

Open camera or QR reader and
scan code to access this article
and other resources online.



Vote at Any Polling Place: A Case Study of St. Louis County, Missouri

Anita Manion, David Kimball, Joseph Anthony, Adriano Udani, and Ryan Pritchard

ABSTRACT

In 2020, St. Louis County, Missouri, instituted a new procedure allowing Election Day voters to cast their ballot at any of the county's polling places (similar to vote centers in other states). This change was accelerated by the COVID-19 pandemic, during which private venues withdrew from polling place commitments. The system adopted by St. Louis County is new among states that do not allow early or mail voting. We rely on interviews with key election staff and data on election administration and voting behavior to document the implementation of the new voting procedures, as well as administrative and voting outcomes. We use a systems framework to examine this case of local election administration. The new voting process required new voting technology, but also changes in polling place siting and staffing, poll book procedures, as well as other technological and personnel adjustments. All of these changes had to be managed seamlessly for the new system to succeed. We observe several positive outcomes in St. Louis County, and few problems. For example, St. Louis County experienced a massive decline in rejected absentee and provisional ballots in the 2020 election, developments not matched by any other Missouri jurisdiction. This case illustrates the interdependent nature of many features of election administration and one of the many successes of election administration in 2020.

Keywords: election administration, vote centers, US elections, ballot on demand

INTRODUCTION

Anita Manion is an Assistant Professor in the Department of Political Science, University of Missouri-St. Louis, St. Louis, Missouri, USA. David Kimball is a Professor and the Chair of the Department of Political Science, University of Missouri-St. Louis, St. Louis, Missouri, USA. Joseph Anthony is an Assistant Professor of Political Science at the State University of New York College at Cortland, Cortland, New York, USA. Adriano Udani is an Associate Professor and Director of Public Policy Administration, Department of Political Science, University of Missouri-St. Louis, St. Louis, Missouri, USA. Ryan Pritchard is a student in the Department of Political Science, University of Missouri-St. Louis, St. Louis, Missouri, USA.

IN THE SUMMER OF 2020, after most private locations backed out of commitments to serve as polling places, election officials in St. Louis County, Missouri, changed their Election Day operations from a traditional polling place model to a vote center approach, allowing voters to cast their ballots at any one of a set of voting locations. St. Louis County was the only local jurisdiction to implement vote centers in Missouri, a state that did not allow early voting or no-excuse absentee voting at the time. The implementation of vote centers in St. Louis County was the centerpiece of the county's

reforms in 2020: it dramatically reduced the number of polling places and required changes in technology, logistics, staffing and poll worker training. While the county made other adaptations in response to the COVID-19 pandemic, most of those changes flowed from the initial decision to shift to vote centers. We examine this case of local election innovation to illustrate the interdependent nature of election administration.

The adoption of vote centers in St. Louis County is part of a long-term movement away from Election Day voting and toward the consolidation of polling places in the United States. Most states have adopted convenience reforms that allow voting before Election Day, and each year more voters are using those early voting options. Furthermore, budgetary and political demands can reduce the funds available for election administration (Mohr et al. 2019; 2020). These pressures were accelerated by COVID-19. In 160 large jurisdictions with more than 250,000 registered voters, the number of Election Day polling places declined from 43,946 in the 2016 election to 28,206 in 2020.¹ For the first time ever, more than half of the voters in the 2020 election cast their ballots before Election Day (Persily and Stewart 2021).

Since St. Louis County is the only jurisdiction in Missouri to adopt vote centers, we compare the county to other jurisdictions in the state on several outcome measures from the 2020 election. The success of a major election reform depends heavily on local implementation. We consider St. Louis County's implementation of vote centers through the lens of a systems framework. Given the numerous and interconnected changes in technology, operations, and staffing needed to shift to vote centers, the transition can go awry. Implementation is crucial, as there are examples of successful vote center adoption and examples of vote center failures (Montjoy 2008).

In this study we use interviews with the directors and staff at the Board of Elections as well as archival materials and data from the Election Administration and Voting Surveys to gain insight into the impact of vote centers on the costs of election administration, voter turnout, provisional ballots, and absentee ballots in St. Louis County. We observe reduced costs for some critical areas of election administration, and we find a sharp reduction in provisional ballots and rejected absentee ballots that stand out from other Missouri jurisdictions in

2020. Our case study of St. Louis County's implementation of vote centers contributes to the scholarly literature on vote centers and systems framework in the election ecosystem. It also provides important insight for the increasing number of jurisdictions considering vote centers.

This article is organized as follows. First, we provide background information to explain why we examined St. Louis County, Missouri, for this case study, followed by an overview of the relevant literature that motivates our study and our theoretical framework. Next, we lay out our hypotheses and then describe the methods used in our analysis. Finally, we present the results of our analysis, followed by a discussion of the implications of this study.

ST. LOUIS COUNTY AS A CASE STUDY

St. Louis County is a suburban jurisdiction covering a little over 500 square miles immediately west of St. Louis City (which is a separate county). Approximately one million people live in St. Louis County, more than twice as many residents as the next largest county in Missouri. With over 750,000 registered voters, St. Louis County is among the 50 largest local election jurisdictions in the nation. White residents comprise the majority of the population (65.2%). A quarter of the population are Black or African American, 5 percent are Asian or Asian American, and 4 percent are Latino/a. As a large county serving a diverse and mobile electorate, St. Louis County election officials face a number of challenges.

The St. Louis metropolitan area is one of the most fragmented in the country (Jones 2004). For example, St. Louis County encompasses 88 municipalities (plus substantial unincorporated areas), 23 school districts, 24 fire districts, and 10 library districts. Municipalities in the county range in population from 51,000 residents in Florissant to 81 residents in Country Life Acres. St. Louis County also features stark racial and economic inequalities. For example, in 2019, the median household income

¹These data come from the Election Administration and Voting Surveys (EAVS). Jurisdictions in Iowa, Kansas, and Washington are excluded from this comparison because they did not provide data on polling places in 2016 or 2020. These data come from the Election Administration and Voting Surveys (U.S. EAC 2021; 2017).

and median property value in Huntleigh, MO was \$180,000 and \$2.1 million, respectively. Of its 525 residents, 91% are White. In contrast, the 2019 median household income and median property value in Pagedale, MO was \$26,972 and \$53,600, respectively. Over 3,000 residents live in Pagedale; 91% of its population is Black or African American.

In 2014, Ferguson (a municipality in St. Louis County) made national news in the wake of the police shooting of Mike Brown and the social movements across the nation that ensued following weeks of protests after the police officer was acquitted. Ferguson's municipal government also made national headlines after the U.S. Department of Justice initiated a federal investigation of corruption. As Grigsby et al. (2020) note: "Some of the most egregious practices gained national attention after Michael Brown's death in Ferguson in 2014, which shone a light on the financial practices of cash-starved small municipalities that turned to ticketing and warrants to pad flagging municipal budgets."

As a response, a citizen commission created the Ferguson Report to set a strategic plan for systemic change. The commission made clear that the Ferguson Report (Ferguson Commission 2015) was not a list of policy recommendations nor an implementation plan but rather a path toward uncovering, discussing, and addressing underlying structural racism. Nevertheless, election reforms are noticeably and curiously absent in the list of calls to action for racial equity in the report. The large and diverse number of local governments also presents a challenge for election administrators.

As in the rest of the country, the COVID-19 pandemic drastically altered the everyday lives of St. Louis County residents, disproportionately affecting Black residents, the elderly, low-income households, and immunocompromised groups. With the incivility and bitterness surrounding the high social and political stakes of the 2020 presidential election, many worried about how COVID-19 would impact voter turnout, particularly among socially vulnerable groups. St. Louis County not only administered a presidential primary election in March 2020, but also held three subsequent countywide elections in June,² August, and November.

While Vote Anywhere is informed by evidence from other states and is similar to vote centers in other local jurisdictions, the St. Louis County case is unique in some ways. Other states with vote centers have passed laws to mandate them or allow

local jurisdictions to adopt them. Missouri law says nothing about vote centers, but St. Louis County determined that state law also does not prohibit vote centers (Revised Statutes of Missouri 2003, section 115.115).³ In addition, other states that have adopted vote centers have simultaneously introduced other convenience measures, particularly early in-person voting or no-excuse voting by mail (or both). Missouri did not have those other convenience options in 2020.⁴ St. Louis County was the only jurisdiction in Missouri to implement Vote Anywhere, and did so largely on its own, without new guidance from the state legislature. For all of these reasons, St. Louis County presents a unique opportunity to study the implementation of vote centers.

REVIEW OF THE LITERATURE ON VOTE CENTERS

Research on vote centers has examined their impact on election costs, voter participation, how people vote, and voter satisfaction. Some studies document a reduction in election costs, since fewer polling places and poll workers are needed for vote centers. For example, one study found that the switch to vote centers for municipal elections reduced total election administration costs by 17% in inflation-adjusted dollars in one southern city, primarily by lowering poll worker pay (Folz 2014). Other studies find that vote centers reduce election administration costs, particularly for labor and printing ballots (Scheele et al. 2009; Stein 2016). Election cost reductions are a consistent finding in studies on vote centers. Thus, we expect that St. Louis County will experience a reduction in costs with the implementation of vote centers.

The results are mixed in studies examining the impact of vote centers on voter turnout. Some research finds that the added convenience of voter centers increases turnout. Two studies by Stein

²Municipal elections in Missouri are normally held in April, but in 2020 those elections were moved to June under an emergency order from Governor Parson.

³Missouri law requires all registered voters to be assigned to a polling place, but it does not require people to vote at their assigned polling place (Revised Statutes of Missouri 2003, section 115.115).

⁴Missouri law was temporarily amended in 2020 to allow COVID as an excuse for absentee voting.

and Vonnahme focusing on jurisdictions in Colorado and Texas find that vote centers increase turnout, particularly among infrequent voters (Stein and Vonnahme 2008; 2012a).

Research in California associates vote centers with a modest increase in voter turnout (McGhee et al. 2019; Bryant 2019). Cortina and Rottinghaus (2019) also find a modest turnout increase in vote centers, but only in low turnout, off-cycle elections. However, rural and Latino voters saw travel distances increase in order to vote at vote centers (Cortina and Rottinghaus 2021). A study in California also finds that voters at vote centers traveled further to cast their ballots than voters at traditional polling places (Romero et al. 2019). Other studies, examining Indiana counties and a southern municipal election, find no effect of vote centers on voter turnout (Folz 2014; Scheele et al. 2009). Overall, the impact of vote centers on turnout seems to be modest at best. To this end, we do not expect a significant impact on voter turnout with St. Louis County's implementation of vote centers.

There is evidence that vote centers have an impact on some administrative outcomes involving how people vote. One impact of vote centers that we examine here involves a significant reduction in provisional ballots. One of the most common reasons for casting a provisional ballot is that a voter came to the wrong polling place. With vote centers, voters no longer need to appear at the correct polling place. As a result, the number of provisional ballots cast and rejected declined substantially after the adoption of vote centers (Scheele et al. 2009; Stein 2016; Romero, Meier, and Pavia 2022). Thus, we expect that fewer provisional ballots will be cast and fewer provisional ballots will be rejected in St. Louis County as compared to Missouri counties in the 2020 election.

States that have adopted Election Day vote centers have also expanded other voting options, such as in person early voting and absentee voting, partly to reduce pressure on a smaller number of Election Day voting locations. Thus, the adoption of vote centers is associated with significant increases in early voting (Scheele et al. 2009), absentee voting (Stein 2016; Bryant 2019) or both (Romero, Meier, and Pavia 2022). Thus, we expect St. Louis County will produce a higher number of absentee ballots as compared to other Missouri counties in the 2020 election.

Other studies examine the voting experience as well as voter awareness and satisfaction with vote

centers. Here the findings are somewhat mixed as well. Some find that vote centers produce higher levels of voter confidence and satisfaction with the voting experience than precinct-based polling places (e.g., Stein and Vonnahme 2012b; Folz 2014; Scheele et al. 2009). One large-scale study finds shorter voting lines and more positive evaluations of the polling place experience in states with more open opportunities for voters to cast their ballots, including vote centers (Stein and Vonnahme 2014). In Harris County, Texas, however, vote center voters reported a less positive experience, including longer lines and less helpful poll workers (Chen et al. 2021). Research in California finds that voters of color were less likely to be aware of new voting procedures (Romero and Chami 2022). Overall, the mixed results indicate that local implementation of vote centers is critical in producing positive results.

A SYSTEMS FRAMEWORK FOR ELECTION ADMINISTRATION

To put this case study in context, we use a systems framework that examines election administration processes as an array of interdependent functions and actors; if you change one part of the system then administrators must prepare for ripple effects in other parts of the system (Hale et al. 2015; Montjoy 2019). The network of functions and actors that comprise election administration is often called an "ecosystem" (Huefner, Tokaji and Foley 2007; Alvarez, Atkeson, and Hall 2013). Because a shift in one part of the ecosystem can impact all the other parts, electoral reforms must be made with the entire ecosystem in mind. In this article, we examine the actors engaged in the Vote Anywhere processes in St. Louis County, and we consider the Vote Anywhere function to be a broad subsystem of St. Louis County election administration.

Administering an election involves a complex interaction of people, processes and technology (Moynihan 2004; Montjoy 2008). Perrow (1999) argues that a fundamental problem of complex systems is that they are prone to errors, or "normal accidents." Furthermore, errors can occur in unexpected ways and interact with other features of the system to produce a cascading set of problems. Hale et al. (2015: 1) characterize election administration systems as the "public institutions responsible for the conduct of elections" and propose that

these systems are made up of both actors, i.e. the people engaged in the elections ecosystem, as well as a variety of “subsystems,” which are described as the functions and processes contained within election administration, such as voter registration (2015, 1, 18). Finally, Hale et al. (2015) describe a third component in the analysis of election administration, and that is how they interact with the public and external environment.

In the electoral ecosystem, the implementation of even a small change in election administration can involve a variety of people and agencies, including state and local officials, state and federal judges, third-party vendors, and poll workers (Montjoy 2019). In 2016, the Forsyth County Board of Elections, in Winston-Salem, North Carolina, implemented a wait time app that allowed election administrators to track wait times at polling places and to see which polling places were most utilized by early voters (Tsujii 2019). The adoption of the app affected many components of election administration in Winston-Salem, including poll worker and staff training. Even providing the language assistance that is required under the Voting Rights Act is an interconnected process involving many internal and external constituents (LaVine and Jarboe 2019). As such, election administration is “detailed, complex and full of interlocking pieces” (Hawkins 2019, 106).

Research assessing the capacity of public organizations is limited in the subfield of election administration. Martha Kropf and colleagues (2020) find that “high-quality management” of local election offices can reduce problems, including the number of residual votes. Kathleen Hale and Christa Daryl Slaton define capacity as “... the ability of an organization to conduct its work” (Hale and Slaton 2008). Hale and Slaton argue that three broad areas are important to strong organizational capacity in local election offices: networked environments (and systems), levels of professionalization (including effective leadership), and proactive community collaboration (2008).

The St. Louis County Board of Elections had organizational strengths in each of these areas, which we discuss later in this section. While the Hale study examines the external networks of local election officials, for example their professional associations, we think about the networks involved internally at the St. Louis County Board of Elections (BOE) through the multiple subsystems working in coordi-

nation with one another. The St. Louis County BOE also had seasoned and effective high-level staff leading their efforts, and they developed intentional collaboration efforts with groups in the broader elections community, particularly technology vendors. Additionally, the BOE had substantial community outreach efforts to inform voters of the new system.

Coordinating simultaneous changes in many parts of a reliable election ecosystem requires careful planning and management, particularly in a jurisdiction as large as St. Louis County. As Montjoy (2008) notes, sometimes the transition to vote centers is relatively smooth, as in Larimer County, Colorado, in 2003, and sometimes it is very bumpy, as in Denver, Colorado, in 2006. To operate effectively in a complex environment, reliable organizations share many traits.

First, administrators must be aware of the interdependent nature of the election ecosystem. The technology must be able to sustain high performance for extended periods (Moynihan 2004). Managers must coordinate simultaneous changes in staffing and processes (Montjoy 2008). Administrators need to anticipate errors and build redundancy into their operations (Frederickson and LaPorte 2002). Officials also need to instill a culture of discovering, reporting, and correcting mistakes, and they need procedures to do this in real time (Frederickson and LaPorte 2002). There must be regular testing, and staff and poll workers need to be trained to carry out the new operations and to understand their roles in the complex election ecosystem (Frederickson and LaPorte 2002). Finally, election officials need to communicate the new voting procedures to the public, so that voters follow the rules and cast their ballots properly (Montjoy 2008). We observe all of these features in the implementation of the Vote Anywhere policy in St. Louis County.

As a response to the pressures of the COVID-19 pandemic, the St. Louis County Board of Elections enacted a significant innovation called “Vote Anywhere,” which allows county voters to cast their ballots at any polling place, a practice very much like “vote centers” in other states.⁵ Prior to 2020, voters were required to cast their ballot at an assigned polling location. The new policy was the

⁵We use the terms “vote centers” and “Vote Anywhere” as synonyms for the system adopted by St. Louis County.

county's response to a drastic reduction in the number of polling places in 2020, as private locations (particularly churches, nursing homes, and private schools) backed out of polling place obligations once the pandemic hit (St. Louis County Board of Elections 2021).⁶

The county also anticipated many poll workers would be unwilling to serve during the pandemic. For the March 2020 presidential primary, roughly 170 poll workers quit the day before or the morning of the election (St. Louis County Board of Election Commissioners March 24, 2020). Providing voters more options was aimed at limiting large gatherings that would spread COVID-19 infections. Thus, Vote Anywhere helped to keep voters and election workers safe during the 2020 election cycle.

Other than attenuating the negative impact of COVID-19 on voting, the BOE had other reasons to consider a new process to allow voters to cast their ballots at any polling place. Vote Anywhere addressed missteps in previous elections: a few polling places provided incorrect ballots to voters in the 2014 primary election, and some polling places ran out of ballots in the 2016 municipal elections (Bilchik 2020). Local officials were determined to never repeat those mistakes.

As suggested by a systems framework, when St. Louis County decided to make a change to vote centers, it was important to coordinate all elements of the election ecosystem. An "awareness of interdependencies" is one characteristic of highly reliable organizations (Moynihan 2004). Our first interview with local officials provided evidence of this coordinated approach. When we asked to interview the two directors about their implementation of vote centers, they also brought along the deputy directors and assistant directors, people who oversee absentee voting, poll worker recruitment and training, logistics, operations, technology, and voter education. This suggests that the directors recognized that the transition to vote centers was a significant management task that affected all areas of election administration.

Reliable technology is one crucial element of the administrative ecosystem. In 2016, the county purchased a set of networked electronic poll books. BOE staff needed to change the programming to allow a voter to check in at any polling place. They also needed to conduct tests to make sure the network would manage a large volume of voter check-ins in real time, which is needed to ensure the

same person does not vote at multiple vote centers in one election. At the check-in, the e-poll book must also connect each registered voter to her assigned precinct and print a ticket indicating which ballot style the voter should receive.

On Election Day, BOE staff also used e-poll books to track polling place openings and poll worker check-ins. This is an example of a system that "provides credible operational information on a timely basis" (Frederickson and LaPorte 2002). All of these functions were tested in advance of the election to make sure they worked simultaneously (Beau Coker, interview June 16, 2022). Thus, e-poll books satisfied one technological need for the implementation of vote centers.

The second important piece of technology was new Hart InterCivic ballot-on-demand voting equipment, purchased in 2019. St. Louis County took advantage of a provision in the Help America Vote Act (HAVA) to charge local governments for the use of county voting equipment in local elections. The numerous local governments in St. Louis County, noted above, allowed the county to amass \$4 million in the fund over a four-year period (Bilchik 2020), which covered a majority of the cost of the new voting equipment.⁷ Furthermore, the new voting equipment needed to communicate with e-poll books to print the correct ballot for any voter, based on the voter's assigned precinct.

Here we see an example of "error discovery, reporting, and improvement" (Frederickson and LaPorte 2002). In the March 2020 presidential preference primary, the e-poll books had difficulty syncing with polling place printers during the busy early morning rush—the system had trouble handling the large amount of data coming in simultaneously (St. Louis County Board of Election Commissioners March 24, 2020). That problem was corrected for subsequent elections (Beau Coker, interview June 16, 2022). Thus, the new voting equipment made it technologically possible to allow voters to cast a ballot at any polling location.

A third example of new technology is a line tracker app that BOE staff conceived and developed

⁶By law, public venues are required to be available as polling places in Missouri. In addition, private venues can charge the local jurisdiction a "rental fee" for their use as polling places (Revised Statutes of Missouri 1997, section 115.117).

⁷The county also financed a portion of the voting equipment purchase.

for the November 2020 election (Fey 2022). The app shows the length of voting lines at each polling place and is updated every 30 minutes by poll workers at each location. The app allows voters to check the wait times at different locations and visit a polling place with a shorter line. The app also includes a photograph of each polling place, to help voters find locations they have not used before.

We see further evidence of error discovery and reporting, as BOE staff also use the app to track voting lines at each polling place and shift additional poll workers and supplies to locations with heavier voter traffic. The line app was rolled out on a pilot basis for the satellite absentee voting locations before Election Day. In the November 2020 election, the longest lines were observed in the 6am to 10am period, with lines tapering until polls closed at 7pm. It appears that the line app was widely used. The app was viewed 365,887 times during voting hours on Election Day (St. Louis County Board of Elections 2021). While the same person could have viewed the app multiple times, there were just over 300,000 Election Day voters in 2020.

St. Louis County is the only Missouri jurisdiction to use Election Day vote centers. According to Democratic Director of Elections, Eric Fey (personal communication, January 3, 2023), no other county in the state uses a ballot on demand system in polling places on Election Day. Some Missouri counties use ballot on demand equipment for in-person absentee voting, and several jurisdictions use ballot marking devices for Election Day voting. Ballot marking devices could be configured to allow other local jurisdictions in Missouri to implement vote centers, but technology is not the only factor needed to successfully implement vote centers.

In addition to new technology, St. Louis County needed to adjust other aspects of election administration. The BOE prioritized building redundancy into their systems. For example, they were prepared to quickly shift resources to other locations if a polling place closed or if supplies were running low at any location (Christian Tolbert, interview June 16, 2022). These preparations were needed when flooding forced the BOE to close some polling places for the August 2022 primary election.

The BOE considered a number of factors when deciding which polling places to close. The first step was to retain polling places at public locations and to eliminate those at most privately owned locations. This choice was forced on the county, as pri-

vate venues withdrew from their polling place commitments in June 2020 because of the pandemic. They factored in standard needs—all polling places had to have a room that was large enough, ample parking, and be accessible for voters with disabilities. They also had to take into account new needs such as measuring doorways to make sure they would accommodate the new, larger cages needed for the voting equipment. They then mapped out the acceptable polling locations, assessed drive times to those locations, and considered population density and access to major roadways and public transportation to determine which locations would be used (Al Molitor, interview June 16, 2022).

Once the polling locations were determined, BOE staff reimagined other operations functions. While printed ballots no longer had to be delivered to each polling place, there were still some resource allocation concerns. The BOE used data from past elections to determine how much paper stock and voting equipment should be distributed to each location. In another example of building redundancy, they set up supply depots and field captains throughout the county to deploy additional resources as needed (Al Molitor, interview June 16, 2022). As noted above, BOE staff also used the line tracker app throughout Election Day to decide whether poll workers or supplies needed to be shifted to busy locations. As Montjoy (2008) notes, vote centers enable more active oversight of a smaller number of polling places.

One expected benefit of implementing vote centers is a reduction in provisional ballots and rejected provisional ballots. Provisional ballots in Missouri are only given to Election Day voters (Revised Statutes of Missouri 2006, section 115.430), so a large decline in Election Day voting should also reduce the number of provisional ballots. In Missouri, voting in the incorrect polling place is the second most common reason for casting a provisional ballot. Since being in the correct polling place is not relevant in vote centers, transitioning to vote centers reduces the frequency of provisional voting (Stein 2016). Missouri also does not accept provisional ballots cast in the wrong polling place, which produces higher rates of rejected provisional ballots (Hanmer and Herrnson 2014); shifting to vote centers eliminates that source of ballot rejection. Because the Vote Anywhere model allows voters to cast a ballot at any polling location in the county, we further anticipate that fewer provisional

ballots were cast and fewer provisional ballots were rejected in St. Louis County as compared to other Missouri counties.

Given the significant decline in the number of polling places, St. Louis County officials had a strong interest in minimizing long lines and logistical snafus on Election Day. This is another interdependency in the election ecosystem. In an effort to reduce the volume of Election Day voters, the county heavily promoted absentee voting. As Eric Fey noted, absentee voting “helps take the stress off Election Day” (interview March 1, 2023). BOE staff were aware of long lines and other administrative challenges in other parts of the country where vote center implementation was not so successful (Bilchik 2020, 179).

Thus, the county included updated absentee voting information in mailers sent to all registered voters in 2020. BOE staff also launched two digital advertising campaigns, targeted to voters over age 55, that explained absentee voting procedures to voters who were largely unfamiliar with that voting method. Both ads were viewed by over 60% of county residents in the targeted age group (St. Louis County BOE, 2021). Furthermore, beginning with the June 2020 election, the St. Louis County BOE sent absentee ballot applications to all registered voters age 60 and above (Bilchik 2020).⁸ St. Louis County stands out in communicating with local voters, as we can find only one other Missouri jurisdiction (Boone County) that approached this level of activity to promote absentee voting in 2020.

Anticipating a surge of absentee voters in 2020, St. Louis County also improved the absentee voting experience. Missouri has strict rules for counting absentee ballots, including a requirement that voters have their signature notarized on the return envelope in most cases. Thus, the usability of absentee voting materials is particularly important in Missouri. BOE staff designed clearer instructions to go with absentee voting materials and implemented an online system for voters to track their absentee ballots. St. Louis County BOE maintains the ballot tracking web site (St. Louis County Board of Elections 2023). The county hired temporary staff to help process the waves of absentee ballots, and, crucially, the county recruited and trained teams of volunteers to notify voters with absentee ballot errors that needed to be cured in time for the election.

BOE staff again demonstrated an ability to detect and react to failure (Moynihan 2004). County offi-

cials used the municipal elections (held in June 2020) and primary elections (August 2020) to test the new administrative systems for absentee voting, diagnose problems, and develop improvements for the next election. For example, they reduced the number of rejected absentee ballots from 5.4 percent in the June municipal election to 2.8 percent in the August primary. Based on lessons learned from those two elections, they planned for more extensive absentee ballot processing and curing for the November 2020 election. For the November election, St. Louis County contacted approximately 1,600 voters to correct absentee ballot deficiencies, a ballot curing operation that was not matched by other counties in the state (Drake 2021). As a result, we expect that St. Louis County rejected fewer absentee ballots than other Missouri counties in the November 2020 election.

As we note above, one advantage of the vote center approach is a significant reduction in the number of poll workers needed for an election. However, St. Louis County had to “de-program and re-program” poll workers, with updated training to cover the new technology and new procedures for checking in voters (Daryl Brown, interview June 16, 2022). The county developed videos, handouts, and other training materials to explain the new system. In response to the pandemic, BOE staff also developed virtual poll worker training sessions. According to the staff, poll workers, who may have been hesitant about the changes at first, were won over by the fact that the vote anywhere approach made Election Day less complicated for them. The new approach eliminated issues with voters trying to cast their ballots at the wrong polling location as well as the need to determine which ballot to hand to each voter.

Election staff also needed to inform the public about the new voting options, which is critical for the success of any significant reform (e.g., Bright and Lynch 2017). Prior to 2016, the St. Louis County Board of Elections had no social media presence. Right before the 2016 general election, they created and filled the position of Public Information Coordinator to manage press conferences,

⁸A proposal, supported by all four Directors and Deputy Directors, to send absentee ballot applications to all registered voters for the November 2020 election (rather than only to those age 60 and above), was opposed by the two Republican commissioners and thus not adopted (BOE Minutes September 15, 2020).

media coverage, social media, and other communications. The BOE also used the notice of election cards, mailed to every registered voter, to communicate information about changes in the voting process. These cards also listed the name and address of polling locations closest to the voter's address. BOE staff also promoted the line tracking application that would allow voters to determine the wait time at all polling locations.

Although BOE directors and staff felt confident about their preparation, they did not implement the Vote Anywhere system without testing and modification. Instead, they field tested it on a limited basis in June 2020 municipal elections and again in the August 2020 primary. These low turnout elections provided "low-risk trials" to identify and correct any administrative problems (Montjoy 2008). Then, when they were confident the system was ready, they officially rolled it out in the November 2020 general election.

In implementing the Vote Anywhere policy, the BOE relied on professional staff and encouraged them to be forward-thinking, which helped the BOE adjust quickly in preparing for the 2020 election. Eric Fey, Democratic Director of Elections for St. Louis County, emphasized that improved technology and a professional administrative staff were needed to make this change a success. He explained the need for an organized, efficient, and competent operation to make such a change. He said "A few years earlier, the county had neither the right staff nor the right technology to implement this system" (interview June 16, 2022).

BOE directors and staff exhibited many features of reliable organizations needed to implement complex systems. They were mindful of the interdependencies among the components of the election ecosystem. They focused on their central mission of delivering safe, accessible, and secure elections. They prioritized regular testing and training, and they cultivated processes to discover, report, and correct errors. They built redundancy in their systems in anticipation of errors. Finally, they communicated their procedures to the voting public. In rolling out the vote anywhere system and responding to the pandemic, the BOE provided an example of "voter-centric" election administration focused on customer service (Adona et al. 2019).

St. Louis County experienced some other administrative benefits from the technological and staff changes associated with shifting to vote centers

for Election Day voting. Election preparations are simpler, since the staff no longer have to assign each precinct to a polling place. In reconciling vote totals at the end of Election Day, poll workers no longer needed to count the number of signatures in the paper poll books to determine the number of voters at each polling place. The e-poll books now keep track of that data. The e-poll books also enable poll workers to update a voter's registration information at any polling place. County election staff noted that the technology they now have in place allows them to measure and track more things than they could in the past (Christian Tolbert, interview June 16, 2022). Finally, having fewer polling places means they can place more equipment at each location, allowing them to process more voters at a time.

At the same time, there are some modest administrative challenges with the new system. Officials now need to ensure there is enough paper at each polling place for each election, a somewhat different logistical challenge than before. From a programming perspective, getting final election results is somewhat more complicated. Under the polling place system, once ballots from all polling places in a district or municipality are returned and counted, then results for contests in those locations can be marked as final. Now that voters may cast their ballot at any polling place, results from all county polling places need to be counted before any results can be considered final. Similarly, conducting recounts is somewhat more complicated, since ballots for a single contest could come from any polling place rather than just a handful of polling places. These seem like fairly minor administrative challenges.

HYPOTHESES

The extant literature, including the systems framework, and our observations and interviews with St. Louis County Board of Elections staff provide the framing for our hypotheses:

- H1: With the implementation of vote centers, St. Louis County should have experienced a reduction in election administration costs from 2016 to 2020.
- H2: Implementation of vote centers should not have reduced St. Louis County's voter turnout as compared to voter turnout in other Missouri counties in the 2020 election.

- H3: Fewer provisional ballots were cast and fewer provisional ballots were rejected in St. Louis County as compared to other Missouri counties in the 2020 election.
- H4: St. Louis County should have produced a higher number of absentee ballots, but a lower number of rejected absentee ballots, as compared to other Missouri counties in the 2020 election.

METHODS

This case study is based on interviews with several staff at the St. Louis County Board of Elections and archival materials, including biennial reports and minutes of monthly meetings from the BOE, as well as data from the Election Administration and Voting Surveys. The BOE has a bipartisan structure and a staff of approximately 60 full-time employees. A board of four commissioners (two from each major political party) governs the staff. A majority vote is required for the board to approve policy changes. Key positions, covering all stages of the registration and voting processes, are staffed by teams that include an equal number of representatives from each of the major parties.

On June 16, 2022, we spoke to the Democratic Director of Elections (Eric Fey) and the Republican Director of Elections (Rick Stream), along with Deputy Directors Julie Leicht (Democrat) and Christian Tolbert (Republican). The directors invited their staff to attend the discussion. So, we also interviewed Al Molitor (Assistant Director for Logistics/Warehouse & Mapping/Polling Locations), Daryl Brown (Assistant Director for Poll Worker Training), Beau Coker (IT/Communications), and Nicholle Spencer (Public Information Coordinator) at the same time. In the interview, we asked the entire group questions about why they pursued the policy; whether they consulted with other jurisdictions; the policies, systems, and processes that had to be changed to implement Vote Anywhere; how they selected polling places; the ways in which they informed voters; the consequences of the Vote Anywhere policy; the wait time app; problems they experienced; and whether other jurisdictions are consulting with St. Louis County as they consider a vote center model.⁹

It was a lively and open discussion where we asked open ended questions, and in which staff

seemed empowered to share their experiences and perspectives. The dynamic of the interview helped to demonstrate the collaborative nature of the St. Louis County elections directors and staff. We conducted shorter follow up interviews with staff in the fall of 2022 and in March 2023.

In addition to the interviews, we document changes in election administration and voting behavior using data from the Election Administration and Voting Surveys (EAVS) conducted after the 2016 and 2020 elections (U.S. EAC 2021; 2017). The EAVS data provide comprehensive information on election administration in local jurisdictions around the country. We compare St. Louis County to the other 115 local jurisdictions in Missouri, since these jurisdictions were governed by the same state election laws.¹⁰ We use the EAVS data to compare the 2020 election to 2016, the previous presidential election prior to St. Louis County's adoption of vote centers.

As dependent variables, we examine measures of provisional ballots cast and rejected, absentee ballots cast and rejected, as well as overall voter turnout and total problematic ballots (rejected provisional ballots + rejected absentee ballots + residual votes in the presidential contest). We include the measure of problematic ballots as an overall measure of administrative challenges. In recounts or contested elections, those rejected or residual ballots are a primary source of legal and political controversy. Thus, there is value in minimizing the number of problematic ballots.

We estimate a series of regression functions using the EAVS data, modeling each 2020 outcome measure as a function of the same variable in the 2016 presidential election to account for a strong degree of continuity from the previous election. We include a dummy variable for St. Louis County to test whether it departs from the patterns in the rest of the state. We also include control variables to account for other factors that may influence election administration and the ability to adapt to the pandemic in 2020.

⁹See Appendix A for a list of interview questions.

¹⁰Local jurisdictions in Missouri include 115 counties plus the Kansas City portion of Jackson County, which has its own board of elections. We corrected several errors in the EAVS data for total ballots cast in Missouri jurisdictions (field F1a). We contacted each jurisdiction to confirm the EAVS data or gather corrected data for total ballots cast in the 2016 and 2020 elections. By our calculations, there were 2,853,584 ballots cast in Missouri in the 2016 general election, and 3,046,509 ballots cast in the 2020 general election.

One factor includes personal characteristics which may shape how local officials administer elections. One important characteristic is job experience. As local officials become more confident in their role and abilities, they may be more willing and able to adapt to new conditions (Lipsky 1980; Moynihan and Silva 2008). We measure local official experience as a dummy variable indicating whether the county clerk or election director had been in that position for at least five years at the time of the 2020 election. In 2020, 62 percent of Missouri local election officials had five or more years of experience.

Party affiliation is another relevant trait of local election officials. In 2020, there was a very partisan national debate about the security of absentee voting in response to the COVID pandemic, with Democrats supporting vote-by-mail solutions much more strongly than Republicans (Persily and Stewart 2021). We control for the party affiliation of Missouri LEOs in 2020, in case Democratic officials promoted absentee voting more heavily than Republicans. In 2020, there were 88 Republican LEOs and 22 Democratic LEOs in Missouri. The comparison group is composed of the 6 large urban jurisdictions that have bipartisan boards administering elections.¹¹ The bipartisan structure exists at the board and staff levels for these six jurisdictions. Furthermore, election administration is the only responsibility for the board and staff in the six urban jurisdictions. County clerks in the remaining Missouri counties have other responsibilities, including licensing, tax administration, and record-keeping.

Technology is another important factor for election administration (Sabatier and Mazmanian 1980). As noted above, two pieces of technology, electronic poll books and ballot on demand equipment, were critical for implementing vote centers in St. Louis County. St. Louis County is the only Missouri jurisdiction using a ballot on demand system for Election Day voting. However, 83 other Missouri jurisdictions use electronic poll books to check in voters. The e-poll books allow counties to more efficiently manage voter check-ins. This was particularly important in 2020, when many voters cast absentee ballots before Election Day. Thus, our regression estimates include a dummy variable for counties using electronic poll books, to test whether that technology, by itself, influenced how local jurisdictions adapted to the pandemic in 2020.

Finally, jurisdiction size may be an important factor influencing election administration in 2020. Larger and more densely populated urban jurisdictions tended to have more COVID restrictions in 2020 (Aguilera et al. 2022) and voter demand for mail ballots may have been stronger in those jurisdictions. Thus, larger urban jurisdictions may process more absentee ballots in 2020. Larger jurisdictions tend to face a disproportionate number of rejected absentee and provisional ballots as well (Kimball and Baybeck 2013), and may stand out in terms of other election administration challenges in 2020. To address the substantial positive skew, we measure jurisdiction size by the natural log of the total ballots cast in the 2020 election.

RESULTS

Our examination of the St. Louis County experience shows that a substantial amount of planning and staff resources were devoted to the transition to vote centers. We evaluate the outcomes of the vote center implementation in St. Louis County in terms of polling place operations, election costs, measures of voter participation, particularly rejected ballots, and public evaluations of the new policy. We find significant benefits and only modest administrative challenges after St. Louis County's implementation of vote centers.

Polling place operations

As a result of the Vote Anywhere policy, St. Louis County reduced the number of polling places from 438 in the 2016 general election to 230 in the 2020 general election, nearly a 50 percent reduction. Figure 1 plots the number of polling places in Missouri local jurisdictions in the 2016 and 2020 general elections. In Figure 1, the vast majority of counties are located near the 45-degree line, meaning most jurisdictions had a similar number of polling places in both elections. Only one other local jurisdiction in Missouri (Kansas City) decreased the number of polling places in 2020 by a similar percentage as St. Louis County. Similarly, St. Louis County reduced the number of poll workers by more than 20 percent, from 4,038 in 2016 to

¹¹Clay County, Jackson County, Kansas City, Platte County, St. Louis City, and St. Louis County.

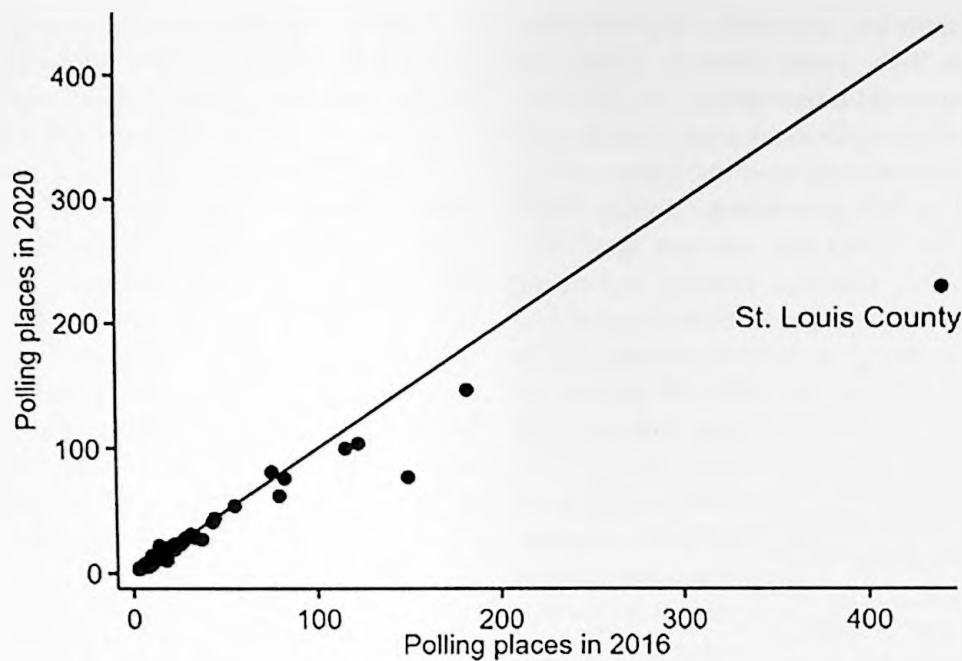


FIG. 1. Polling Places in Missouri Jurisdictions, 2016 and 2020 Elections.

3,148 in 2020. Jackson County (with a 12 percent reduction in poll workers) is the only other jurisdiction in the state to approach that reduction. Because of the pandemic, many poll workers were unwilling to return for the 2020 election. In St. Louis County, roughly one-third of the poll workers for the August 2020 election reported that they would not work the November 2020 election (St. Louis County Board of Election Commissioners October 2020). There was a marked decline in the number of elderly poll workers, so the average age of poll workers in St. Louis County declined from 68 years old in 2016 to 62 in 2020 (Julie Leicht, interview June 16, 2022).

Costs and administration

There appear to be two significant cost savings associated with the adoption of vote centers in St. Louis County. One important outcome of the switch to vote centers is a reduction in election costs for ballot printing and polling place rentals (Stream 2022). Costs for printing ballots declined by roughly \$80,000 in the 2020 election, and rental fees paid to private polling place venues dropped by almost \$20,000. Second, poll workers are the biggest election expense in St. Louis County, so reducing the number of poll workers by roughly 1,000 produced significant cost savings. Even after increasing poll worker pay due to the pandemic,

costs for poll worker pay and related salaries was \$100,000 lower in 2020 compared to 2016. Some of the cost savings were shifted to increased expenses associated with absentee voting in 2020, but the total cost of the 2020 election (roughly \$1.6 million) was almost \$200,000 less than the cost of the 2016 election (roughly \$1.8 million).¹²

It is worth considering the cost of voting equipment too, since the ballot on demand system is an important component for vote center implementation in St. Louis County. The old voting equipment, purchased in 2005, had reached the end of its functional life, so the county was due to absorb new equipment costs anyway. The new ballot on demand system was purchased largely with money from a separate technology fund. Finally, implementing vote centers may yield long-term cost savings too, as fewer pieces of polling place equipment will be needed for future elections. These findings support our hypothesis (H1) that with the implementation of vote centers, St. Louis County experienced a reduction in election administration costs from 2016 to 2020.

¹²This may not be an apples-to-apples total cost comparison. St. Louis County received one-time grants of roughly \$2 million from the Center for Tech in Civil Life and \$150,000 in CARES Act funds in 2020 to cover extra election administration costs due to the pandemic. The county used grant funds to provide hazard pay for staff and poll workers, compensate temporary workers, purchase extra pens and absentee ballot materials, and mail notices to voters, among other expenses.

Administrative outcomes

We use 2020 and 2016 EAVS data to examine several administrative measures in the 2020 election in Missouri and determine whether St. Louis County stands out on any of these measures. Our sample includes all 116 local jurisdictions in Missouri. In the sections that follow we examine several dependent variables: the number of absentee ballots cast and rejected, the number of provisional ballots cast and rejected, voter turnout, and the number of problematic ballots (rejected absentee ballots + rejected provisional ballots + residual votes in the presidential contest).

Absentee voting

As in the rest of the country, the COVID-19 pandemic caused absentee voting to increase significantly in Missouri in the 2020 election. Due to the implementation efforts described above, absentee voting increased substantially more in St. Louis County than in the rest of the state.¹³ The number of absentee ballots cast in St. Louis County rose from roughly 59,000 in 2016 (11.3 percent of total ballots) to over 231,000 in 2020 (42.9 percent of total ballots), a 31-percentage point increase in absentee voting. The absentee share of ballots cast in the median jurisdiction in Missouri increased just 10 percentage points in 2020.

The model estimates in the first column of Table 1 provide further evidence that St. Louis County stands out in terms of its heavy increase in absentee voting in the 2020 election. The average jurisdiction received approximately three times as many absentee ballots in 2020 as in 2016. Even after controlling for past behavior and other local factors, St. Louis County received over 36,000 more absentee ballots than expected in the 2020 election. We also see that the increase in absentee voting in 2020 was concentrated more in the six urban jurisdictions with bipartisan election boards than in counties where elections are administered by partisan county clerks.

Given the increase in absentee voting, the number of rejected absentee ballots in 2020 was greater than the number of absentee ballots rejected in 2016 in most Missouri jurisdictions. As we describe above, St. Louis County anticipated the surge in absentee voting by instituting major staffing changes and directing additional resources toward processing absentee ballots. We can see the fruits of these

TABLE 1. PREDICTORS OF ABSENTEE VOTING IN NOVEMBER 2020 ELECTION (MISSOURI COUNTIES)

<i>Independent Variable</i>	<i>Absentee Ballots Cast</i>	<i>Rejected Absentee Ballots</i>
	<i>Coef. (s.e.)</i>	<i>Coef. (s.e.)</i>
Absentee ballots in 2016	3.1* (0.1)	—
Rejected absentees in 2016	—	1.4* (0.05)
St. Louis County (vote center)	36,237* (4,898)	-1,128* (66.4)
Ballots in 2020 (natural log)	458.8 (292.9)	-4.2 (5.0)
Electronic poll book	-230.3 (435.9)	4.8 (8.6)
Republican clerk	-6,312* (1,199)	92.6* (21.7)
Democratic clerk	-5,214* (1,255)	78.6* (22.9)
Clerk experience	-523.4 (401.5)	3.8 (7.9)
Constant	1,967 (2,822)	-65.8 (53.1)
N	116	116
R ²	.99	.93
RMSE	1937.4	37.9

The dependent variable is the number of absentee ballots cast or rejected in each jurisdiction in the 2020 election, as indicated at the top of each column. Cell entries are OLS coefficients with standard errors in parentheses.

*p < .05, two-tailed

efforts as St. Louis County departed sharply from the statewide trend in rejected absentee ballots in 2020 (see the second column of regression estimates in Table 1).

While rejected absentee ballots were approximately 1.4 times higher in 2020 than in 2016 throughout Missouri, in St. Louis County the number of rejected absentee ballots actually declined by more than 50 percent. The regression estimates show that St. Louis County rejected over 1,100 fewer absentee ballots than expected in 2020. The model estimates also indicate that absentee ballots in 2020 were rejected more frequently, on average, in counties with partisan clerks than in the urban

¹³Procedures for casting and counting ballots from abroad under the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) were largely unchanged in St. Louis County in 2020. Reflecting the overall increase in voter turnout, the number of UOCAVA ballots in St. Louis County increased from 2,682 in 2016 to 3,249 in 2020, mirroring the trend in the rest of the state. As in the rest of the state, there are very low rates of rejected UOCAVA ballots in St. Louis County (5 in 2016, 12 in 2020).

jurisdictions with bipartisan election boards. This suggests that the urban jurisdictions did more to help voters cure absentee ballots than other counties in Missouri. These results support our hypothesis (H4) that St. Louis County produced a higher number of absentee ballots, but a lower number of rejected absentee ballots, as compared to other Missouri counties in the 2020 election.

It is remarkable that St. Louis County bucked the statewide pattern and significantly lowered the number of rejected absentee ballots in an election where it also received a record number of absentee ballots. While some other states also reduced the number of rejected absentee ballots in the 2020 election (Persily and Stewart 2021), national rates of absentee ballot rejections were similar in the 2016 and 2020 elections (U.S. EAC 2021: 13). Thus, St. Louis County also stands out from national patterns in terms of counting absentee ballots in the 2020 election.

Provisional ballots. As in absentee voting, St. Louis County also leads the state in terms of shifting patterns of provisional voting in the 2020 election. First, St. Louis County saw the largest drop in the number of provisional ballots issued. In St. Louis County, the number of provisional ballots declined from 1,162 in the 2016 election to 441 in the 2020 election (a 62 percent decrease). In the rest of the state, the number of provisional ballots dropped by just 10 percent. While there has been a long-term gradual decline in provisional voting in the United States (U.S. EAC 2021, 16), St. Louis County experienced more than a gradual decline in provisional voting in 2020.

The regression estimates in Table 2 also identify St. Louis County as an outlier in provisional voting in 2020. As the coefficients for the lagged variables indicate, the average Missouri jurisdiction processed approximately half as many provisional ballots in the 2020 election as in 2016. Even when controlling for previous outcomes and other local factors, St. Louis County generated roughly 200 fewer provisional ballots than expected in 2020. This makes the county an outlier by a substantial amount, since it only produced 441 provisional ballots in 2020.

In Missouri, roughly two-thirds of provisional ballots are rejected. The most common reason for rejecting provisional ballots in Missouri is that the voter is not properly registered. The second most common reason is that the voter is in the wrong ju-

TABLE 2. PREDICTORS OF PROVISIONAL VOTING IN NOVEMBER 2020 ELECTION (MISSOURI COUNTIES)

<i>Independent Variable</i>	<i>Provisional Ballots Cast</i>	<i>Rejected Provisional Ballots</i>
	<i>Coef. (s.e.)</i>	<i>Coef. (s.e.)</i>
Provisional ballots in 2016	0.5* (0.04)	—
Rejected provisionals in 2016	—	0.4* (0.04)
St. Louis County (vote center)	-201.5* (46.0)	-25.2 (29.2)
Ballots in 2020 (natural log)	5.4 (4.1)	4.3 (2.7)
Electronic poll book	1.1 (7.2)	0.6 (4.8)
Republican clerk	-20.9 (20.9)	-28.4* (13.3)
Democratic clerk	-21.3 (21.6)	-29.8* (13.8)
Clerk experience	8.5 (6.7)	8.5 (4.4)
Constant	-25.6 (44.8)	-10.6 (29.6)
N	115	115
R ²	.85	.84
RMSE	32.1	21.2

The dependent variable is the number of provisional ballots cast or rejected in each jurisdiction in the 2020 election, as indicated at the top of each column. Data are missing for St. Charles County. Cell entries are OLS coefficients with standard errors in parentheses.

*p < .05, two-tailed

isdiction or precinct.¹⁴ By shifting to vote centers, St. Louis County eliminated the second most common reason for rejecting provisional ballots. Thus, it is no surprise that St. Louis County saw a record decline in rejected provisional ballots, going from 764 in 2016 to 326 in 2020. The estimates in the second column of Table 2 show that St. Louis County generated 25 fewer rejected provisional ballots than expected in 2020, although the county is not a statistically significant outlier on the rejected provisional ballot metric. The model estimates for the control variables again point to a distinction between the six urban counties and the rest of the state, as rejected provisional ballots in 2020 were more common in the urban jurisdictions.

While not the primary reason for adopting vote centers, the new administrative policies in St. Louis County produced a significant reduction

¹⁴Several Missouri counties do not report the number of rejected provisional ballots by type (indicating the reason for rejection) in the EAVS data. Thus, we examine the total number of rejected ballots, where there is minimal missing data.

in provisional voting in 2020, which supports our hypothesis (H3) that fewer provisional ballots were cast in St. Louis County as compared to other Missouri counties in the 2020 election.

Voter turnout and total problem ballots. As in much of the nation, voter turnout increased in Missouri in the 2020 election. St. Louis County typically is one of the turnout leaders among Missouri jurisdictions. In St. Louis County, turnout rose from 67.5% of the voting age population in the 2016 election to 69.6% of VAP in 2020. As noted above, roughly 30 percent of St. Louis County Election Day voters took advantage of the new system and cast their ballots at a different location than their home polling place in 2020. The regression estimates in the first column of Table 3 indicate that voter turnout in St. Louis County was not statistically different from what was expected in the 2020 election. Furthermore, residual vote rates in the presidential contest in St. Louis County (1.8% in 2016, 0.8% in 2020) closely track the statewide rates in both elections (1.6% in 2016, 0.7% in 2020).

The significant administrative changes in the adoption of vote centers did not appear to harm overall voter participation in St. Louis County, since the county matches the rest of the state in terms of the rise in turnout in 2020, which aligns with our hypothesis (H2) that the implementation vote centers will not reduce St. Louis County's voter turnout as compared to voter turnout in other Missouri counties in the 2020 election.

As a final measure of election administration, we compute a total count of problem ballots by adding rejected absentee ballots, rejected provisional ballots, and residual votes in the presidential contest. As noted above, these ballots are the greatest source of scrutiny and legal dispute in the event of a recount or election challenge. We leave rejected UOCAVA ballots out of the total since there are so few of them in Missouri.

Using this measure, the number of problem ballots in St. Louis County dropped from over 11,000 in 2016 to just over 5,000 in 2020 (a 55% decline). As the estimates in the second column of Table 3 show, St. Louis County's performance in 2020 stands out even more on this summary measure. On average, Missouri jurisdictions generated about half as many problem ballots in 2020 as in 2016. After controlling for past performance and other local administrative features, St. Louis County had over 1,100 fewer problem ballots in the 2020 elec-

TABLE 3. PREDICTORS OF VOTER PARTICIPATION IN NOVEMBER 2020 ELECTION (MISSOURI COUNTIES)

<i>Independent Variable</i>	<i>Voter Turnout Coef. (s.e.)</i>	<i>Total Problem Ballots Coef. (s.e.)</i>
Voter turnout in 2016	1.05* (0.02)	—
Problem ballots in 2016	—	0.5* (0.02)
St. Louis County (vote center)	-2.5 (1.8)	-1.170* (193.2)
Ballots in 2020 (natural log)	0.3 (0.2)	-2.6 (10.1)
Electronic poll book	-0.5 (0.4)	1.0 (13.8)
Republican clerk	0.1 (0.9)	-50.4 (44.1)
Democratic clerk	-0.2 (1.0)	-49.2 (45.2)
Clerk experience	0.3 (0.3)	16.8 (12.7)
Constant	-2.7 (2.7)	55.0 (91.1)
N	116	115
R ²	.94	.99

The dependent variable is indicated at the top of each column. Turnout is measured as a percent of voting age population. Cell entries are OLS coefficients with standard errors in parentheses.

*p < .05, two-tailed

tion than expected. Overall, the outcome measures support our hypotheses and affirm the success of St. Louis County's approach in both responding to the pressures of the COVID-19 pandemic and in implementing the Vote Anywhere model.

Voter and poll worker evaluations

We also find that voters and poll workers in St. Louis County prefer the Vote Anywhere policy. The feedback the BOE received from poll workers after the November 2020 election was overwhelmingly positive (Julie Leicht, interview June 16, 2022). A survey of St. Louis County poll workers conducted in the fall of 2022 found that 94% prefer the Vote Anywhere system to the old system of assigned polling places (Burden et al. 2022). Ninety-eight percent of poll workers also agreed or strongly agreed that the training instructors were knowledgeable and answered questions thoroughly, and 96 percent of poll workers agreed or strongly agreed that they were adequately trained to serve in any election (Burden et al. 2022).

A survey of registered voters in St. Louis County conducted in the fall of 2022 also yielded positive findings. Over 60% of respondents knew they

could vote at any location, and 90% reported that it was easy to find a voting location (Manion et al. 2023). Impressively, 96% of respondents described the voting experience as “excellent” or “good.” Overall, 77% of respondents preferred letting voters go to any polling location rather than an assigned location (Manion et al. 2023). These survey results indicate that voters and poll workers were happy with the Vote Anywhere approach.

CONCLUSION

The adoption of the Vote Anywhere system in St. Louis County was one of the successes of local election administration in 2020. St. Louis County faced challenges that included adapting election administration to the COVID-19 pandemic while implementing new voting policies and equipment. This required a combination of skilled management and planning, reliable technology, a professional staff, and regular communications with the public. BOE directors and staff also adopted systems that anticipated, discovered, and corrected errors in implementing the new policy.

All elements of the election ecosystem had to work in coordination, as a change in one area of election administration can have knock-on effects in other areas. The accomplishments of St. Louis County’s Board of Elections in 2020 were acknowledged by awards from the National Association of Election Officials (Election Center) and the East-West Gateway Council of Local Governments. These awards honored BOE innovation in adopting the Vote Anywhere system and ballot security procedures for absentee voting. The 2020 election has been described as a “miracle”; it was conducted in the midst of a global pandemic yet administrators still oversaw one of the most secure elections in our nation’s history with the highest voter turnout in 100 years (Persily and Stewart 2021). The St. Louis County Board of Elections helped make that miracle happen with their implementation of vote centers and their holistic approach to election administration.

While St. Louis County successfully integrated these changes for the 2020 presidential election, questions still remain about how the process will work moving forward. St. Louis County is unique compared to other jurisdictions that have implemented vote centers in other states. Other states, like California, Arkansas, and Colorado, enacted

legislation to allow vote centers, while no such legislation was passed in Missouri. In addition, in other states vote centers have been adopted alongside other convenience reforms, like no-excuse absentee voting or voting by mail. Missouri does not have these other election policies.

The state of Missouri has played little to no role in this reform; it was enacted independently by St. Louis County. Thus far, St. Louis County has not experienced political or legal pushback on their shift to vote centers. Kansas City and St. Louis City (separate local jurisdictions) are also considering making a move to vote centers. If this reform is implemented by three Democratic areas that are large population centers in a red state, that could draw the attention of state politicians, as election administration has increasingly generated controversy and scrutiny in recent years.

Another important factor in upcoming elections is the number of absentee versus Election Day voters. As we note above, in 2020 many fewer people voted on Election Day than in a typical presidential election in St. Louis County. Missouri implemented temporary changes to election law that made it easier to vote absentee, reducing in-person Election Day voting in 2020. The decreased Election Day voter turnout helped ease the transition to vote centers for St. Louis County. Moving forward, it will be important to monitor wait times and other outcomes in future elections that may have lower rates of absentee voting and more voters casting ballots in-person on Election Day.

For large jurisdictions, like St. Louis County, change is constant in election administration. No election is exactly like the one that came before. Adaptation is always necessary, to enforce new laws, introduce new technology, and respond to changing voter preferences, among other shifting conditions (Doyle 2008). As observed by the Directors of Elections, St. Louis County was able to rise to the occasion because of enhanced technology and equipment, but more importantly their forward-thinking, professional staff allowed them to nimbly respond to many challenges in 2020.

The implementation of the vote anywhere system in St. Louis County illustrates the complex nature of a single election reform, requiring coordinated adjustments in many elements of the election ecosystem. St. Louis County, and other Missouri jurisdictions, adapted to more change in the 2022 election. The emergency law that allowed voters to use COVID as an excuse for voting absentee expired, and a new state law (HB 1878, passed on the final day of the

legislative session) imposed several new mandates just in time for the 2022 general election. Among other provisions, the new law allows two weeks of in-person early voting, requires voters to show photo identification, and prohibits local jurisdictions from receiving foundation grants. The election administration ecosystem in St. Louis County will continue to adapt.

REFERENCES

- Adona, Natalie, Paul Gronke, Paul Manson, and Sarah Cole. 2019. "Stewards of Democracy: The Views of Local Election Officials." Washington, DC: Democracy Fund.
- Aguilera, Nancy Erendyda, Ty Rhoads, and Jake Shaw. 2022. "The COVID Election: A County-Level Analysis of State and Local Health Policies and the 2020 Presidential Election." Presented at the annual meeting of the Midwest Political Science Association, Chicago.
- Alvarez, R. Michael, Lonna Rae Atkeson, and Thad E. Hall. 2013. *Evaluating Elections: A Handbook of Methods and Standards*. New York: Cambridge University Press.
- Atkeson, Lonna Rae, Alex Adams, and Lisa Bryant. 2013. "Assessing Electoral Performance in New Mexico Using an Ecosystem Approach." University of New Mexico Policy Report.
- Bilchik, Gloria Shur. 2020. *Election Insiders*. Columbus: Gatekeeper Press.
- Bright, Chelsea L.M. and Michael S. Lynch. 2017. "Kansas Voter ID Laws: Advertising and its Effects on Turnout." *Political Research Quarterly* 70(2): 340-347.
- Brown, Daryl. 2022. Interviewed by authors. St. Louis County, MO, June 16.
- Brown, Mitchell, Kathleen Hale, and Bridgett A. King. 2019. *The Future of Election Administration*. Palgrave Macmillan.
- Bryant, Lisa A. 2019. "Changing the Way People Vote? An Examination of the Voter Choice Act and Vote Center Implementation in California." Presented at the Election Sciences, Reform & Administration Conference, Philadelphia, PA.
- Burden, Barry C. and Robert M. Stein, et al. 2022 *The Front Lines of Elections: Poll Workers in the New Election Administration Environment*. A national survey funded by Pew Charitable Trusts and MIT Election Data Science Lab.
- Chen, Cynthia, Arisa Sadeghpour, and Matt Lamb. 2021. "Vote Centers and the Voter Experience." *American Politics Research* 49:591-603.
- Coker, Beau. 2022. Interviewed by authors. St. Louis County, MO, June 16.
- Cortina, Jeronimo and Brandon Rottinghaus. 2019. "Vote Centers and Turnout by Election Type in Texas." *Research & Politics*. <<https://doi.org/10.1177/2053168019864224>>.
- Cortina, Jeronimo and Brandon Rottinghaus. 2021. "'The Quiet Revolution': Convenience Voting, Vote Centers, and Turnout in Texas Elections." *Politics, Groups, and Identities*. <<https://doi.org/10.1080/21565503.2021.1946099>>.
- Doyle, Scott. 2008. "Practitioner Commentary: Vote Centers, Voting Equipment, and Uncertainty in Election Administration." *Public Administration Review* 68:800-801.
- Drake, Kayla. 2021. "St. Charles County Threw Out More Ballots in November than Any Other Missouri County." St. Louis Public Radio, January 11, 2021.
- Ferguson Commission. 2015. *Forward Through Ferguson: A Path Toward Racial Equity*. Retrieved at: <<https://forwardthroughferguson.org/report/executive-summary/clarifying-our-terms/>>.
- Fey, Eric. 2022. Interviewed by authors. St. Louis, County, MO, June 16.
- Fey, Eric. 2023. Interviewed by authors. St. Louis, County, MO, March 1.
- Folz, David H. 2014. "Vote Centers as a Strategy to Control Election Administration Costs: Findings From a Pilot Project." *SAGE Open*. <<https://doi.org/10.1177/2158244014525414>>.
- Frederickson, H. George and Todd R. LaPorte. 2002. "Airport Security, High Reliability, and the Problem of Rationality." *Public Administration Review* 62:33-43.
- Grigsby, Sheila, Alicia Hernández, Sara John, Désirée Jones-Smith, Katie Kaufmann, Cordaryl Patrick, Christopher Prener, Mark Tranel, and Adriano Udani. 2020. "Resistance to Racial Equity in U.S. Federalism and Its Impact on Fragmented Regions." *The American Review of Public Administration* 50(6-7): 658-667.
- Hale, Kathleen, Robert Montjoy, and Mitchell Brown. 2015. *Administering Elections: How American Elections Work*. Palgrave Macmillan.
- Hale, Kathleen, and Mitchell Brown. 2020. *How We Vote: Innovation in American Elections*. Washington, DC: Georgetown University Press.
- Hale, Kathleen and Christa Daryl Slaton. 2008. "Building Capacity in Election Administration: Local Responses to Complexity and Interdependence." *Public Administration Review*. Vol. 68, No. 5: 839-849.
- Hanmer, Michael J. and Paul S. Herrnson. 2014. "Provisional Ballots." in Barry C. Burden and Charles Stewart III (Ed.). *The Measure of American Elections*. New York: Cambridge University Press (91-112).
- Hawkins, Ernest. 2019. Creating Professionalism in the Field. In M. Brown, et al. (Ed.). *The Future of Election Administration*. (105-109). Palgrave Macmillan.
- Huefner, Steven F., Daniel P. Tokaji, and Edward B. Foley, with Nathan A. Cemenska. 2007. *From Registration to Recounts: the Election Ecosystems of Five Midwestern States*. Columbus: Ohio State University Moritz College of Law.
- Jones, E. Terrence. 2004. "The Municipal Market in the St. Louis Region: 1950-2000." In *St. Louis Metromorphosis: Past Trends and Future Directions*, eds. Brady Baybeck and E. Terrence Jones. St. Louis: Missouri Historical Society Press (275-291).
- Kimball, David C. and Brady Baybeck. 2013. "Are All Jurisdictions Equal? Size Disparity in Election Administration." *Election Law Journal* 12(2):130-145.
- Kropf, Martha, JoEllen V. Pope, Mary Jo Shepherd, and Zachary Mohr. 2020. "Making Every Vote Count: The Important Role of Managerial Capacity in Achieving Better Election Administration Outcomes." *Public Administration Review*, Vol. 80, Iss. 5 (733-742).
- Lavine, Jill and Alice Jarboe. 2019. Assisting Voters, Language Access, and the Role of Election Administrators. In M. Brown, et al. (Ed.). *The Future of Election Administration*. (39-45). Palgrave Macmillan.
- Leicht, Julie. 2022. Interviewed by authors. St. Louis County, MO, June 16.

- Lipsky, Michael. 1980. *Street-Level Bureaucracy*. New York: Russell Sage Foundation.
- Manion, Anita, Lisa Bryant, and David Kimball. 2023, January 13. A Tale of Two Counties: A Study of Vote Centers in Fresno County and St. Louis County. Southern Political Science Association Annual Conference. St. Petersburg, FL.
- McGhee, Eric, Mindy Romero, Laura Daly, and Thad Kousser. 2019. New Electorate Study: How Did the Voter's Choice Act Affect Turnout in 2018? Future of California Elections Research Brief.
- Mohr, Zachary, JoEllen V. Pope, Martha E. Kropf, and Mary Jo Shepherd. 2019. "Strategic Spending: Does Politics Influence Election Administration Expenditure?" *American Journal of Political Science* 63:427-438.
- Mohr, Zachary, JoEllen V. Pope, Mary Jo Shepherd, Martha Kropf, and Ahmad Hill. 2020. "Evaluating the Recessionary Impact on Election Administration Budgeting and Spending." *American Politics Research* 48:709-713.
- Molitor, Al. 2022. Interviewed by authors. St. Louis County, MO, June 16.
- Montjoy, Robert. 2019. Inter-Organizational Implementation: Carrying Out a Federal Court Order in Alabama. In M. Brown, et al. (Ed.). *The Future of Election Administration*. (15-22). Palgrave Macmillan.
- Montjoy, Robert S. 2008. "The Public Administration of Elections." *Public Administration Review* 68:788-799.
- Moynihan, Donald P. 2004. "Building Secure Elections: E-Voting, Security, and Systems Theory." *Public Administration Review* 64:515-528.
- Moynihan, Donald P. and Carol L. Silva. 2008. "The Administrators of Democracy: A Research Note on Local Election Officials." *Public Administration Review* 68:816-827.
- National Association of Election Officials. 2021. 2021 Awards: Professional practice papers in election administration and voter registration. <<https://www.electioncenter.org/professional-practice-papers-in-election-administration-and-voter-registration-2021-awards.html>>.
- Perrow, Charles. 1999. *Normal Accidents: Living with High Risk Technologies*. Princeton, NJ: Princeton University Press.
- Persily, Nathaniel, and Charles Stewart III. 2021. "The Miracle and Tragedy of the 2020 U.S. Election." *Journal of Democracy* 32:159-178.
- Revised Statutes of Missouri 2003, section 115.115.
- Revised Statutes of Missouri 1997, section 115.117.
- Revised Statutes of Missouri 2006, section 115.430.
- Romero, Mindy, and Barbara Chami. 2022. "California's Voter Choice Act: 2020 General Election Voter Outreach and Education." California Secretary of State's Office, May 13.
- Romero, Mindy, Anna Meier, and Emily Pavia. 2022. "Voter's Choice Act: 2020 General Election Voter Registration and Turnout." California Secretary of State's Office, May 13.
- Romero, Mindy, Eric McGhee, and Thad Kousser. 2019. Voters Choice Act: How Did Voters Experience the New Reform in 2018? Future of California Elections Research Brief.
- Sabatier, Paul and Daniel Mazmanian. 1980. "The Implementation of Public Policy: A Framework of Analysis." *Policy Studies Journal* 8:538-560.
- Scheele, Raymond H., Joseph Losco, and Sally Jo Vasicko. 2009. Assessing and Evaluating Indiana Vote Centers: The Development of a National Model. Final Report to the Pew Center on the States.
- Stein, Robert. 2016. Colorado Voting Reforms: Early Results. Pew Charitable Trusts, March.
- Stream, Rick. 2022. Interviewed by authors. St. Louis County, MO, June 16.
- St. Louis County Board of Elections. 2017. 2016 Biennial Report.
- St. Louis County Board of Elections. 2021. 21st Biennial Report: FY 2019 & 2020.
- St. Louis County Board of Election Commissioners. October 20, 2020. Meeting of the Board of Election Commissioners Minutes. <<https://extcontent.stlouisco.com/BOE/Board/MN20201020.pdf>>.
- St. Louis County Board of Election Commissioners. March 24, 2020. Meeting of the Board of Election Commissioners Minutes. <<https://extcontent.stlouisco.com/BOE/Board/MN20200324.pdf>>.
- St. Louis County Election Board. 2023. "Track MyBallot-Tracking." <myballottracking.com>
- Stein, Robert. 2016. Colorado Voting Reforms: Early Results. Washington, D.C.: Pew Charitable Trusts.
- Stein, Robert M. and Greg Vonnahme. 2014. "Polling Place Practices and the Voting Experience." In *The Measure of American Elections*, eds. Barry C. Burden and Charles Stewart III, 166-187. New York: Cambridge University Press.
- Stein, Robert M. and Greg Vonnahme. 2012a. "Effect of Election Day Vote Centers on Voter Participation." *Election Law Journal* 11:291-301.
- Stein, Robert M. and Greg Vonnahme. 2012b. "When, Where, and How we Vote: Does it Matter?" *Social Science Quarterly* 93:692-712.
- Stein, Robert M. and Greg Vonnahme. 2008. "Engaging the Unengaged Voter: Vote Centers and Voter Turnout." *Journal of Politics* 70:487-497.
- Tolbert, Christian. 2022. Interviewed by authors. St. Louis County, MO, June 16.
- Tsujii, Tim. 2019. Implementing Wait Time Innovation in Election Administration: The Case of the EV Wait Times App. In M. Brown, et al. (Ed.). *The Future of Election Administration: Cases and Conversations*. (204-213). Palgrave Macmillan.
- U.S. Election Assistance Commission. 2021. 2020 Election Administration and Voting Survey, Release V2.
- U.S. Election Assistance Commission. 2017. 2016 Election Administration and Voting Survey, Release V2.

Address correspondence to:
 Anita Manion
 Department of Political Science
 University of Missouri-St. Louis
 One University Blvd.
 St. Louis, Missouri
 63121
 USA

E-mail: maniona@umsl.edu

Received for publication August 28, 2022; received in revised form April 3, 2023; accepted April 7, 2023; published online July 19, 2023.

(Appendix follows →)

Appendix A

Interview questions

1. This seems like an unusual policy. What caused you to pursue the policy of letting voters cast their ballot at any polling place?
2. In preparing the new policy, did you consult with any other counties or states that have a similar process?
3. Was there any concern that this would be legal in Missouri, since no other county has done this?
4. What policies, systems, or processes did you need to change to implement the vote anywhere policy? [check ecosystem idea: procuring new voting equipment, polling place locations, polling place training, paper/printing ballots, electronic poll books, verifying who has already voted, mapping division for the line wait app]
5. How did you decide which polling places to keep and which ones to drop?
6. What have been the consequences of the new vote anywhere policy? Were any of these outcomes unexpected? [check printing costs, poll worker costs, provisional ballots]
7. How did you get the word out about these changes as well as the line wait app? What kind of feedback have you received from voters?
8. Any data on how many voters used the line wait app? [County says about 30% of voters cast ballots outside their home polling place in 2020]
9. What problems have you experienced in the transition to the vote anywhere policy?
10. Are other jurisdictions looking to copy your system? What advice or warnings would you give to them?