Secretary of State generates what are known formally as "Election Recap Reports." Henceforth, I refer to these as recap reports.

341   During discovery, the Florida Secretary of State produced recap reports for the 2014

Primary, the 2014 General, the 2016 Primary, the 2016 General, the 2018 Primary, the 2018

General, the 2020 PPP, the 2020 Primary, and the 2020 General.

F.1   Contents of election recap reports

342   A recap report for a given election consist of a set of 67 tab-delimited text files, one file

per county. Each file lists the registered voters in a county who were eligible to vote in the

election of interest. For each eligible voter, the recap report also contains registration information

(e.g., voter identification number, voter name, voter address, voter race/ethnicity, and so forth),

jurisdictional details (e.g., a voter's congressional district, Florida House district, and so forth),

notable aspects of the voter's registration record (e.g., whether the voter has requested assistance

voting), and how the voter participated in the election associated with the recap report (e.g.,

whether the voter voted early, voted by mail, did not vote, and so forth).

343   With respect to voter participation in a given election, these are tracked in recap report

using what is called a voter history code. The one-letter history codes that appear in recap reports

are described in Table 43.

Table 43: Voter history codes

Code	Definition
A	Cast valid VBM ballot
B	Cast a VBM ballot that was rejected
E	Voted early in-person
L	Cast a VBM ballot that was rejected on account of being late
P	Cast a provisional ballot that was subsequently not counted
Y	Voter in-person on Election Day
N	Did not vote

344   For example, a voter in a recap report who has a history code of "A" voted by mail in the

report's corresponding election, and the mail ballot was counted. Some voters in election recap

reports have empty history codes. I treat these missing codes as "N," i.e., registered voters who did not turn out to vote.

F.2   Duplicated voters in recap reports

345   Every election recap report considered in this report includes voters who, based on their voter identification numbers, are listed more than once. When I processed the recap reports, I removed all instances of duplicated voters except for one.

346   To do this, I gave priority to voter history codes as follows: "Y," "E," "A," "B," "P," "L," and "N." In other words, if a single Florida voter appears in a recap report twice, once with a code of "Y" and once with a code of "E," I eliminate the instance of the voter with the code of "E." This is because "E" appears lower in the priority list of recap codes above.

347   This approach to dealing with duplicated voters prioritizes in-person votes over votes cast by mail (since the history code of "Y" is given first priority) and valid over invalid votes (since the codes of "B", "P," "L" and "N" receive lowest priority).

348   The number of duplicated voters in the recap reports is very small. That these voters exist is a technical detail but not one that is important to the substantive conclusions in this report.

349   Table 44 describes the number of registered voters in each election recap report (this is the number of rows in each report after duplicated voters have been resolved), the number of voters that I determined have duplicated records, and the number of voters who have history codes indicating valid votes ("A," "E," or "Y").

F.3   Missing data in recap reports

350   While Florida registration records are public, some records in election recap reports have missing data. The reasons for this missingness are the same as those regarding the June 2021

Table 44: Summary of observations in election recap reports

Election	Registered voters	Duplicated Voters	Voters
2014 Primary	12,832,144	35	2,076,428
2014 General	11,957,639	567	6,022,206
2016 Primary	12,390,693	502	2,952,923
2016 General	13,918,471	8,448	9,577,098
2018 Primary	13,761,780	2,363	3,575,731
2018 General	14,175,442	993	8,301,478
2020 PPP	14,550,150	2,308	3,029,382
2020 Primary	14,790,258	48	3,897,379
2020 General	15,293,648	512	11,142,688

voter file. See the end of Appendix B for a discussion of missing data in this file.

351   Table 45 describes missingness counts for four data fields that are part of Florida election recap reports. These fields consist of name, birth date, gender, and race. When in this report I describe a calculation that uses, for example, the distribution of voter age among registered voters listed in the recap report from the 2020 General Election, my calculations do not use the 73,257 registered voters in the recap for whom birth date is missing. Similarly, when I merge a list of voter names with a given election recap report, I cannot merge records from the report that are missing voter names.

Table 45: Missingness in election recap reports

Election	Missing name	Missing birth date	Missing gender	Missing race
2014 Primary	69,761	69,756	1,193	0
2014 General	68,507	68,502	1,242	215
2016 Primary	69,680	69,675	890	8
2016 General	65,818	65,813	1,148	17
2018 Primary	71,153	71,145	3,970	90
2018 General	71,849	71,838	6,880	100
2020 PPP	71,773	71,760	6,410	1
2020 Primary	72,522	72,508	5,378	0
2020 General	73,271	73,257	6,623	0

352   Six of the counties in Table 46 produced individual level logs that listed the actual voters who submitted their ballots via drop box. These logs are discussed in the following Appendix H.

G   Counting the number of voters who used drop boxes

353   As part of discovery, Plaintiffs' Counsel requested that counties produce information on

drop boxes usage in recent elections: individual-level logs if possible and aggregates by date and

election if not. In response to this request, 43 counties produced documents that enabled me to

determine the number of drop ballots submitted in them via drop box during the 2020 General.

These counties, and corresponding source documents, are listed in Table 46.

354   Regarding Palm Beach County, its source document in Table 46 consists of two separate

files: "10_19_2020 General VBM Reports and Transport Logs.pdf" and "10-26_2020 General

VBM Reports and Transport Logs.pdf." I treat ballots submitted to Palm Beach County vans as

drop box ballots insofar as, one, the county's vans accepted only completed ballots, which were

then evaluated like all other VBM ballots, and, two, the vans were located at early voting stations,

which is where many drop boxes in Florida were located during the 2020 election cycle.[112] Lastly,

the Palm Beach County transport logs contain information on ballot transport on October

19-October 21 and October 26-November 1. Insofar as these logs do not have any information on

drop box transports from October 22-October 25, it follows that my count of drop box ballots

submitted in Palm Beach County during the 2020 General is conservative.

355   Regarding St. Lucie County, its source document is an Excel spreadsheet, "St.

Lucie_Co_SOE_LWV_RTP_2.xlsx." To compute the number of drop box submisions in the 2020

General, I subtracted Column A ("Mail/Fort Pierce") from Column L ("Daily Total") and then

summed the resulting differences.

---

[112]On Palm Beach County's vans, see "Skip the post office: Palm Beach County adds vans to take mail ballots," *The Palm Beach Post*, October 1, 2020, available at `https://www.palmbeachpost.com/story/news/ local/2020/10/14/palm-SB90beach-SB90county-SB90early-SB90voting-SB90sites- SB90include-SB90vote-SB90mail-SB90drop-SB90off-SB90vans/3650030001/` (last accesed August 29, 2021).

Table 46: Sources of drop box counts by county, 2020 General

County	Source document
Alachua	EV_DropBox_1120.xlsx
Bay	NO 2 - BAY000010.xlsx
Bradford	No 2.pdf
Broward	RFP #2 - Broward SOE - Bates Nos. 9-12.pdf
Calhoun	No. 2.pdf
Citrus	2020 General Daily Transportation Logs ICH VBM Drop Box.pdf
Collier	EV Drop Box Totals.xlsx
Columbia	Individual logs
Dixie	No. 2.pdf
Franklin	Individual logs
Gadsden	No 2.pdf
Hardee	Hardee RFP No. 2.pdf
Hendry	Hendry County_RFP Nos 2 and 4.pdf
Hernando	Req#2.xlsx
Highlands	2020GEN Ballot Printer and Return.xlsx
Hillsborough	Rsp 1 & 2 - 2020_General_Drop_Box_Daily_Totals.xlsx
Holmes	Holmes County RRFP No. 2 and No. 4.pdf
Indian River	Request for Production #2.pdf
Lake	Individual logs
Lee	131 Gen Elec 2020 Drop Box Totals.xlsx
Leon	Bate Stamped docs.pdf (last page) in Leon County Production
Levy	Levy Affidavit_Tammy Jones.pdf
Madison	Individual logs
Manatee	Early Voting VBM Drop Boxes-GEN2020.xlsx
Marion	No. 2 and 4_2020 GEN VBM Transport Box Log.pdf
Martin	Martin_Co_SOE_LWV_RTP_1.pdf
Miami-Dade	VBM Totals General 11-20.pdf
Nassau	Attachment 2.pdf
Okaloosa	Okaloosa Affidavit.pdf
Okeechobee	Okeechobee County RRFP 2 and 4.pdf
Orange	Production 2 2020 General Early Voting VBM Drop Off _ Orange County Supervisor of Elections.pdf
Osceola	Osceola_Co_SOE_LWV_RTP_2 (17).xls
Palm Beach	2020 General VBM Reports and Transport Logs.pdf
Pasco	Req 1_2 Gen20 VBM EV Site Info.xlsx
Pinellas	398 NOV 2020 BALLOT DROP OFF.xls
Polk	Polk_Co_SOE_LWV_RTP_2* (only general election)
Putnam	PUTNAM000003 - No 2 - 2020 General Drop Box Totals.xlsx
Santa Rosa	Individual logs
Sarasota	Individual logs
Seminole	Seminole County 2020 VBM Drop Box Statistics.pdf
St. Johns	No 2.pdf
St. Lucie	St. Lucie_Co_SOE_LWV_RTP_2.xlsx
Taylor	No 2.pdf
Union	Union RFP 2.pdf
Volusia	Drop Box VBM Totals - 2020 General Election.xlsx
Walton	Walton RFP 2.pdf

H   Identifying individual voters who used drop boxes

356   The statewide Florida election recap reports described in Appendix F contain voter

history codes that track whether voters cast ballots early in-person, on Election Day in-person,

with vote-by-mail ballots, or did not turn out at all. However, these files do not specify *how* vote-by-mail ballots were cast. Thus, my ability to determine which voters in recent Florida elections cast their ballots using drop boxes—a method of voting that is a special case of voting via mail ballot—depends on county data.

357   Six counties produced lists of drop box voters in some (or all) of the statewide elections held in 2020. These counties are Columbia, Franklin, Lake, Madison, Santa Rosa, and Sarasota.

358   There are a very small number of voters across these five counties who, one, are listed by a county as being drop box voters but, two, do not have VBM voting history codes in corresponding election recap reports. When I encounter such voters, I treat them as VBM voters.

H.1   Columbia County

359   During discovery, Columbia County produced drop box log files that contain lists of voter identification numbers. Both files consist of PDF images.

360   One such log file, "9258.pdf," is handwritten log that contains voter identification numbers and ballot submission dates from the 2020 Primary. The second file, "9402.pdf," is a log file with some handwritten and some typed voter identification numbers, all from the 2020 General. Each voter identification number has an associated ballot submission date.

361   Plaintiffs' Counsel arranged for a contractor to transcribe the handwritten voter identification numbers from the aforementioned two drop box log files. The contractor generated two Excel spreadsheets, "737913.xlsx" and "737914.xls," corresponding to the 2020 Primary and 2020 General, respectively, which Plaintiffs' Counsel forwarded to me. I converted the typed voter identification numbers in the image file "9402.pdf" to a machine-readable format, and I supplemented the voter identification numbers in the contractor-produced "737914.xls" with these numbers.

362   The steps listed above yielded two processed lists of drop box voters from Columbia County, one from the 2020 Primary and one from the 2020 General. I eliminated duplicated voter identification numbers; when a voter identification appear more than once in a given election's list of ballot drop box logs, I chose the instance of the number with the earliest date. I then merged resulting lists with election recap reports from the 2020 Primary and the 2020 General, restricting attention in the reports to voters who reside in Columbia County.

363   Table 47 lists the number of drop box voters ("Voters") in the two processed lists from Columbia County; the number of invalid voter identification numbers ("Invalid IDs") based on processing; the number of voter identification numbers ("Non-matched IDs") that did not successfully match with records from election recap reports; and, the no-match rate ("No-match percent").

Table 47: Voter IDs and match rates in Columbia County across the 2020 Primary and General

Election	Voters	Invalid IDs	Non-matched IDs	No-match percent
Primary	474	1	8	1.69
General	2,309	21	49	2.12

364   The Columbia drop box voter list ("9402.pdf") from the 2020 General is BATES stamped COLUMBIA000017 through COLUMBIA000038. The pages on this voter list have dates along with voter identification numbers, and I assume that these dates reflect the dates on which drop box ballots were submitted. When there is a page in "9402.pdf" without a date, I assume that the voter identification number on this page correspond to the latest date on the previous page.

365   For example, COLUMBIA000025 consists of a short list of voter identification numbers, and there is no date on this page. COLUMBIA0000024 has drop box voter identification numbers from October 16, 2020 and October 19, 2020. I assume that COLUMBIA000025's voter identification numbers date to October 19, 2020. This treats COLUMBIA000025 as a continuation of COLUMBIA000024.

H.2   Madison County

366   During discovery, Madison County produced a log file that lists vote-by-mail voters in the county who placed their ballots in drop boxes in the course of voting during the 2020 General Election. The log file is handwritten, and each line in it corresponds to a single ballot drop off. A line includes a date and time (presumably when a drop off took place) and the name of a voter (who presumably dropped off a ballot). The name of the file is, "Madison_VBM, DB list 1.pdf."[113]

367   Plaintiffs' Counsel arranged for a contractor to convert Madison County's handwritten drop box log into a machine-readable Excel spreadsheet. Counsel then made this spreadsheet available to me. The name of this spreadsheet is, "2021 07 29 Madison_VBM Log_(Reviewed Version).xlsx," which henceforth I refer to as the processed Madison drop box ballot log.

368   There are six voters in the processed Madison County drop box log whose names appear twice. I verified that these voters appear twice in the original Madison County log, and henceforth I ignore the six duplicate entries in the processed log.

369   There are 15 voters in the Madison County drop box log whose names are crossed off. Henceforth I ignore these entries in the processed log. I ignore as well the voters in the log who appear to have voted from the Lake Park of Madison Nursing Home. This is conservative. It is possible that these voters did return their ballots in a drop box.

370   I merged the processed Madison drop box ballot log with the 2020 election recap report restricting attention in the latter to voters who reside in Madison County. This merge was carried out in two steps.

371   First, I earlier noted that the processed Madison drop box log has a field for voter name. For registered voters in the 2020 general election recap report, I created a name field that

---

[113]Plaintiffs' Counsel produced an email, contained in the file, "RE League of Women Voters of Florida v. Lee – Production Issues.msg," stating that the file "Madison_VBM, DB list 1.pdf" contains drop box voters only.

approximated the format of voter names in the processed Madison drop box log. In particular, for records in the 2020 general election recap report, I defined a voter's name string as the concatenation of a voter's first name, middle initial, and last name, coerced to be lower case with punctuation (commas, periods, apostrophes, and dashes) and spaces removed. I note that first name, middle name (and accordingly middle initial), and last name are fields in Florida election recap reports.

372   I merged records in the processed Madison drop box ballot log with registered voters in the 2020 general election recap report who had unique name strings (all voter names in the processed Madison ballot log are unique because, as described earlier, I deleted duplicate records). To do this, I calculated the Levenshtein distance between each name in the processed log and each unique name in the 2020 general recap report.[114] Treating all Levenshtein distances greater than three as non-matches, I determined the closest distance between each name in the former and each name in the latter. If for a given name in the processed Madison county drop box log there was a tie (meaning, there were at least two names in the 2020 general election recap report that were equidistant in the sense of Levenshtein distance from the name), then I treated the name as unmatched. Otherwise, I matched each name in the processed log with the closest name in the 2020 general election recap report in the sense of Levenshtein distance.

373   Some records in the processed Madison drop box log could not be matched to a record in an election recap report. Thus, the second step in the Madison County drop box ballot log merge relied on the work of a research assistant, whom I hired to compare non-matched Madison County drop box voters with records in the 2020 general election recap file that have unique names. My research assistant was able to associate two records in the former with records in the latter.

374   Overall, of the 122 records in the processed Madison drop box ballot log, I was able to link 115 of them (approximately 94.3 percent) to records in the 2020 general election recap file.

---

[114]The Levenshtein distance between two words is the fewest number of deletions, insertions, and substitutions required to change one word to another.

H.3   Franklin County

375   During discovery, Franklin County produced a log file that lists vote-by-mail voters in the county who placed their ballots in drop boxes in the course of voting during the 2020 General Election. The log file is handwritten, and each line in it corresponds to a single ballot drop off. A line includes *inter alia* the date and time a ballot was submitted as well as the name of a voter. The name of the file is, "000000_Original676918.pdf."[115]

376   Parallel to the procedure described about for Madison County, Plaintiffs' Counsel arranged for a contractor to convert Franklin County's handwritten drop box log into a machine-readable Excel spreadsheet. Counsel then made this spreadsheet available to me. The name of this spreadsheet is, "000001_Original676919.xlsx," which henceforth I refer to as the processed Franklin drop box ballot log.

377   The ballot submission date field in the processed Franklin drop box ballot log had missing dates on account of the way that the handwritten Franklin log file was created. Figure 12 displays a page from the Franklin County log. The page (Bates stamped FRANKLIN000039) reports ballots submitted on October 28, 2021, and there were five drop box ballots submitted in Carrabelle on this day.

378   The processed log for the drop box ballot page in Figure 12 reported a date of "10/28/20" for the first ballot in the log, submitted by an individual whose first name was David. The processed log reported no dates for ballots two through five. I created a version of the processed log that extended the date "10/28/20" to ballots two through five, and I repeated this process for the entire processed Franklin County ballot log.

---

[115]Plaintiffs' Counsel produced an email, contained in the file, "RE League of Women Voters of Florida v. Lee – Production Follow up (Franklin County).msg," stating that the file "000000_Original676918.pdf" contains drop box voters only.

Figure 12: Example page of Franklin County drop box log

Franklin County Supervisor of Elections

Ballot Transfer Log

Location: _Carrabelle_   Seal # _18745747_ DP

Date	Voter Name
10/28/201.	David █████████
2.	████████████
3	████████████
4.	████████████
5	████████████

Ballots Transferred by : _████████████_   Date: _10/28/2020_

FRANKLIN000039

Note: names redacted for the purposes of this report with the exception of one voter's first name.

379   With respect to voter names in the Franklin County drop box ballot log, I followed essentially the same merging procedure for Franklin County as that described above for Madison County. That said, the original Franklin County drop box ballot log does not contain crossed-off names; the corresponding Madison log did. Moreover, I did not delete duplicate records in the

processed Franklin County drop box ballot lot like I did in Madison; this is because the duplicated Franklin names (there were two pairs of repeated names) do not appear to me to reflect repeated instances of a single voter. One repeated name in Franklin is "David Collins," and I verified in the 2020 general election recap report that that are two distinct voters with that name in Franklin County. The other repeated name in the processed Franklin County ballot log is, "Michael Allen." In the 2020 general election recap report, I find only one voter in Franklin County with this name. Nonetheless, one pair of repeated names is not consequential to my analysis of Franklin County's drop box voters in the 2020 General.

380   Overall, of the 937 records in the processed Franklin drop box ballot log, I was able to link 872 of them (approximately 93.1) to records in the 2020 general election recap file. This is reported in Table 48, which also contains details on Madison County's drop box voter list.

Table 48: No-match rates among Franklin and Madison County drop box voters, 2020 General

County	Voters	Non-matched names	No-match percent
Franklin	937	65	6.94
Madison	103	2	1.94

H.4   Lake County

381   During discovery, Lake County produced three log files (technically, "Vote-By-Mail Custody Logs") that list vote-by-mail voters in the county who placed their ballots in drop boxes in the course of voting during the 2020 PPP, the 2020 Primary, and the 2020 General Election. The log files are handwritten, and each line in each file corresponds to a single ballot drop off. The names of the log files are "000000_Original676916.pdf," "000002_Original676917.pdf," and "000004_Original676926.pdf," for the 2020 PPP, the 2020 Primary, and the 2020 General, respectively.[116]

---

[116]Pages 2 and 3 of "LAKE COUNTY SUPERVISOR OF ELECTIONS' ANSWERS TO LEAGUE PLAINTIFFS' SECOND SET OF INTERROGATORIES" (in particular, see "INTERROGATORY NO. 10") clarifies that the files produced by Lake County on July 7, 2021 and referenced here "list voters–and only those voters–whose vote-by-mail ballots were deposited into drop boxes located at early-voting sites in Lake County at the 2020 presidential preference

382   Parallel to the procedure described about for Madison and Franklin Counties, Plaintiffs' Counsel arranged for a contractor to convert Lake County's handwritten drop box logs into machine-readable Excel spreadsheets. Counsel then made these spreadsheet available to me. The names of the spreadsheets are "000001_Original676920.xlsx," "000003_Original676921.xlsx," and "000005_Original676927.xlsx," for the 2020 PPP, 2020 Primary, and 2020 General, respectively.

383   I merged the three Lake County drop box lists with corresponding election recap reports. To do this I relied on the (fuzzy) matching technique described earlier in my discussion of Madison County. Table 49 describes the results of merging Lake County drop box voter lists with election recap reports.

Table 49: Matched drop box voters in Lake County across 2020 elections

Election	Voters	Non-matched IDs	No-match percent
PPP	126	16	12.70
Primary	1,156	127	10.99
General	11,690	1,081	9.25

H.5   Santa Rosa County

384   During discovery, Santa Rosa County produced three log files that list vote-by-mail voters in the county who placed their ballots in drop boxes in the course of voting during the 2020 PPP, the 2020 Primary, and the 2020 General Election. The log files are handwritten, and each line in each file corresponds to a single ballot drop off. The names of the log files are "000000_Original676914.pdf," "000002_Original676922.pdf," and "000004_Original676924.pdf," for the 2020 PPP, the 2020 Primary, and the 2020 General, respectively.[117]

---

primary election, the 2020 primary election, and the 2020 general election."

[117]Plaintiffs' Counsel produced an email, contained in the file, "RE League of Women Voters of Florida v. Lee – Production Follow up (Santa Rosa County).msg," stating that the log files in the paragraph referenced here contain drop box voters only.

385   Parallel to the procedure described above for Madison, Franklin, and Lake Counties,

Plaintiffs' Counsel arranged for a contractor to convert Santa Rosa County's handwritten drop

box logs into machine-readable Excel spreadsheets. Counsel then made these spreadsheet

available to me. The names of the spreadsheets are "000001_Original676915.xlsx,"

"000003_Original676923.xlsx," and "000005_Original676925.xlsx," for the 2020 PPP, 2020

Primary, and 2020 General, respectively.

386   I merged the three Santa Rosa County drop box lists with corresponding election recap

reports. To do this I relied on the fuzzy matching technique described in my discussion of

Madison County. Table 50 describes the results of merging Santa Rosa County drop box voter

lists with election recap reports.

Table 50: Matched drop box voters in Santa Rosa County across 2020 elections

Election	Voters	Non-matched IDs	No-match percent
PPP	235	28	11.91
Primary	1,303	147	11.28
General	6,973	566	8.12

H.6   Sarasota County

387   During discovery, Sarasota County produced a collection of 362 TIF images of drop box

ballot logs from the 2020 PPP, the 2020 Primary, and the 2020 General. It is my understanding

that each log consists of a list of individuals who deposited their ballots in drop boxes at a given

location on a given day of early voting. For the 2020 PPP, Sarasota County used drop boxes at

five locations; for the 2020 Primary, at five locations; and, for the 2020 General, at eight locations.

388   The Sarasota drop box logs are handwritten. For each voter, a log contains the voter's

name and the voter's Florida identification number.

389   As in the case of Madison County and the other counties discussed above, Plaintiffs' Counsel arranged for a contractor to convert Sarasota County's 362 handwritten drop box logs into machine-readable Excel spreadsheets. Counsel then made the spreadsheets available to me. I refer to these spreadsheets as processed Sarasota drop box ballot logs.

390   The processed Sarasota drop box logs went through four iterations.

391   In Version 1 of the processed drop box log, each Excel spreadsheet was given a name "DISCO_NNNNNN.xlsx," where "NNNNNN" is a six-digit number. For example, one such spreadsheet is named, "DISCO_007244.xlsx."

392   A single Version 1 processed Excel spreadsheet ("DISCO_007449.xlsx") had formatting issues that made opening it difficult. I created a version of this spreadsheet ("DISCO_007449-fixed.xlsx)" that I used when working with processed Sarasota drop box ballot logs.

393   Version 2 of the processed Sarasota drop box logs consists of a set of 145 Excel spreadsheets that improved on some of the Version 1 spreadsheets. Version 3 of the processed Sarasota drop box logs consists of a single Excel spreadsheet that improved on one Version 2 spreadsheet. Version 4 of the processed Sarasota drop box logs similarly consists of a single Excel spreadsheet that improved on one Version 2 spreadsheet.

394   Plaintiffs' Counsel sent me a Excel spreadsheet that describes how the 362 Excel spreadsheets in Versions 1, 2, and 3 are linked to the 362 original drop box ballot logs. The name of this link file is, "Sarasota xref.xlsx"

395   After assembling the 362 Excel spreadsheets (Version 1 supplemented by Version 2, then supplemented by Version 3), I deleted all rows that had duplicate voter identification number

within the same election. This ensures that, for each election, each voter identification number in the processed Sarasota drop box ballot logs is unique.

396   I then merged the processed Sarasota ballot logs for the 2020 PPP, the 2020 Primary, and the 2020 General with corresponding election recap reports, restricting attention in the latter to registered voters who reside in Sarasota County. This merge was carried out in two steps.

397   First, I merged the processed Sarasota drop box logs with election recap reports using voter identification numbers.

398   Some records in the processed Sarasota drop box logs could not be matched to a record in an election recap report based on voter identification numbers. In a small number of cases, the processed logs did not yield numbers that were nine digits long. These numbers are be definition invalid and cannot be matched to a voter identification number in a recap report.

399   Second, and turning to this set of records, I used voter names to merge unmatched records in the processed Sarasota drop box logs with corresponding election recap reports. I earlier noted that the processed Sarasota drop box logs have a field for voter name. For registered voters in the 2020 PPP, primary, and general election recap reports, I created a name field that approximated the format of voter names in the processed Sarasota drop box logs. This mirrors what I described in my earlier discussion of Madison County. Treating name matches as those that were associated with unique Levenshtein distances of three or fewer, I merged unmatched records in the processed Sarasota drop box logs that had unique name strings with voters in a corresponding recap report that also had unique name strings.

400   A voter in the processed Sarasota drop box ballot logs could only be matched to a Sarasota voter in an election recap report if the voter had a unique name string in the logs, a unique name string in a corresponding recap report, and if a name in the log was associated with a

unique minimum Levenshtein distance. This strategy is conservative because it rules out matching voter records with very common names.

401   Organized by election, Table 51 lists the number of unique voters in the processed Sarasota drop box ballot logs ("Voters"), the number for which processing did not yield a valid nine-digit voter identification number ("Invalid IDs"), the number of non-matched drop box records based on merging via voter identification number and voter name string ("Non-matched IDs"), and the aggregate no match percent ("No match percent").

Table 51: Voter IDs and match rates in Sarasota County across 2020 elections

Election	Voters	Invalid IDs	Non-matched IDs	No-match percent
PPP	6,212	2	35	0.56
Primary	10,286	1	43	0.42
General	73,232	61	708	0.97

I   Counts of VBM and drop box voters by race and election

402   Table 13 in the body of the report displays for the 2020 PPP, the 2020 Primary, and the 2020 General the rates, in percentage terms, at which Black, Hispanic, White, and Other race VBM voters cast ballots via drop box. Counts of Black, Hispanic, White, and Other race VBM voters and counts of drop box voters are in Table 52.

J   Age and drop box use

403   For Columbia, Lake, Santa Rosa, and Sarasota Counties, and across the 2020 PPP, the 2020 Primary, and the 2020 General Election, Figure 13 shows the relationship between VBM voter age (from 18 to 100) and drop box use. Figure 6 in the body of the paper shows the bottom-right plot, for Sarasota County in the 2020 General Election.

Figure 13: Age and drop box use in Columbia, Lake, Santa Rosa, and Sarasota Counties, 2020 elections
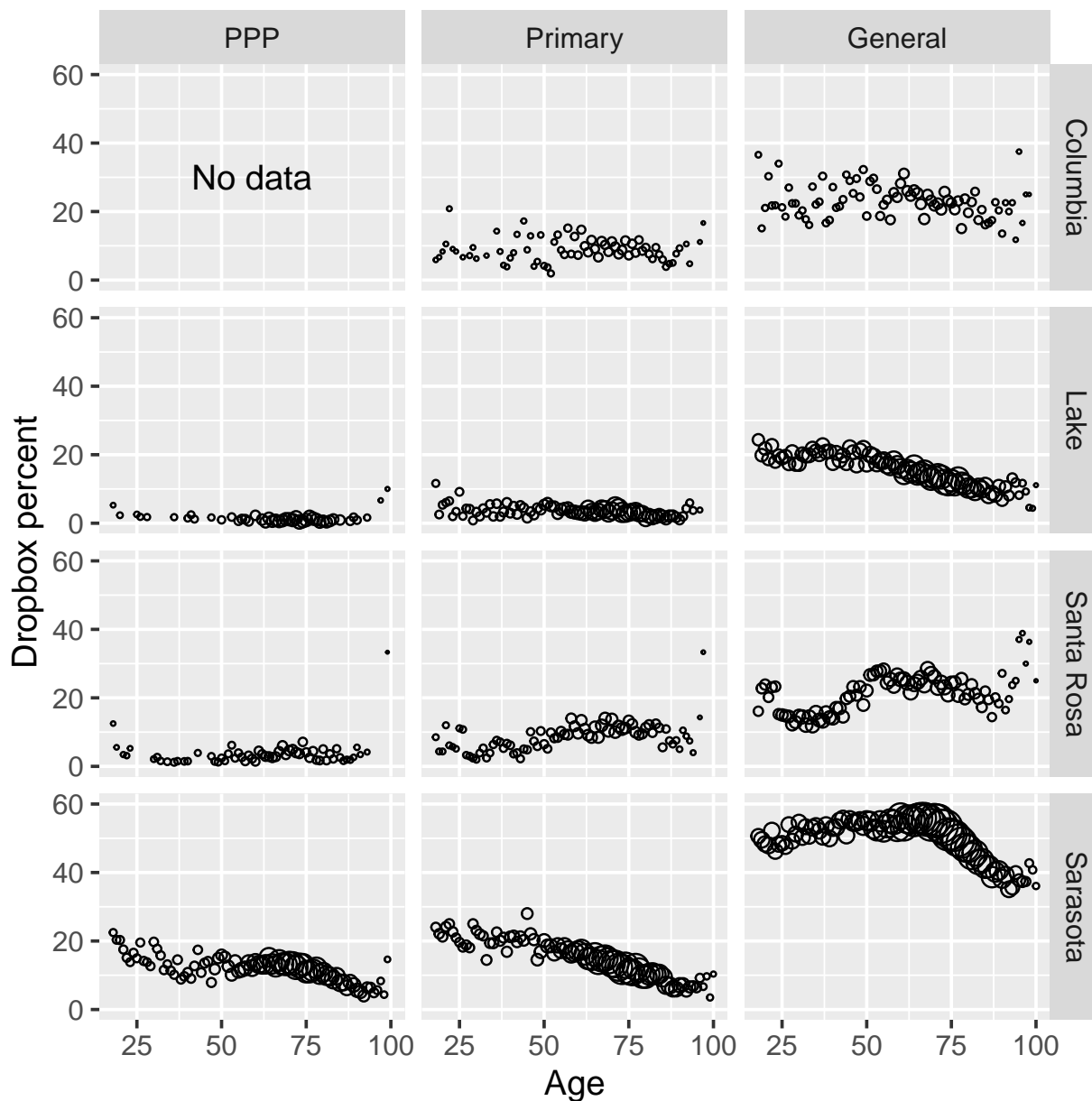
Note: each point is sized proportionally to the number of VBM voters of a corresponding age. Does not show ages greater than 100.

K   Complete regression table for models of voting assistance

404   Section 10 describes the results of a series of nine logit regressions that model the independent variables predicting whether a registered voter in Florida needs voting assistance.

There are nine regressions in the section, one per Florida election recap report. These reports cover statewide elections in Florida from 2014, 2016, 2018, and 2020.

405   The results of the nine regressions are practically identical, and for the sake of brevity Table 26 in the body of the report includes results only from the three regressions that are based on election recap reports associated with the 2020 PPP, the 2020 Primary, and the 2020 General.

406   Here, Table 53 reports all nine sets of voting assistance regression results, six sets of results that were not reported in the body of the report and, to facilitate comparisons across models, the three sets of results reported already in Table 26.

407   As stated in the body of the report, coefficient estimates across the logit models in Table 53 are qualitatively identical, in some cases quantitatively identical to the nearest hundredth.

Table 52: Race and drop box use in Columbia, Lake, Santa Rosa, and Sarasota Counties, 2020 elections

Race	VBM voters				Drop box voters				Drop box percent			
	Columbia	Lake	Santa Rosa	Sarasota	Columbia	Lake	Santa Rosa	Sarasota	Columbia	Lake	Santa Rosa	Sarasota
PPP												
Black		988	234	991		11	3	233		1.11	1.28	23.51
Hispanic		716	137	920		1	2	166		0.14	1.46	18.04
White		11,576	6,353	47,396		95	194	5,394		0.82	3.05	11.38
Other		505	336	2,542		3	8	384		0.59	2.38	15.11
Primary												
Black	829	2,727	636	1,759	79	121	53	424	9.53	4.44	8.33	24.10
Hispanic	111	1,993	217	1,698	7	49	20	279	6.31	2.46	9.22	16.43
White	4,136	24,491	10,673	66,951	366	806	1,042	8,780	8.85	3.29	9.76	13.11
Other	156	1,472	549	4,269	14	50	37	760	8.97	3.40	6.74	17.80
General												
Black	1,547	5,924	1,724	3,388	319	1,020	358	2,083	20.62	17.22	20.77	61.48
Hispanic	290	6,134	858	4,065	46	1,060	150	2,168	15.86	17.28	17.48	53.33
White	7,525	53,216	25,990	123,986	1,806	7,674	5,492	63,133	24.00	14.42	21.13	50.92
Other	432	4,696	2,202	10,070	89	792	397	5,087	20.60	16.87	18.03	50.52

Table 53: Logit analysis of need for voting assistance

	2014		2016		2018		2020		
	Primary	General	Primary	General	Primary	General	PPP	Primary	General
Race: Black	1.62***	1.64***	1.61***	1.60***	1.58***	1.57***	1.56***	1.56***	1.56***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)
Race: Hispanic	1.37***	1.36***	1.32***	1.31***	1.29***	1.27***	1.25***	1.25***	1.24***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Race: Other race	1.11***	1.12***	1.08***	1.04***	1.04***	1.02***	0.99***	0.98***	0.96***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
Party: Republican	-0.29***	-0.30***	-0.30***	-0.29***	-0.30***	-0.30***	-0.27***	-0.26***	-0.22***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Party: No party affiliation	-0.11***	-0.11***	-0.12***	-0.13***	-0.14***	-0.14***	-0.12***	-0.12***	-0.12***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Party: Other party	-0.32***	-0.33***	-0.34***	-0.36***	-0.29***	-0.27***	-0.23***	-0.22***	-0.21***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.04)	(0.04)	(0.04)	(0.03)
Male	-0.16***	-0.15***	-0.15***	-0.16***	-0.16***	-0.16***	-0.15***	-0.15***	-0.15***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Unknown gender	-0.71***	-0.62***	-0.61***	-0.62***	-0.55***	-0.57***	-0.58***	-0.57***	-0.58***
	(0.06)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Age	-0.05***	-0.06***	-0.06***	-0.05***	-0.05***	-0.05***	-0.05***	-0.05***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Age-squared	0.74***	0.76***	0.75***	0.70***	0.71***	0.71***	0.70***	0.68***	0.67***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
Observations	12,749,759	11,887,564	12,320,734	13,852,576	13,690,289	14,103,534	14,478,387	14,717,750	15,220,391

Note: county fixed effects not shown; standard errors clustered by county; $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Page xxxvii of xliv

L   Source information on post-SB 90 drop box reductions

408   Table 24 in the body of the report describes drop box use in the 2020 General Election as well as anticipated reductions in drop box availability due to SB 90.

409   The Public Integrity & Elections Commissions of the Florida House of Representatives conducted a survey of county supervisors of elections in the aftermath of the 2020 General Election. This survey asked elections officials about recent drop box use, among other things how many drop boxes the county had employed and how they were monitored. For the purposes of this litigation, the citation for this survey is FLSB90P_League_Plfs_0000001 - FLSB90P_League_Plfs_0000397.

410   In addition, during discovery, Plaintiffs' Counsel asked county officials about drop box usage. And, Plaintiffs' Counsel served interrogatories on county officials, inquiring as to their plans for drop boxes in future elections.

411   Regarding drop box usage, when discovery and the survey conducted by the Public Integrity & Elections Commissions conflicted, Table 24 contains information from the latter. And, Table wegweg in this appendix lists the sources for the interrogatory responses that were used to summarize plans made by county officials for future elections.

M   Characterizing voters who registered with third party voter registration organizations

412   The June 2021 Florida voter file described in Appendix B includes records of all registered voters in Florida as of June 2021. The voter file does not, however, include details as to how each such individual registered to vote. For information on the individuals whose registrations were facilitated by third-party voter registration organizations (3PVROs), Plaintiffs'

Table 54: Source for anticipated drop box plans

County	RogSource
Alachua	Interrogatory3
Baker	Interrogatory3
Bradford	Interrogatory3
Calhoun	Interrogatory3
Clay	Interrogatory3
Gadsden	Interrogatory3
Glades	Interrogatory4
Hernando	Interrogatory3
Hillsborough	Affidavit No. 34
Indian River	Interrogatory4
Lafayette	Interrogatory3
Lake	Interrogatory3
Lee	Interrogatory3
Levy	Interrogatory4
Liberty	Interrogatory3
Marion	Interrogatory3
Miami-Dade	Interrogatory3
Palm Beach	Interrogatory3
Pinellas	Affidavit RFP No. 34-35 and Interrogatories 3/4
Putnam	Interrogatory3
St. Johns	Interrogatory3
St. Lucie	Interrogatory3
Union	Interrogatory3

Counsel served an interrogatory on the 67 Florida Supervisors of Elections. The text of the interrogatory was: "Please identify the Voter ID number of each voter who registered to vote in your county using a Third-Party Voter Registration Organization.."[118]

413   To the best of my understanding, the following counties produced responses to what I henceforth refer to as the 3PVRO interrogatory.

414   Alachua, Charlotte, Duval, Escambia, Gulf, Miami-Dade, and Pasco Counties produced Excel spreadsheets that included, in some cases among other things, the voter identification numbers of individuals in said counties who registered via 3PVROs. I did not manipulate these

---

[118]See p. 13 of "PLAINTIFFS' FIRST SET OF INTERROGATORIES TO SUPERVISOR OF ELECTIONS DEFENDANTS."

spreadsheets.[119] Flagler, Hernando, Highlands, Indian River, Lake, Leon, Marion, and Monroe Counties produced PDF files that listed the identification numbers of voters in the counties who registered via 3PVROs; I converted these PDF files to text so that the voter identification numbers in them were machine-readable. Hamilton County produced a file that reports 21 3PVRO registrations; the file is a scan of a document, and I entered the 21 Florida voter identification number in it by hand. Finally, Brevard, Pinellas, and Seminole County produced text files containing voter identification numbers of 3PVRO registrants. I did not manipulate these files.

415   Table 55 lists the filenames produced by the aforementioned counties in response to the 3PVRO interrogatory.

Table 55: Produced responses to 3PVRO interrogatory

County	File name
Alachua	Voter List 3rd Pary 2012-2021.xlsx
Brevard	Brevard Interrogatory 8 _ Third Party Voter ID_s.csv
Charlotte	CONFIDENTIAL - Interrogatory No. 8.xls
Duval	3rd_Party_Registration_2018_2020.xlsx
Escambia	Escambia - List Responsive to Interrogatory #8.xls
Flagler	CONFIDENTIAL Registration by 3PVRO since 01-01-2012.pdf
Gulf	CONFIDENTIAL 3PVRO.xlsx
Hamilton	2021 07-30 Hamilton's Answers to IROGs.pdf
Hernando	Exhibit B.pdf
Highlands	CONFIDENTIAL 3PROSource Voters.pdf
Indian River	CONFIDENTIAL - Interrogatory No. 8.pdf
Lake	CONFIDENTIAL - Interrogatory No. 8.pdf
Lee	CONFIDENTIAL - Interrogatory No. 8.csv
Leon	Pages from 2021-07-29 Leon County_LOWV ROG Response (with Exhibits).pdf
Marion	CONFIDENTIAL - LoWV_Int_08.pdf
Miami-Dade	MDC Voters with 3rd Party Reg (2018 to Present).xlsx
Monroe	CONFIDENTIAL - Interrogatory No. 8.pdf
Pasco	CONFIDENTIAL - Request No. 8.xlsx
Pinellas	3PVR_2012toCurrent.csv
Seminole	CONFIDENTIAL - Interrogatory No. 8.txt

Note: counties listed alphabetically.

---

[119]The Escambia County spreadsheet had empty rows. I ignored these rows, which did not contain voter identification numbers.

416 After I processed the files in Table 55 to the extent that this was necessary, I merged the voter identification numbers in the files with records in the June 2021 Florida statewide voter file. See Appendix B for a discussion of this file. The merge was based on both voter identification numbers and county. Accordingly, a registered voter appearing on the, say, Hernando County 3PVRO list could only be merged to a Hernando County record in the June 2021 voter file. If the Hernando County 3PVRO registrant had moved to another county in Florida a year after registering to vote with the assistance of a 3PVRO, this person could not be matched to a voter file record.

417 When I merged 3PVRO lists with the June 2021 voter file, I dropped the small number of records in the latter not associated with unique voter identification numbers. Table 56 reports the number of records in each file ("3PVRO voters"), the number of records that I was able to match with registered voters in the June 2021 voter file, and the match percent. Counties in the table are sorted by number of 3PVRO voters.

418 That some 3PVRO voter identification numbers could not be matched with the June 2021 voter file is not surprising. The counties that responded to the 3PVRO interrogatory did so in late July 2021, roughly five to six weeks after the June 2021 voter file was created. Any Florida voter who registered with a 3PVRO between the effective date (June 15) of the June 2021 voter file and the date that the voter's county produced a list of 3PVRO registrations will not be in the voter file.

419 Moreover, individuals who registered to vote with the assistance of a 3PVRO and who are geographically mobile are disproportionately likely not to be merged with voter records in the June 2021 voter file. This is because my merge requires an individual to reside in the county in which he or she registered vote via a 3PVRO. Thus, the merge that I conducted between county 3PVRO lists and the June 2021 voter file can be said to select against geographically mobile registered voters.

Table 56: Merge rates between lists of 3PVRO voters and June 2021 voter file

County	3PVRO voters	Merged records	Percent
Leon	67,613	39,797	58.9
Miami-Dade	51,253	34,289	66.9
Duval	26,759	15,573	58.2
Brevard	12,400	8,295	66.9
Lee	9,900	5,958	60.2
Seminole	9,296	9,263	99.6
Escambia	7,817	7,800	99.8
Alachua	5,343	5,333	99.8
Pinellas	4,384	4,379	99.9
Pasco	2,335	2,329	99.7
Marion	1,974	1,965	99.5
Indian River	887	885	99.8
Highlands	487	487	100.0
Flagler	441	425	96.4
Hernando	262	262	100.0
Lake	251	231	92.0
Charlotte	240	240	100.0
Monroe	121	120	99.2
Gulf	76	54	71.1
Hamilton	21	21	100.0

420   Table 57 describes rates of geographical mobility by race, drawing from the 2019-2020

one-year migration tables that are part of the 2020 Current Population Survey Annual Social and

Economic Supplement. The Current Population Survey is a product of the United States Census

Bureau.[120] The table presents mobility rates for persons (age 16 and older) and members of

households (age 15 or older). I include mobility rates from both of these groups of individuals to

ensure that any conclusions I draw from Table 57 are not idiosyncratic to one of them.

---

[120]For details on the survey, see "Census Bureau Releases 2020 CPS ASEC Geographic Mobility Data," *United States Census Bureau*, December 15, 2021, available at `https://www.census.gov/newsroom/press-SB90releases/2020/cps-SB90asec-SB90geographic-SB90mobility.html` (last accessed August 13, 2021). The Survey's Geographical mobility tables were downloaded from `https://www.census.gov/data/tables/2020/demo/geographic-SB90mobility/cps-SB902020.html` (last accessed August 13, 2020). Used here are Table 2 ("General Mobility of Persons 16 Years and Over, by Labor Force Status, Sex, Age, Race and Hispanic Origin, and Region: 2019 to 2020") and Table 9 ("General Mobility of Householders, by Household Income in 2019, Sex, Age, Race and Hispanic Origin, Region, and Tenure: 2019 to 2020"). The race categories in Table 57 correspond the Census Bureau's racial categories of ".Black or African American alone," ".Hispanic or Latino," and "White alone."

Table 57: 2019-20 geographical mobility by race

Race	Mobility, persons	Mobility, householders
Black	9.79	10.3
Hispanic	10.3	10.5
White	8.87	8.70
All	9.06	9.10

421   Table 57 shows that geographical mobility varies by race. In particular, White individuals move less frequently than Blacks and Hispanics.

422   The geographical mobility tables in the 2020 Current Population Survey Annual Social and Economic Supplement are not broken down by state. However, the Survey contains separate tables for four regions of the United States. These regions are labeled by the Census Bureau as Midwest, Northeast, South, and West.[121] Florida is in the South.[122] I calculated geographical mobility rates for these regions, finding rates of 9.21, 7.17, 9.91, and 9.74 for the Midwest, Northeast, South, and West, respectively. Thus, Florida is in the Census Bureau region (South) of the United States with the greatest geographical mobility. This suggests that the rates in Table 57 are conservative when applied to Florida.

423   In addition, Table 57's Black-White and Hispanic-White differences in geographical mobility rates are conservative because of the way that the Census Bureau groups individuals by race. The White label in this table refers to individuals whom the Census classifies as "White alone." Some of these individuals may be Hispanic. The Census also reports geographical mobility rates for individuals who are "White alone, not Hispanic or Latino," and these rates are slightly lower than the "White alone" rates shown in Table 57.[123] To the extent that the Census Bureau's label of "White alone, not Hispanic or Latino" corresponds to the Florida Department of

---

[121]Table numbers are 1-12, 1-11, 1-13, and 1-14 for the Midwest, Northeast, South, and West, respectively.

[122]See "Census Regions and Divisions of the United States," *United States Census Bureau*, available at https://www2.census.gov/geo/pdfs/maps-SB90data/maps/reference/us_regdiv.pdf (last accessed August 13, 2021).

[123]The two "White alone" rates in Table 57 are 8.87 and 8.70. Corresponding rates for "White alone, not Hispanic or Latino" individiuals are 8.55 and 8.40, respectively.

State's category of "White," the differences in Table 57 between White and Black geographical mobility rates and between White and Hispanic mobility rates understate corresponding differences between White and Black registered voters and between White and Hispanic registered voters in Florida.