SURVIVAL VOTING AND MINORITY POLITICAL RIGHTS

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The health of American democracy has literally been challenged. The global pandemic has powerfully exposed a long-standing truth: electoral policies that are frequently referred to as "convenience voting" are really a mode of "survival voting" for millions of Americans. As our data show, racial minorities are overrepresented among voters whose health is most vulnerable, and politicians have leveraged these health disparities to subordinate the political voice of racial minorities.

To date, data about racial disparities in health has played a very limited role in assessing voting rights. A new health lens on the racial impacts of voting rules would beneficially inform—and perhaps even fundamentally alter—how we address several common voting rights issues. A new focus on the disparate health effects of voting rules, grounded in the kind of solid empirical evidence we provide, could reinvigorate the Voting Rights Act (VRA) by providing new avenues for assessing voting rights, for litigating and judging voter suppression claims under section 2, and even informing a new coverage formula in a modified section 5. This evidence arrives at a critical juncture for the VRA which has been stripped of much of its bite by the Supreme Court and is currently being debated in Congress. The clear and compelling story told by our data are a clarion call to legislators, courts, and litigators to reconceptualize and strengthen voting rights by

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accounting for the barriers that health disparities pose to minority access to the ballot.

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INTRODUCTION

Public health officials have uniformly warned that racial minorities face heightened risks from COVID-19, not only in contracting the virus but also in dire outcomes like hospitalization and death.[1] With this fact in mind, one has to ask whether it was pure coincidence that many of the places with the most egregious histories of undermining the votes of racial minorities opted to provide vote-by-mail options to some groups with heightened risks to the virus—the elderly and those with some underlying health conditions[2]—while at the same time outright refusing to accommodate racial minorities who also faced heightened risks related to COVID-19.

Candidates in American elections often rhetorically characterize the choice facing voters as one of life or death.[3] However, for many voters—including many racial minorities—the life and death stakes were not rhetorical in 2020. Despite pleas and warnings from health officials to avoid social gatherings in light of the COVID-19 pandemic, more than eighty million Americans assembled in polling places and voting centers

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1. *See, e.g.*, Samantha Artiga, Bradley Corallo, & Olivia Pham, *Racial Disparities in COVID-19: Key Findings from Available Data and Analysis*, KAISER FAM. FOUND. (Aug. 17, 2020), https://www.kff.org/report-section/racial-disparities-in-covid-19-key-findings-from-available-data-and-analysis-issue-brief [https://perma.cc/9K6C-EH24]. People living in poverty also remain at higher risk for COVID mortality; *see also* Caitlin Brown & Martin Ravallion, *Poverty, Inequality, and COVID-19 in the U.S.*, VOX EU (Aug. 10, 2020), https://voxeu.org/article/poverty-inequality-and-covid-19-us [https://perma.cc/4ECG-8KL5].

2. *See, e.g.*, *Yale Researchers Develop Model to Estimate COVID-19 Mortality Risk in Veterans*, YALE SCH. OF MED. (Dec. 2, 2020), https://medicine.yale.edu/news-article/28980 [https://perma.cc/9B5B-8944] (reporting that "researchers discovered that age is the strongest predictor of mortality, with risk climbing after age 55"); *see also id.* (noting that "another important predictor of COVID-19 mortality is the number of diagnoses a patient has based on the Charlson Comorbidity Index (CCI), a listing of 17 health conditions").

3. *See, e.g.*, Cory Booker, *Booker: 'Our Hearts Are Hurting Today'*, N.J. GLOBE (Sept. 19, 2020, 9:25 PM), https://newjerseyglobe.com/congress/booker-our-hearts-are-hurting-today [https://perma.cc/N62D-935J] ("[P]lease make sure that your family, friends, and neighbors understand the importance of getting engaged in this election. This is a life or death election in so many respects. Sitting on the sidelines is unacceptable.").

across the country to cast their ballots,[4] many doing so because they were left with no alternative if they wanted to vote. In the weeks following the election, thousands of voters and scores of poll workers tested positive for COVID-19.[5]

All of this occurred as Black Lives Matter protests proliferated across the nation and as white supremacists rallied openly for the incumbent President Trump. It also occurred against the backdrop of a significantly weakened Voting Rights Act (VRA): the crown jewel of the Civil Rights movement that was stripped of much of its power by the Supreme Court[6] while Congress floundered in restoring strength to the Act's provisions.

Could this diminished VRA provide a solution to politicians capitalizing on the pandemic to suppress minority vote? Even before the judicial assault on the VRA, health considerations—while one of many factors used to gauge racial discrimination—had rarely been more than a footnote in voting rights cases, used only to bolster other valid claims of discrimination. Frequently ignored, health considerations served as garnish, at best.

Yet, in two separate cases in different states, federal courts, for the first time, took health considerations in voting seriously, striking down election rules under the VRA based solely on the fact that minority communities faced heightened risks related to COVID-19 and that these risks had not been adequately taken into account.[7] In these two cases, the courts relied on preliminary data from the CDC and general guidelines from other government agencies that highlighted the

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4. Fifty-four percent of the 158.4 million people who voted during the 2020 presidential election voted in person. *See Turnout Soared in 2020 as Nearly Two-Thirds of Eligible U.S. Voters Cast Ballots for President*, PEW RSCH. CTR. (Jan. 28, 2021), https://www.pewresearch.org/fact-tank/2021/01/28/turnout-soared-in-2020-as-nearly-two-thirds-of-eligible-u-s-voters-cast-ballots-for-president [https://perma.cc/4RH4-7K8X] (noting the remarkedly high turnout for the election); *Sharp Divisions on Vote Counts, as Biden Gets High Marks for His Post-Election Conduct*, PEW RSCH. CTR. (Nov. 20, 2020), https://www.pewresearch.org/politics/2020/11/20/the-voting-experience-in-2020 [https://perma.cc/Z475-USZG].

5. Kira Lerner & Indrani Basu, *Scores of US Poll Workers Tested Positive for Covid over Election Period*, GUARDIAN (Dec. 7, 2020, 12:03 PM), https://www.theguardian.com/us-news/2020/dec/07/pandemic-covid-coronavirus-election-poll-workers [https://perma.cc/3KWL-PGYL].

6. *See infra* text accompanying notes 63–73.

7. *See infra* Part I.

heightened risk faced by racial minorities. Unfortunately, both cases came so late in the 2020 election cycle that they were later dismissed by appellate courts on practical grounds that changes so close to the election were not feasible.

Even though both courts lacked systematic data to assess the full effects of racial health disparities on ballot access and voter participation, they were onto something far more profound and significant than they could have known at the time.

In this Article, we provide the data the courts lacked, and it is damning. Specifically, applying advanced statistical methods to a trove of public health data, we provide an in-depth analysis of minority voting rights during the 2020 election. We find that minorities are not only more likely to contract and die from COVID-19, but also that the proportion of nonwhite citizens is the single leading driver of COVID-related death in America's most vulnerable counties—more than old age or any other underlying health condition. Indeed, race is the best predictor of COVID-19 case fatality rates in almost all of America's most vulnerable counties.[8]

As shocking as this is—and yet somehow at the same time still unsurprising—the data are worse than that. The data show that many of the counties in the states with a history of racial voter suppression are in states that did the very least to protect racial minorities, even though those same states threw lifelines to other vulnerable populations like older Americans. And perhaps worst of all, we show that this attempt to suppress the vote seems to have worked: voter turnout in those most at-risk counties left without protection did not keep pace with those counties with lower COVID-19 risks. In other words, elected officials who tried to leverage the pandemic to their political advantage seem to have succeeded.

To be sure, this paper provides just one more entry in the long chronicles of voter suppression of racial minorities. When the issue of racial disparities in health and voting comes before the courts, and it inevitably will, anecdotal evidence and postulation must give way to hard data and statistics. We provide some of these statistics here as well as a roadmap for gathering and presenting similar data in the future.

Our findings also provide a compelling reason for Congress to revive and reinvigorate the VRA: the recent history of racial voter suppression

8. *See infra* Figure 1.

is a clarion call that if we leave this problem unaddressed, our future will bring more of the same. And make no mistake about it: the very rules that imperiled minority communities and prevented them from expressing their political voice, if left unchecked, increase the likelihood that they may face similar threats in the future.

Racial disparities in health outcomes are not a new phenomenon, but the COVID-19 pandemic has provided a unique window to assess empirically the connection between racial disparities in health and elections. And this new evidence we present makes other research focused on the ties between race and health all the more salient. Public health scholarship has tracked the social determinants of health for decades and found that a major contributing factor to racial disparities in public health outcomes is the subordination of communities of color.[9] Similarly, the history of disasters and decades of disaster scholarship makes clear that disaster impacts almost always disproportionately burden communities of color and the poor,[10] and that both disasters themselves and government disaster response tend to expose, entrench, and exacerbate existing patterns of racial and class inequity.[11]

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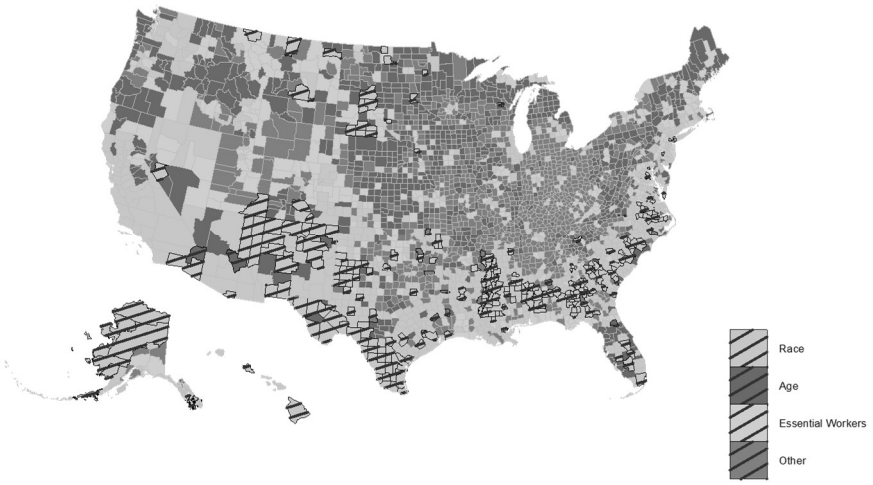
9. *See* Angela P. Harris & Aysha Pamukcu, *The Civil Rights of Health: A New Approach to Challenging Structural Inequality*, 67 UCLA L. REV. 758, 766–780 (2020) (arguing that because health is socially determined, political factors such as the distribution of power, money, and resources largely result in the subordination of individuals not belonging to a dominant gender, race, or religion).

10. *See, e.g.*, Susan Cutter, *The Geography of Social Vulnerability: Race Class, and Catastrophe*, SOC. SCI. RSCH. COUNCIL: ITEMS (June 11, 2006), https://items.ssrc.org/understanding-katrina/the-geography-of-social-vulnerability-race-class-and-catastrophe [https://perma.cc/W6QQ-FC7F] (noting that while "[d]isasters are income neutral and color-blind," disaster "impacts . . . are not"). Other vulnerable groups also are disproportionately impacted by disasters; *see also, e.g.*, DANIEL A. FARBER, JAMES MING CHEN, ROBERT R.M. VERCHICK, & LISA GROW SUN, DISASTER LAW & POLICY 260 (3d ed. 2015) ("Women, children, the elderly, persons with disabilities, and immigrants (documented and otherwise) all suffer from disaster in ways that other victims do not.").

11. *See, e.g.*, Lisa Grow Sun, Brigham Daniels, Doug Spencer, Chantel Sloan, Natalie Blades, & Teresa Gomez, *Disaster Vulnerability*, 63 B.C. L.REV. 957, 968 (2022) (marshalling evidence that disasters and disaster aid exacerbate existing inequity and vulnerability); *see also* FARBER ET AL., *supra* note 10, at 228 (arguing that, although disasters are often discussed "as 'great social equalizers,'" disasters do "not so much erase as expose social vulnerability") (citations omitted).

FIGURE 1: County-level predictors of COVID-19 case fatality (death as a percent of positive diagnosis).[12]



The COVID-19 pandemic has laid bare how racial disparities in health, rooted in social and historical inequities, can suppress the vote in communities of color in all elections, not just during pandemics. The data we present is essential both to litigation before courts and the debates currently in Congress. While health data has historically received short shrift in legislative efforts and VRA litigation, we present evidence that politicians can use voting rules to leverage health disparities, rooted in the subordination of racial minorities, to further subordinate and suppress minority voting power.

In Part I, we discuss the relevance of public health data for minority voting rights. We trace the legislative history that introduced public health disparities into voting rights law, in particular, the 1982 amendments to section 2 of the VRA and the 2006 reauthorization of section 5 of the VRA. We explore how health data has been used in VRA enforcement by examining every section 2 case since 1982 and discover that, while lower courts ubiquitously refer to public health as a relevant metric, actual evidence of health disparities has generally played a

12. Counties are color-coded by the predominant factor that explains COVID-19 vulnerability. Counties in the top ten percent of risk for COVID fatalities are identified with crosshatching.

relatively minor role in the disposition of cases. COVID-19 may have provided the impetus for a change to this practice. In two cases during the 2020 election cycle, courts struck down limits on absentee voting based *solely* on public health data and the recognition that public health is fundamentally related to voting rights. Because health disparities are one of the few conditions explicitly identified by the Supreme Court as probative of VRA liability, we argue that the secret for reviving the VRA may be hiding in plain sight.

In Part II, we describe a novel set of indices of COVID-19 vulnerability in every county in the United States. Our indices differ from other coronavirus models in that we incorporate data on both the underlying health factors related to COVID-19 as well as the structural drivers of COVID-19 risk. Our indices do not predict where a COVID-19 outbreak will happen, but instead identify areas where a COVID-19 outbreak would be especially deadly. We also identify the primary drivers of this fatality risk. We find that race is the predominant driver of COVID-19 case fatality and population mortality rates in nearly every at-risk county (those in the top ten percent of COVID-19 risk) in the United States. In other parts of the country age, wealth, underlying health conditions, and/or other factors are the primary drivers. We leverage this variation to show how voting rules interact with public health in ways that perpetuate racial subordination. For example, in Texas, absentee ballots are available to individuals over the age of 65, people with a disability, and those physically absent on Election Day. In the lead up to the 2020 election, state officials refused to expand the eligibility requirements for absentee ballots to include individuals at risk for COVID-19, despite political pressure and orders from both state and federal courts.[13] (The state appealed the court orders, which were ultimately stayed).[14]

As our models show, the decision not to expand eligibility had important impacts on the 2020 election. In the counties where COVID-19 risk was the highest, turnout in the election was the lowest. Even more, race and ethnicity are the predominant factor of COVID-19 vulnerability in every Democratic county in the state, while a bevy of factors, including age (65+) are the primary driver for COVID-19 vulnerability in Republican counties across the state. Our findings

13. *See infra* Part II.
14. *See infra* Part II.

suggest that the failure to accommodate the health risks of racial minority voters sacrificed their health and possibly their lives while diminishing their voice in the 2020 election.

In Part III, we step back and evaluate the impact of COVID-19 on election laws in every state during the primaries and the November 2020 election. We find repeated examples of voter accommodations being made for the elderly and disabled but not for racial minorities. We also find that many of the states that made the fewest accommodations for vulnerable voters in general, and racial minorities in particular, are jurisdictions that were formerly covered by section 5 of the VRA, before its coverage formula was invalidated in *Shelby County v. Holder*.[15] This pattern suggests both an ongoing need for the protections that section 5 once afforded minority voters and the potential for using data about racial health disparities to inform a new coverage formula.

In Part IV, we consider the lessons of the COVID-19 pandemic for the future of voting rights. We argue that the pandemic has underscored the need for emergency voting procedures that are data-driven and resilient across a wide range of future potential disasters and voter situations, the importance of states building trust in less traditional voting methods, and, most importantly, the pressing need for legislators, courts, and litigants to reconceptualize voting rights to account for racial health disparities when assessing the impact of voting rules on minority access to the ballot.

In short, COVID-19 has not just complicated the regular fissures of American politics. COVID-19 has exposed a fundamental fault line about the right to vote: its protection is not a rhetorical exercise, its greatest threats are not voter fraud, and barriers to voting—particularly barriers resulting from health disparities rooted in racial subordination—are more than mere inconveniences.

I. PUBLIC HEALTH AND THE VOTING RIGHTS ACT

To appreciate the implications of our findings, it is necessary to understand the role of public health data in VRA litigation. To begin this Part, we examine section 2 of the VRA, first discussing its legislative history and summarizing the judicial neglect of public health as a probative factor for proving race discrimination in voting. We then

15. 570 U.S. 529 (2013).

highlight two district court cases from 2020 that relied heavily on evidence of racial disparities in COVID-19 exposure, infection, and serious illness, and death to enjoin voting rules that failed to provide adequate accommodations in violation of section 2.

We then discuss the history of section 5 of the VRA, including its sunset provision and subsequent evisceration by the Supreme Court in *Shelby County v. Holder*.[16] The primary purpose for providing this background is to lay a sufficient foundation of the implications of the data necessary to understand the Article's call for Congress to take health and vulnerability data into account and to revisit and revitalize the VRA.

A. Section 2: Social and Historical Conditions

Section 2 of the Voting Rights Act prohibits discrimination in voting based on race or color.[17] When a plaintiff alleges discrimination, courts ask for evidence that any racially-disparate outcomes in political opportunity "interact[] with social and historical conditions" in the jurisdiction.[18] In evaluating plaintiffs' evidence, a court looks to a list of relevant factors which include, among other things, "the extent to which members of the minority group . . . bear the effects of discrimination in such areas as education, employment, *and health*, which hinder their ability to participate effectively in the political process."[19] How did this reference to public health outcomes (and systemic racism more generally) find its way into the voting rights jurisprudence?

When the Voting Rights Act was initially passed in 1965, section 2 provided a cause of action when "any State or political subdivision . . . den[ies] or abridge[s] the right of any citizen of the United States to vote on account of race or color."[20] In 1970, the state of Texas adopted a reapportionment plan for its state House of Representatives that used a mix of single-member and multi-member districts.[21] The Supreme

16. *Id.*
17. Voting Rights Act of 1965, 52 U.S.C. § 10301.
18. Thornburg v. Gingles, 478 U.S. 30, 47 (1986) ("The essence of a § 2 claim is that a certain electoral law, practice, or structure interacts with social and historical conditions to cause an inequality in the opportunities enjoyed by black and white voters to elect their preferred representatives.").
19. S. REP. NO. 97-417, at 28–29 (1982) (emphasis added).
20. Voting Rights Act of 1965 (VRA), Pub. L. 89-110, § 2, 79 Stat. 437, 437 (1965).
21. White v. Regester, 412 U.S. 755, 761 (1973).

Court, looking primarily at the negative effect of multi-member districts on the political opportunities for Mexican-Americans, invalidated the districting plan in *White v. Regester*.[22] The Court stopped short of interpreting section 2 as a guarantee of proportional representation for racial and political minorities and instead (significantly in our minds) pointed to the lower court's findings, as part of a multi-pronged "totality of the circumstances" analysis, that Mexican-Americans "had long 'suffered from, and continue[] to suffer from, the results and effects of invidious discrimination and treatment in the fields of education, employment, economics, *health*, politics and others.'"[23]

In 1980, the Court heard another section 2 challenge to the at-large voting system for the city council in Mobile, Alabama. The Black population in Mobile was approximately thirty-five percent, yet no candidate preferred by Black voters had ever been elected to the three-seat city council.[24] In deciding whether the at-large election system violated section 2 of the Voting Rights Act, the Court deviated from its approach in *White v. Regester*. In *City of Mobile v. Bolden*,[25] a plurality held that "the language of [section] 2 no more than elaborates upon that of the Fifteenth Amendment, and the sparse legislative history of [section] 2 makes clear that it was intended to have an effect no different from that of the Fifteenth Amendment itself."[26] This particular connection itself did not represent a departure from *White v. Regester*. And the link between section 2 and the Fifteenth Amendment was quite understandable given their parallel language.[27] The Court in *Mobile v. Bolden* went further, however, by interpreting the Fifteenth Amendment

22. 412 U.S. 755, 769 (1973) ("[M]ultimember district[s], as designed and operated in Bexar County, invidiously exclude[] Mexican-Americans from effective participation in political life . . . . ").

23. *Id.* at 768–69 (internal citations omitted) (referring to the "standards" set forth in Whitcomb v. Chavis, 403 U.S. 124 (1971)) (emphasis added).

24. City of Mobile v. Bolden, 446 U.S. 55, 58 & n.1, 71 (1980) (plurality opinion).

25. 446 U.S. 55 (1980).

26. *Id.* at 60–61.

27. *Compare* U.S. CONST. amend. XV ("The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude."), *with* VRA § 2 ("No voting qualification or prerequisite to voting, or standard, practice, or procedure shall be imposed or applied by any State or political subdivision to deny or abridge the right of any citizen of the United States to vote on account of race or color.").

to prohibit discrimination "only if motivated by a discriminatory purpose."[28]

By reading an intent standard into the Fifteenth Amendment and then linking the Fifteenth Amendment to section 2 of the VRA, the Court announced that its approach in *White v. Regester*—emphasizing the *effects* of a race-neutral law under a "totality of the circumstances" analysis—would not be sufficient going forward.[29] Instead, plaintiffs would need to provide evidence that an electoral system's discriminatory effects were intended, purposeful, *and* effective.[30] This holding in *Mobile v. Bolden* was at odds with the purposes of the Voting Rights Act, and Congress immediately set about to amend section 2 and override the Court.[31]

The new language that Congress subsequently adopted, which has not changed since, prohibits any State or political subdivision from imposing any "voting qualification or prerequisite to voting or standard, practice, or procedure . . . in a manner *which results* in a denial or abridgment of the right of any citizen of the United States to vote on account of race or color."[32] This language was adopted with the purpose of reinstating the VRA as interpreted by the Court in *White v. Regester*.

Republicans in Congress initially did not support the amended language of section 2 for fear that the new "results test" would be used to mandate proportional representation. As a compromise, Republicans agreed to support the amendment so long as it included a disclaimer that "nothing in this section establishes a right to have members of a protected class elected in numbers equal to their proportion in the

28. 446 U.S. at 62.

29. *Id.* at 69–70 (noting that *White vs. Regester* upheld the notion that only intentional, purposeful discrimination constitutes a violation of the VRA and that racially neutral laws would rarely result in intentional discrimination).

30. *Id.* at 67–68 (1980) ("Although dicta may be drawn from a few of the Court's earlier opinions suggesting that disproportionate effects alone may establish a claim of unconstitutional racial vote dilution, the fact is that such a view is not supported by any decision of this Court.").

31. *See* Christopher S. Elmendorf, *Making Sense of Section 2: Of Biased Votes, Unconstitutional Elections, and Common Law Statutes*, 160 U. PA. L. REV. 377, 386 (2012) (noting that Congress rapidly moved to amend section 2 and increase the specificity of the language involving voter infringement in direct response to the ruling in *City of Mobile*).

32. 52 U.S.C. § 10301(a) (emphasis added).

population."[33] Because the Court was explicit in *White v. Regester* that the VRA did not guarantee proportional representation to racial and political minorities, this compromise was congruent with the underlying motivation for amending section 2 in the first place. Nevertheless, a group of Senate Republicans were still wary that the "totality of the circumstances" approach in *White v. Regester* (which leaned on a set of ill-defined factors discussed in a set of earlier cases)[34] could be used in the future to implement a raw disparate impact standard for voting rules. These Republicans published a report that identified a set of factors they thought courts should evaluate as part of any totality of the circumstances analysis in future VRA litigation.[35] This report implicitly acknowledged the pernicious effects of systemic racism, including the relevance of racial disparities in public health, as well as education and employment, to political power.[36] In the first post-1982 section 2 case to reach the Supreme Court, *Thornburg v. Gingles*,[37] these "Senate Factors" were codified into a formal "totality of the circumstances" inquiry that is required for a finding of liability under

33. *Id.* § 10301(b).

34. *See, e.g.*, Whitcomb v. Chavis, 403 U.S. 124, 132 (1971) (pointing to racial disparities in "housing conditions, income and educational levels, rates of unemployment, juvenile crime, and welfare assistance" and the state's "compelling interests in such legislative areas as urban renewal and rehabilitation, health care, employment training and opportunities, welfare, and relief of the poor, law enforcement, quality of education, and anti-discrimination measures"); Burns v. Richardson, 384 U.S. 73, 87 (1966) (noting that in drawing multimember districts, the state legislature failed to take into account "community of interests, community of problems, socio-economic status, political and racial factors").

35. S. REP. NO. 97-417, at 28–29 (1982).

36. *Id.* The factors include "the extent of any history of official discrimination" against minority voting rights; "the extent to which" voting in the jurisdiction "is racially polarized;" "the extent to which [the jurisdiction] has used unusually large election districts, majority vote requirements, anti-single shot provisions, or other voting practices or procedures that may enhance the opportunity for discrimination against the minority group;" whether minorities have been "denied access" to any "candidate slating process;" "the extent to which" minorities in the jurisdiction "bear the effects of discrimination in such areas as education, employment and health, which hinder their ability to participate effectively in the political process;" "whether political campaigns" have used "overt or subtle racial appeals;" and "the extent to which" minorities "have been elected to public office." *Id.*

37. 478 U.S. 30 (1986).

section 2 to this day.[38] In formalizing the Senate Factors, the Court in *Gingles* emphasized that racial disparities in voting must "interact[] with social and historical conditions," which includes health conditions, among other factors, in order to give rise to liability.[39]

Since *Gingles*, more than 1,500 section 2 cases have been filed in federal courts.[40] In each of these cases, plaintiffs were required to provide evidence that linked their complaints about minority voting rights to social and historical conditions. Of these 1,500 cases, courts considered evidence of public health outcomes in just fifty-six.[41] By and large, health data have played a minimal role in section 2 litigation, comprising just a handful of sentences in published opinions. When experts introduce, and courts consider, evidence of racial disparities in health care or health outcomes, the data are almost always paired with evidence of racial disparities in education and employment in keeping with the language of the Senate Factors.

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38. *See id.* at 45–46 (noting that the legislative history of section 2's amendment clearly created a non-exhaustive list of factors that were to be considered in totality for courts to reach their conclusion).

39. *Id.* at 47.

40. Authors' search of Westlaw database for litigation filed under 52 U.S.C. § 10301 and predecessor 42 U.S.C. § 1973. *See also* Ellen Katz, Margaret Aisenbrey, Anna Baldwin, Emma Cheuse, & Anna Weisbrodt, *Documenting Discrimination in Voting: Judicial Findings Under Section 2 of the Voting Rights Act Since 1982*, 39 U. MICH. J.L. REFORM 643, 654 (2006) (identifying "331 lawsuits, encompassing 763 decisions, addressing Section 2 claims [between] 1982 [and 2006]"). Note that section 2 litigation is just a small slice of all voting rights actions brought under the VRA, whether through official federal court litigation or out-of-court settlements. *See* Morgan Kousser, *Do the Facts of Voting Rights Support Chief Justice Roberts's Opinion in Shelby County?*, TRANSATLANTICA, Jan. 9, 2016, at 1, 2, https://journals.openedition.org/transatlantica/7462 [https://perma.cc/JE25-5EYP] (reporting the total number of voting rights "actions" at 4,173 between 1982–2015).

41. To be precise, we searched within the citing references of our Westlaw query for any case where the word "health" appeared three or more times. This search yielded 175 cases. We read each of these cases and subset the cases to just those that considered evidence about health care, health outcomes, and/or health risks (as opposed to, say, the "health" of democracy).

A typical example is found in *Veasey v. Perry*,[42] a case challenging Texas's voter ID law in 2014.[43] In that case, the district court judge considered nearly 100 pages of evidence, including evidence of racial disparities in public health outcomes across the state. Citing expert reports, the judge noted:

> According to the U.S. Centers for Disease Control, African-Americans and Hispanics in Texas are much more likely to report being in poor or fair health, to lack health insurance, and to have been priced-out of visiting a doctor within the past year. And compared to adult Anglos throughout the state, minorities in Texas experience higher levels of health impairment—particularly those minorities who are low-income. This is a predictable effect of discrimination because health, education, and employment opportunities are all interdependent . . . African-Americans and Latinos are less educated because of discrimination, suffer poorer health because of discrimination, are less successful in employment because of discrimination, and are likewise impoverished in greater numbers because of discrimination.[44]

Much like the record in *Veasey*, public health data are consistently identified as a relevant metric for distinguishing between discriminatory voting rules that serve to subordinate minority communities and accidental, temporary, or otherwise benign disparities in minority political opportunity. But just like in *Veasey*, health data are almost always a small part of the equation. Prior to 2020, section 2 liability had never been based on evidence of disparities in public health alone.

While hardly a sea change, but potentially an important harbinger of such a change, litigation during the 2020 election cycle provided two exceptions to this trend. Significantly, in Texas and Alabama, federal courts struck down election rules under section 2 of the VRA not merely

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42. 71 F. Supp. 3d 627 (S.D. Tex. 2014), *aff'd in part, vacated in part, remanded sub nom.* Veasey v. Abbott, 796 F.3d 487 (5th Cir. 2015), *on reh'g en banc,* 830 F.3d 216 (5th Cir. 2016), and *aff'd in part, vacated in part, rev'd in part sub nom. Veasey*, 830 F.3d at 216.

43. *Id.* at 632.

44. *Id.* at 666–67.

due to amorphous health conditions, but rather based *solely* on the fact that minority communities faced heightened risks related to COVID-19.[45] The tie to voting in both of these cases could not have been clearer because the risks posed by the pandemic implicated the rules surrounding elections themselves.

In *Mi Familia Vota v. Abbott*,[46] a federal court in the Western District of Texas enjoined part of a gubernatorial executive order related to voting.[47] In July 2020, Texas Governor Greg Abbott issued a statewide mask mandate, acknowledging that "health authorities have repeatedly emphasized that wearing face coverings is one of the most important and effective tools for reducing the spread of COVID-19."[48] The Executive Order listed eleven exemptions from the mandate, including "any person who is voting, assisting a voter, serving as a poll watcher, or actively administering an election."[49] Based on the conclusion that Black and Latino communities "experience greater risk of contraction and severity of [COVID-19] and this discriminatory effect can be eliminated, or at least mitigated, if all people wear masks at polling sites," the court issued a preliminary injunction against the polling place exemption, noting that plaintiffs were likely to succeed on the merits of their section 2 challenge.[50]

In *People First of Alabama v. Merrill*,[51] a federal court in the northern district of Alabama struck down a witness requirement related to absentee balloting. In order to cast an absentee ballot, Alabama law required voters to either notarize their ballot or have two witnesses sign the ballot. After an in-depth survey of health statistics, the court held that the witness requirement violated section 2 of the VRA. The state argued that there could be no violation because "Black and [w]hite

45. *See* Mi Familia Vota v. Abbott, 497 F. Supp. 3d 195, 217 (W.D. Tex. 2020); People First of Ala. v. Merrill, 491 F. Supp. 3d 1076, 1172 (N.D. Ala. 2020).

46. 497 F. Supp. 3d 195 (W.D. Tex. 2020), *order stayed*, 834 Fed. Appx. 860 (5th Cir. 2020).

47. *Id.* at 223.

48. Tex. Exec. Order No. GA-29, (July 2, 2020).

49. *Id.*

50. *Mi Familia Vota*, 497 F. Supp. 3d at 217, 223.

51. 491 F. Supp. 3d 1076 (N.D. Ala. 2020), *appeal dismissed sub nom.* People First of Alabama v. Sec'y of State for Ala., No. 20-13695-GG, 2020 WL 7038817 (11th Cir. Nov. 13, 2020).

voters *who are equally at risk* for COVID-19 complications . . . 'face similar outcomes.'"[52] The court was not convinced, writing that

> this argument ignores reality in Alabama—all things are not equal in Alabama in relation to COVID-19. Based on the evidence at trial, Black and [w]hite voters are not "equally at risk" for contracting COVID-19. The plaintiffs have also shown that once infected with COVID-19, Black individuals are more likely to have serious complications and die.[53]

In both of these cases, the district courts' orders were ultimately stayed pursuant to the "Purcell principle" that cautions against changing any election rules in the weeks immediately preceding an election.[54] But in both of these cases the courts recognized public health data as an especially effective window into the underlying social conditions that implicate voting rights. In *Mi Familia Vota*, the court noted that "the discriminatory burden that deters Black and Latino voters is at least in part caused by *social conditions of the environment* of the COVID-19 pandemic."[55] In *People First of Alabama*, the court wrote that "[t]he higher risk of COVID-19 infection for African Americans is tied to pre-existing and evolving inequities in structural systems and social conditions."[56]

These observations are especially poignant. In our view, public health data have been underappreciated by courts and Congress and underutilized by plaintiffs in cases challenging voting rules. Not only are public health outcomes directly related to voting (it is difficult or impossible to vote if you are sick or hospitalized), but many of the social drivers of public health are correlated with political power. As we show in Parts III and IV below, the coronavirus pandemic has exposed the political nature of public health as a tool for voter suppression. This relationship existed before COVID-19 and will persist long after the pandemic finally subsides. We hope that the attention on public health and vulnerability during the 2020 election will spark a renewed focus

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52. *Id.* at 1171.

53. *Id.* at 1172 (citation omitted).

54. *See* Purcell v. Gonzalez, 549 U.S. 1, 4–5 (2006) (per curiam). For a discussion of the impact of *Purcell* on election law litigation in the lower courts, see Richard L. Hasen, *Reining in the* Purcell *Principle*, 43 FLA. ST. U. L. REV. 427 (2016).

55. 497 F. Supp. 3d at 217 (emphasis added).

56. 491 F. Supp. 3d at 1097.

on health disparities in VRA litigation, and the "structural systems and social conditions" that contribute to these disparities.[57]

B. Section 5: Spatial Variation in Racism

Section 5 of the VRA requires a subset of political jurisdictions in the United States to get permission, or "preclearance," from the federal government before making changes to their election rules or practices.[58] When Congress enacted the VRA in 1965, section 5 was included as a check on certain states and local governments that had a long record of discriminating against racial minority voting rights.[59] Congress instituted a sunset provision for section 5, which has been extended four times and currently expires in 2031.[60] The formula used to identify which states would be covered under section 5 focused solely on contemporary state laws and voting behavior.[61] The formula did not look at employment data, education statistics, or public health data. As time went on, Congress failed to update the formula so that, by the 2010 Census, covered jurisdictions were still identified by their voter registration rates and turnout in the 1970s. Based on Congress's failure to update the coverage formula over time, the Supreme Court freed all jurisdictions from section 5 coverage in 2013 in *Shelby County v. Holder*.[62] Going forward, the Court held that "Congress—if it is to divide the States—must identify those jurisdictions to be singled out on a basis that makes sense in light of *current conditions*."[63]

What conditions did the Court have in mind? The majority did not say. Presumably, the expectation was *not* for Congress to rely on the same conditions as they did in 1965, since, as the majority noted, voter

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57. *Id.* at 1097.

58. *About Section 5 of the Voting Rights Act*, DEP'T OF JUST., https://www.justice.gov/crt/about-section-5-voting-rights-act [https://perma.cc/75UR-FD63].

59. *See id.*

60. *See id.* ("In 2006, Congress extended the requirements of Section 5 for an additional 25 years.").

61. The formula identified states that used a "test or device" as a prerequisite to vote (e.g., a literacy test or poll tax), or where less than fifty percent of the voting age population were registered to vote and/or turned out to vote. *See Section 4 of the Voting Rights Act*, DEP'T OF JUST., https://www.justice.gov/crt/section-4-voting-rights-act [https://perma.cc/VF6Q-5LBA].

62. 570 U.S. 529, 553 (2013).

63. *Id.* (emphasis added).

registration and turnout among minority voters currently matched or even exceeded white registration and turnout in most of the covered states by 2013.[64] Presumably, then, Congress would need to rely on different metrics to identify where minorities were most likely to suffer discrimination at the hands of state officials.

Ironically, when Congress reauthorized section 5 in 2006, (thereby extending the sunset provision for another twenty-five years), it compiled just such a record about voting discrimination from forty-six witnesses over nearly two dozen hearings.[65] This record focused heavily on the prevalence of racially polarized voting in the covered states, but experts also introduced evidence of racial attitudes, prior liability under section 2 of the VRA, and racial disparities in public health.[66] Congress found that this contemporary evidence, while not directly capturing voters' behavior, was highly correlated with the supposedly outdated coverage formula. In other words, racially polarized voting was far more prevalent, racial attitudes much worse, and racial disparities in public health more pronounced in the covered jurisdictions.

In the face of this evidence, Congress decided to reauthorize the formula as it was, rather than engaging in the politically treacherous task of redefining the formula, with the hope that its careful analysis and scrutiny would serve as evidence that the formula continued to capture the current conditions of racial discrimination in voting.[67] Ultimately, the Supreme Court split five to four on this very issue.[68] Chief Justice Roberts, writing for the majority, lamented that "Congress did not use the record it compiled to shape a coverage formula grounded in current conditions. It instead reenacted a formula based on 40–year–old facts

64. *Id.* at 547–48.

65. 152 CONG. REC. S7950 (2006) (statement of Sen. Arlen Specter).

66. *See, e.g.*, *id.* at S7950–52 (statement of Sen. Arlen Specter); Testimony of Wade Henderson Before the Subcommittee on the Constitution of the Committee on the Judiciary House of Representatives (Mar. 8, 2006) (presenting evidence of health disparities in North Carolina and Virginia between 1982–2006); Testimony of Orville Button, Exhibit 6 (Mar. 8, 2006) (discussing health disparities in Texas based on expert report from 2003 congressional redistricting in Texas); Testimony of Eugene Lee, Exhibit 1 (Mar. 8, 2006) (discussing the lack of health insurance among Asian Americans in California).

67. For a full accounting of the legislative history of the 2006 reauthorization, see Nathaniel Persily, *The Promise and Pitfalls of the New Voting Rights Act*, 117 YALE L.J. 174 (2007).

68. Shelby County v. Holder, 570 U.S. 529, 532 (2013).

having no logical relation to the present day."[69] Justice Ginsburg authored the dissent in which she lauded Congress for its careful analysis.

> In all, the legislative record Congress compiled filled more than 15,000 pages. The compilation presents countless "examples of flagrant racial discrimination" since the last reauthorization; Congress also brought to light systematic evidence that "intentional racial discrimination in voting remains so serious and widespread in covered jurisdictions that section 5 preclearance is still needed."[70]

The disagreement in *Shelby County* ultimately boiled down to the question of whether Fthe coverage formula must be defined in exact terms or whether it can be defined by proxy measures. This was really a question about how much deference the Supreme Court should afford Congress. Importantly, however, the debate in *Shelby County* was *not* about what kind of evidence Congress can or should rely on when identifying which states should be covered. As the Court has acknowledged in section 2 cases, racial disparities in public health are strongly correlated with discrimination in voting.[71]

As shown in this Article, racial disparities in public health are geographically concentrated in the formerly-covered states and counties.[72] Our findings below suggest that public health data may prove especially valuable as Congress contemplates updating the coverage formula in the wake of *Shelby County*.[73] As our data show, racism is not dead in the previously covered states and counties. To the contrary, race is the leading indicator of COVID-19 mortality in America's most vulnerable counties, and many of those most vulnerable counties are in former covered jurisdictions.

II. SYSTEMIC DISPARITIES IN HEALTH

In this Part, we describe our indices of COVID-19 vulnerability. Our approach differs from other coronavirus models in that we rely on a rich dataset that captures both the underlying health factors related to

69. *Id.* at 554.
70. *Id.* at 565 (Ginsburg, J., dissenting) (citation omitted).
71. *See supra* notes 55–56 and accompanying text.
72. *See supra* Figure 1.
73. *See, e.g.*, For the People Act of 2021, H.R. 1, 117th Cong. (2021).

COVID-19, as well as the structural drivers of COVID-19 risk. We are the first to systematically explore the relative weight of these intertwined factors on COVID-19 fatality. Our indices do not predict where a COVID-19 outbreak will happen, but they identify areas where a COVID-19 outbreak would be especially deadly, and the primary drivers of this risk.

In Section A, we discuss our datasets and how we went about the task of measuring the vulnerability of every county in the United States to COVID-19. In Section B, we discuss the results of our analysis. Specifically, the data show that the most vulnerable counties are home to many racial minorities and that race is one of the strongest drivers of COVID-19 mortality in these counties. We then provide a case study with damning results. When we apply what we learned about the link between racial identity and COVID-19 to explore the implications of Texas's decision to provide vote-by-mail options to the elderly and those with underlying health conditions, but not to racial minorities, we find that this decision targeted racial minorities with precision, and that voter turnout in the most vulnerable counties was dampened compared to those counties that were less vulnerable. In other words, failure to accommodate the needs of its minority citizens led Texas to suppress their vote.

A. Modeling COVID-19 Risk and Vulnerability

To help visualize the relationship between public health and voting rights, we developed a set of indices related to COVID-19, drawing on public health statistics and data on various socioeconomic factors, (which is discussed in more detail below). Although we focus on COVID-19, our methodology can be replicated for any public health concern. Indeed, as the current pandemic recedes, we argue that public health officials and election administrators should be collaborating to address the public health problems that will endure beyond the current crisis, and that likely predated COVID-19.

In short, the indices that we present in this paper detect areas of the United States where individuals are more likely to be exposed to COVID-19, and they also identify places where a COVID-19 outbreak would be especially lethal. Our measures of COVID-19 risk and vulnerability differ from raw case counts, which are the most common metric of COVID-19 exposure. For example, the online COVID-19 case count tracker hosted

by Johns Hopkins University[74] receives more than one billion site visits per day.[75] Case counts are also tracked and reported by the Centers for Disease Control (CDC),[76] the World Health Organization (WHO),[77] The New York Times,[78] and other state and local agencies.[79]

Our indices dig deeper than raw case counts by highlighting the latent vulnerability of a community to COVID-19 as opposed to the current prevalence of COVID-19 cases, which can vary significantly over time and has also been shown to be a poor indicator of actual risk.[80] Latent vulnerability to COVID-19 is more stable over time, and thus a better metric for public policymaking with a longer time horizon.

Our indices—designed and produced by our team of public health, statistics, and legal experts—draw on county-level health, socioeconomic, and other demographic data available in publicly available records.

First, we record the county-level rates of smoking, obesity, diabetes, and deaths due to heart disease (a proxy for hypertension) because these particular conditions have been shown to greatly increase the risk

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74. *COVID-19 United States Cases by County*, JOHNS HOPKINS UNIV., https://coronavirus.jhu.edu/us-map [https://perma.cc/E65V-A79E].

75. Jocelyn Kaiser, *'Every Day is a New Surprise.' Inside the Effort to Produce the World's Most Popular Coronavirus Tracker*, SCIENCE MAG. (Apr. 6, 2020), https://www.sciencemag.org/news/2020/04/every-day-new-surprise-inside-effort-produce-world-s-most-popular-coronavirus-tracker [https://perma.cc/4BZY-DUDN] (noting that the Johns Hopkins dashboard "gets more than 1 billion hits a day [and] has become the most authoritative source for COVID-19 case data. It is used by news organizations and government agencies around the world.").

76. *COVID Data Tracker*, CTRS. FOR DISEASE CONTROL & PREVENTION, https://covid.cdc.gov/covid-data-tracker/#datatracker-home [https://perma.cc/4M5D-75US].

77. *WHO Coronavirus Disease (COVID-19) Dashboard*, WORLD HEALTH ORG., https://covid19.who.int [https://perma.cc/73LA-PVUF].

78. *Coronavirus in The U.S.: Latest Map and Case Count*, N.Y. TIMES, https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html [https://perma.cc/E7SQ-E5VP].

79. *See, e.g.*, *State Emergency Operations Center*, COLO. DEP'T OF HEALTH & ENV'T, https://covid19.colorado.gov [https://perma.cc/NK3P-6T2D].

80. *See, e.g.*, Youyang Gu (@youyanggu), TWITTER (Feb. 17, 2021, 1:39 PM), https://twitter.com/youyanggu/status/1362109356481933312 [https://perma.cc/4MJW-ZLC9] (noting that the percent of population infected with COVID-19 through Sept. 1, 2020—an aggregate of case counts—had no predictive power ($R2 < 0.02$) on the severity of the "third wave" surge of cases just a few months later in the fall of 2020).

of severe illness or death from COVID-19.[81] Second, we record socioeconomic factors that are correlated with the risk of COVID exposure: race, percent living below the poverty line, percent uninsured, and prevalence of those employed as essential workers, including in healthcare support, food service and preparation, manufacturing, production, and transportation, and other occupations where social presence is necessary. Finally, because age plays such an important role in determining vulnerability to COVID-19, we capture the percent of population age sixty-five or older. Summary statistics are presented in Table 1.

TABLE 1. Model variables for all 3,142 counties and for counties in the top decile according to the COVID-19 Vulnerability Index, Table entries are mean (SD).

	Top Decile Counties (N=308)	All Counties (N=3142)
Minority Race	52.99 (23.6)	23.50 (20.2)
Uninsured	15.62 (7.0)	10.08 (5.1)
Essential Workers	9.52 (2.6)	11.34 (2.9)
Over 65 Years	17.27 (5.1)	18.37 (4.6)
Current Smokers	19.71 (5.3)	17.87 (3.7)
Obese	35.37 (7.6)	33.43 (5.9)
Diabetes	12.54 (4.7)	10.49 (3.5)
Heart Disease (Deaths/1000)	48.87 (57.0)	34.25 (111.9)
COPD (Deaths/1000)	39.74 (16.1)	38.22 (13.0)

81. *See People with Certain Medical Conditions*, CTRS. FOR DISEASE CONTROL & PREVENTION, https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html [https://perma.cc/8WJE-B9FL] (explaining that people with severe illness from COVID are more likely to "[b]e hospitalized, [n]eed intensive care, [r]equire a ventilator to help them breathe, [or] [d]ie").

	Top Decile Counties (N=308)	All Counties (N=3142)
Pop Density (per sq mile)	694.18 (5164.5)	267.54 (1782.4)

We then match COVID-19 case counts and case-fatality rates across the country with the various risk factors described above using a regression. (A full description of our models is presented in the Appendix). More specifically, we run a zero-inflated negative binomial regression of COVID-19 deaths (at the county level) with all the risk-factor subcategorization variables. We include population density as a control variable and case counts as an offset. We then observe the posterior predictive distribution for each county's mortality rate (COVID-19 deaths as a percent of the overall population) and case fatality rate (the likelihood of dying once contracting COVID-19). We divide these posterior distributions into deciles to address the uncertainty inherent in our modeling approach. Our models lack the precision necessary to confidently compare the 100th worst county with the 101st worst county. However, we have high confidence in our comparisons of the top ten percent of counties to the lowest ten percent of counties, or to the median county, or to the average of all counties. And these comparisons reveal important trends. Counties in the top decile for COVID-19 risk are significantly less white (53% nonwhite population compared to overall average of 23.5%), more urban (694 people per square mile versus 268), with higher populations of uninsured (15.6% versus 10%), and higher death rates due to heart disease (48.9 per 1,000 versus 34.4 per 1,000).[82]

By identifying the counties most at-risk to the pandemic, we are able to observe how voting rules interact with public health to bolster, or in some cases undermine, the literal health of elections. Not every health risk is as visible or as publicized as COVID-19, but focusing on the pandemic highlights just how pervasive health disparities are, and how they directly implicate minority voting rights. We also hope that our models will help state and local election administrators identify where

82. Survey on file with authors.

to focus their limited resources to make the most meaningful difference in the face of public health risks in the future.

B. Case Study: Texas Absentee Ballots

We evaluate the relationship between our indices of COVID-19 vulnerability and minority voting rights using a geographic information system (GIS) framework. To provide an illustrative example of our spatial analyses, we dissect the dispute about absentee and mail-in ballots in Texas during the 2020 election cycle. As we show below, the failure to expand access to absentee ballots proved quite detrimental to the voting rights of those most at-risk, especially when that risk was correlated with race.

Texas first provided for absentee voting in primary elections in 1917.[83] To be eligible, a prospective voter had to appear in person with a poll tax certificate in hand and, in the presence of two witnesses, complete a ballot and postmark it to be mailed to the election judge at the voter's polling place. In 1921, the absentee voting process was amended to permit ballots to be sent directly to absentee voters,[84] and in 1933, the process was expanded to apply to all elections, not just primaries.[85] The eligibility requirements for absentee ballots slowly expanded over the next fifty years, first to include those with a doctor's certificate that illness or disability would make it impossible for the voter to appear at the polling place in 1935,[86] then those who wished to vote absentee for religious reasons in 1969,[87] and finally to non-felons currently in jail and anybody over the age of sixty-five in 1975.[88]

The absentee ballot laws were changed in other ways over time, including adding pregnancy to the list of eligible disabilities in 1963, dropping the requirement for a doctor's authentication of disability in 1981, and requiring original application forms to be mailed even if a copy was delivered by e-mail or fax in 2018, but the eligibility requirements remained the same.

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83. TEX. REV. CIV. STAT. ART. 2954 (1917); Tex. S.B. 33, 35th Leg., R.S. (1917).
84. Act of Mar. 12, 1921, 37th Leg., R.S., ch. 113, § 1, 1921 Tex. Gen. Laws 217, 218.
85. Act of Jan. 30, 1933, 43rd Leg., R.S., ch. 4, § 1, 1933 Tex. Gen. Laws 5, 5–6.
86. Act of May 17, 1935, 44th Leg., R.S., ch. 300, § 1, 1935 Tex. Gen. Laws 700, 700.
87. Act of May 24, 1963, 58th Leg., R.S., ch. 424, § 14, 1963 Tex. Gen. Laws 1017, 1034.
88. Act of May 30, 1975, 64th Leg., R.S., ch. 682, § 5, 1975 Tex. Gen. Laws 2080, 2082.

In 2020, a group of voters sued the State for failure to provide absentee ballots for the presidential primary election to anybody fearful of contracting COVID-19 by voting in person.[89] A state judge ruled in favor of the plaintiffs, first by interpreting the word "disability" to encompass voters who are unwilling to vote in person due to COVID-19, and second by pointing to a general provision in the state's election code that any person "who is being harmed or is in danger of being harmed by a violation or threatened violation of [the election] code is entitled to appropriate injunction relief to prevent the violation from continuing or occurring."[90] The judge provided equitable relief in the form of a temporary injunction against the Travis County clerk forbidding rejection of absentee ballot applications by those who rely on the disability category to cover their fear of contracting COVID-19.[91] The parties were ordered to appear in court after the primary election to reassess the situation with respect to the general election in November.[92] The temporary injunction was upheld by an appeals court,[93] but ultimately overturned by the Texas Supreme Court, which determined that the word "disability" referred only to "physical conditions" that did not include lack of COVID-19 immunity or fear of contracting COVID-19.[94]

At the same time these challenges were working their way through the state courts, the same group of plaintiffs filed a challenge in federal court, alleging that the state's absentee ballot laws violated various provisions of the U.S. Constitution and that failure to accommodate the fears of voters who do not want to contract COVID-19 amounted to a conspiracy to interfere with the fundamental right to vote by a protected class in violation of the VRA.[95] While the district court agreed with the

89. Tex. Democratic Party v. DeBeauvoir, No. D-1-GN-20-001610, 2020 Tex. Dist. LEXIS 983, at *1, *6 (Tex. Dist. Ct. Apr. 17, 2020).

90. *Id.* at *4–5 (quoting Tex. Elec. Code § 273.081).

91. *Id.* at *7–9.

92. *Id.*

93. *See* State v. Tex. Democratic Party, 631 S.W.3d 337, 337–38 (Tex. App. 2020).

94. *In re* Texas, 602 S.W.3d 549, 560 (Tex. 2020). The Texas Supreme Court did acknowledge that state law does not require voters to provide evidence of any disability when they check the disability box on the absentee ballot request form, raising the question how the state intended to enforce its opposition to COVID-motivated requests.

95. Tex. Democratic Party v. Abbott, 461 F. Supp. 3d 406, 450–51 (W.D. Tex. 2020).

plaintiffs on each one of their allegations,[96] the Fifth Circuit vacated the lower court's injunction against state and local election officials.[97]

In its opinion, the Fifth Circuit spent considerable attention on the allegation that the age cutoff for absentee ballot eligibility violates the Twenty-Sixth Amendment, which prohibits discrimination in voting "on account of age."[98] By contrast, the Fifth Circuit did not evaluate the allegation of race discrimination, or conspiracy to violate the VRA at all. As we show below, the Fifth Circuit's relative emphasis on concerns about race versus age does not match the facts on the ground.

In the end, Texas expanded the early voting period for both the 2020 primary and general elections,[99] but did not amend its absentee ballot eligibility requirements or make any other efforts to make mail-in voting more accessible.[100] As Texas Attorney General Ken Paxton wrote in response to the first court injunction: "expan[ding] mail-in voting will only serve to undermine the security and integrity of our elections and to facilitate fraud."[101]

In the eyes of the Fifth Circuit, the absentee ballot policy in Texas raised more red flags with respect to age than to race. In the eyes of Texas's governor, attorney general, and several local elections officials,

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96. *Id.* at 420 ("IT IS ORDERED that during the pendency of pandemic circumstances: (1) Any eligible Texas voter who seeks to vote by mail in order to avoid transmission of COVID-19 can apply for, receive, and cast an absentee ballot in upcoming elections during the pendency of pandemic circumstances.").

97. Tex. Democratic Party v. Abbott, 978 F.3d 168, 168, 174 (5th Cir. 2020).

98. *See id.*; U.S. CONST. amend. XXVI.

99. *See* Patrick Svitek, *Texas Will Extend Early Voting Period This Fall, Gov. Greg Abbott Says*, TEX. TRIB. (May 28, 2020, 5:00 PM), https://www.texastribune.org/2020/05/28/texas-2020-early-voting-greg-abbott-coronavirus [https://perma.cc/WJ3C-PS7M].

100. On the contrary, Governor Abbott issued an executive order limiting the number of absentee ballot drop boxes to one per county, no matter the county's size or population. *See* Jolie McCullough, *Texas Counties Will be Allowed Only One Drop-Off Location for Mail-In Ballots, State Supreme Court Rules*, TEX. TRIB. (Oct. 27, 2020, 6:00 PM), https://www.texastribune.org/2020/10/27/Texas-voting-elections-mail-in-drop-off [https://perma.cc/8WEC-TRDH].

101. *AG Paxton: Voting by Mail Because of Disability Must be Reserved for Texas Suffering from Actual Illness or Medical Problems*, TEX. ATT'Y GEN. (Apr. 15, 2020), https://www.texasattorneygeneral.gov/news/releases/ag-paxton-voting-mail-because-disability-must-be-reserved-texans-suffering-actual-illness-or-medical [https://perma.cc/EHE6-K5R7].

absentee ballots posed a risk to the integrity of the election itself.[102] No matter that COVID-19 itself was highly racialized and posed its own threat to the integrity and security of the 2020 election. Indeed, as our COVID-19 indices reveal, race was by far the more important factor for consideration, and the partisan alignment of the state's public health accommodations raise questions about the integrity of Texas's election far more than the risk posed by an expanded pool of absentee voters.

In Figure 2, we present a series of maps that illustrate the geographic distribution of COVID-19 risk in Texas, by county. The two maps in the top row (maps A and B) are color-coded by the health or socioeconomic factor that our model identifies as the predominant factor for COVID-19 vulnerability.

As the maps clearly illustrate, "Race," meaning the proportion of nonwhite population, is the primary driver of COVID-19 vulnerability in 162, or nearly two-thirds (sixty-four percent) of all counties (shaded turquoise), covering virtually every area of the state except the northern parts of the Prairies and Lakes region. "Age," the percent of individuals aged sixty-five or older, is the predominant factor of COVID-19 vulnerability in thirty counties (shaded blue), while the percent of "Essential Workers" is the predominant factor in just thirteen counties (shaded lime green). The predominant factor for COVID-19 vulnerability in the remaining forty-nine counties is a mix of the remaining health or socioeconomic variables in our model (shaded dark green).

Layered on top of these factors are crosshatches that signal counties where the risk of death from COVID-19 is in the top ten percent of all counties across the country. In Map A, death is measured as a percent of the population that has tested positive for COVID-19 (case fatality). In Map B, death is measured as a percent of the overall population (mortality). These two metrics are similar yet capture different elements of risk.

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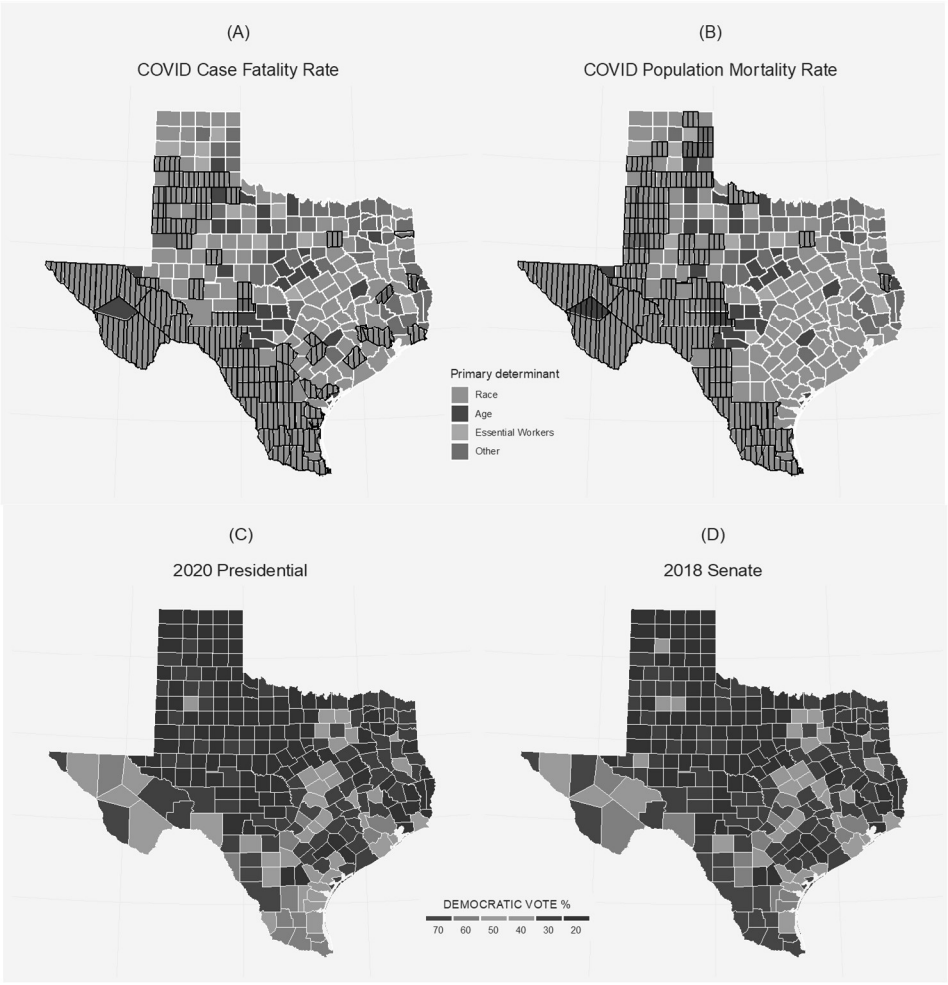
102. Press Release, Off. of the Tex. Governor, Governor Abbott Holds Press Conference on Election Integrity Legislation (Mar. 15, 2021), https://gov.texas.gov/news/post/governor-abbott-holds-press-conference-on-election-integrity-legislation [https://perma.cc/RYS3-Q7M5].

FIGURE 2. County-level maps of Texas.[103]



103. The top two maps are color-coded based on the single factor that is the largest contributing factor to COVID-19 risk. Map (A) illustrates case fatality rates and Map (B) illustrates overall population mortality rates. The bottom two maps are color-coded based on electoral returns. Map (C) reflects county-level Democratic vote share in the

Whereas the population mortality rate captures underlying vulnerabilities to COVID-19, the case fatality rate reflects different coronavirus testing strategies and capacities, differing quality of and access to healthcare, as well as any underlying vulnerabilities. As Figure 1 illustrates, these two measures identify a very similar set of at-risk counties, suggesting that COVID-19 testing and palliative care is relatively lacking precisely where COVID-19 vulnerability is high—with the exception of a half dozen counties in the Gulf Coast region where the case fatality rate exceeds the overall mortality rate.

Sixty-seven counties are in the top decile of all counties nationwide for case fatality. Race is the predominant factor of COVID-19 vulnerability in sixty-three (or ninety-four percent) of these counties. A similar relationship exists for population mortality, where race is the primary driver of COVID-19 vulnerability in sixty-one of the sixty-nine counties. Of the thirty counties where age is the primary predictor of COVID-19 risk, zero are in the top decile of case fatality, and just two are in the top decile for population mortality.

The full extent of these findings becomes clear when we overlay a map of political variables on these health dynamics. The two maps in the bottom row of Figure 2 (Maps C and D) reflect the Democratic vote share by county in the last two national elections. A familiar pattern emerges in both elections: voters overwhelmingly favor the Republican candidate in the vast majority of counties in the state (224 of 254). The Democratic candidates—Joe Biden in 2020 and Beto O'Rourke in 2016—earned more than fifty percent of the vote in the state's three largest metropolitan areas and in border counties along the Rio Grande.

These voting patterns in Texas have been consistent in every presidential and midterm election since 2000.[104] One striking detail is just how similar the Democratic vote share is to COVID-19 mortality. With the notable exception of a dozen counties in the Panhandle Plains region, the most dangerous places to live in Texas when it comes to

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2020 presidential election between President Trump and Joe Biden. Map (D) reflects the county-level Democratic vote share in the 2018 Senate race between Ted Cruz and Beto O'Rourke.

104. *Election Information and Turnout Data*, TEX. SEC. OF STATE, https://www.sos.state.tx.us/elections/historical/index.shtml [https://perma.cc/S2WG-JBJP].

COVID-19 are the counties where most of the state's Democratic voters live. This particular finding is not unique to Texas. A nationwide analysis by Youyang Gu, the data scientist behind a COVID-19 projection website,[105] found that the statewide Democratic margin of victory in the 2020 election was a stronger predictor of the fall surge in COVID-19 cases than any other variable in his models, including past infection rates, current immunity (due to exposure and vaccines), population density, race, and other geographic factors such as latitude, weather, humidity, etc.[106]

TABLE 2. Summary of Texas counties that supported Democratic candidates in 2020 and 2018.

	# of counties			Top 10%	
	Won the vote	Race is primary driver	Age is primary driver	COVID-19 Case Fatality	COVID-19 Population Mortality
Biden (2020)	20	20	0	17	15
O'Rourke (2018)	30	30	0	26	20

Digging deeper, the maps in Figure 2 reveal another important relationship. Joe Biden won twenty counties in the 2020 election, and Beto O'Rourke won thirty counties in the 2018 midterm election. Without exception, race was the primary driver of COVID-19 vulnerability in every single one of these counties.[107]

By way of contrast, race was the primary driver of COVID-19 vulnerability in 58% of Republican counties. While this represents a majority of Republican counties, a significant portion of Republican voters live in areas where COVID-19 risk is primarily due to age (13%), essential workers (5%) or a mix of other factors (22%). Equally notable,

105. *See COVID-19 Projections Using Machine Learning*, COVID-19 PROJECTIONS, https://covid19-projections.com [https://perma.cc/5ZHH-E2AY].

106. *See, e.g.*, Gu, *supra* note 80 (reporting that for every five percent gain in Democratic vote share, the subsequent COVID-19 infection rate increased by one percent).

107. *See* Table 2.

less than one-quarter of Republican counties are in the top 10% of COVID-19 risk nationwide.

Herein lies the rub. For all of the attention paid to public health during the 2020 election, the debate over absentee ballot eligibility involved a lot of partisan posturing. The legal challenges were filed by the Democratic Party. And the Republican opposition to expanding absentee ballot was based on a political calculation that absentee ballots would be more likely to help Democratic voters. Had the fallout from this debate been limited to politics, the results would have been disappointing as the opportunity to vote was not made equally available to all voters.[108]

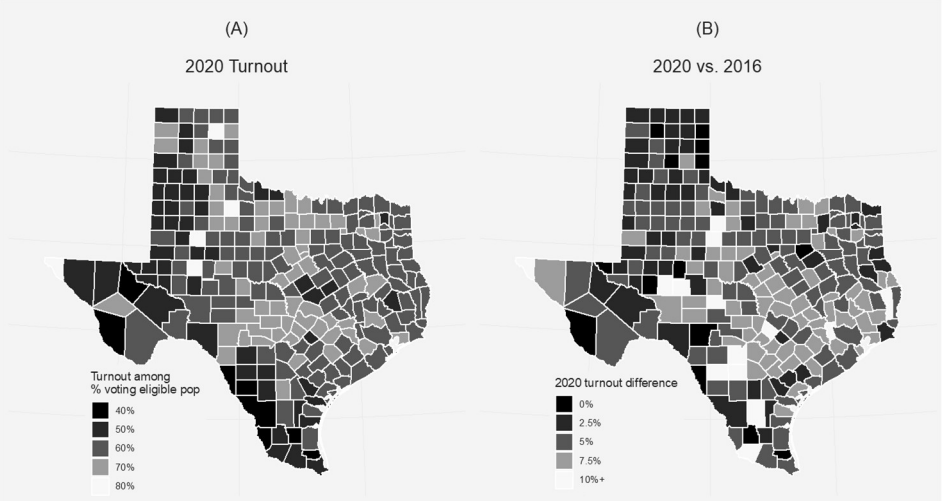

FIGURE 3. County-level voter turnout.[109]

But these kinds of effects are the cost of doing business in the competitive world of winner-take-all politics. What makes the Texas story a valuable case study is the impact that these political decisions had on the health and safety of the state's citizens and, in particular, the

108. *See* Figure 3 (describing voter turnout across the United States in 2020 and between 2016–2020).

109. In Map (A), counties are color-coded by the percent of voting eligible population that voted in the 2020 presidential election. In Map (B), counties are color-coded by the change in turnout between 2016 and 2020. Overall, turnout increased by 6.6 percent across the state, with significant variation between individual counties.

impact of these decisions on minority communities. Our findings confirm the adage that partisanship is a helluva drug.[110]

Elected officials carry a mandate to represent all of their constituents, even as they run campaigns every few years that appeal to a subset of these constituents. When these interests collide—when the most fundamental task of our leaders—to keep us safe—finds itself in tension with the desire to win the next election, the Texas example teaches us that partisanship trumps governance, at least in 2020.[111]

In the majority-minority counties along the Rio Grande, COVID-19 was a life-threatening reality. In 2020, the health and lives of these minority communities were put at risk for political gain. But the impacts run even deeper, as the very rules that imperiled these communities prevented them from expressing their political voice, which increases the likelihood that they may face similar threats in the future.

III. COVID-19 AND THE 2020 ELECTION

Texas was not the only state that grappled with difficult questions about how to conduct elections during the COVID-19 pandemic. The disease was declared a global pandemic on March 11, 2020 by the World Health Organization, and two days later President Trump issued a national emergency declaration.[112] These declarations were issued smack in the middle of the presidential primary election cycle. State election officials in the twenty-six states that had yet to hold their primary election or caucus scrambled to respond to the emergency. One of the most pressing challenges was to understand exactly what COVID-19 was, who was most vulnerable, and how it spread. Relatively little was publicly known about the virus on March 13, when President Trump declared a national emergency, and while only 1,645 individuals had tested positive for COVID-19 in the U.S., it was clear that the virus

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110. *See* Justin Levitt, *The Partisanship Spectrum*, 55 WM. & MARY L. REV. 1787, 1788 (2014).

111. Political scientists have long studied this phenomenon. *See, e.g.*, DAVID R. MAYHEW, CONGRESS: THE ELECTORAL CONNECTION 37 (1974).

112. Donald J. Trump, *Proclamation on Declaring a National Emergency Concerning the Novel Coronavirus Disease (COVID-19) Outbreak*, TRUMP WHITE HOUSE (Mar. 13, 2020), https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak [https://perma.cc/BR89-ZXLL] (declaring an emergency retroactively effective March 1).

was spreading and that large gatherings would likely exacerbate that spread.[113] The nature of the virus and the timing of the primary elections made the public health costs of voting salient from the very beginning of the pandemic.

The risks posed by the pandemic caught the attention of many state lawmakers. While elections are primarily run at the county level,[114] and while states generally do not provide much guidance to local governments on how to respond to election emergencies,[115] most of the early responses to election administration after former President Trump's emergency declaration came from governors and state legislatures.

The 2020 primary elections were the first test of states' ability to adapt their election procedures on the fly to address the immediate risk of voting during a pandemic, in the face of substantial uncertainty and serious time constraints. A number of states acted quickly: within a week of President Trump's March 13th emergency declaration, seven states postponed their primaries[116] and the timing and/or mode of voting was ultimately changed in sixteen states.[117] Nonetheless, states

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113. *Id.*

114. HEATHER K. GERKEN, THE DEMOCRACY INDEX 4 (2009) (noting the "hyper-decentraliz[ed]" nature of American elections).

115. Michael T. Morley, *Election Emergencies: Voting in the Wake of Natural Disasters and Terrorist Attacks*, 67 EMORY L.J. 545, 610 (2018).

116. *See* Nathaniel Rakich, *5 States Have Postponed Their Primaries Because of the Coronavirus*, FIVETHIRTYEIGHT (Mar. 17, 2020), https://fivethirtyeight.com/features/5-states-have-postponed-their-primaries-because-of-the-coronavirus [https://perma.cc/46HC-YK7Q] (reporting that, as of March 17, 2020, Ohio, Louisiana, Georgia, Kentucky, and Maryland had postponed their primaries); Yelena Dzhanova & Jacob Pramuk, *Indiana is the Latest State to Postpone its 2020 Primary*, CNBC (Mar. 20, 2020), https://www.cnbc.com/2020/03/20/coronavirus-indiana-postpones-2020-primary.html [https://perma.cc/3TSE-ABQN] (adding Indiana and Connecticut to the list of states postponing primaries).

117. *See* Nick Corasaniti & Stephanie Saul, *16 States Have Postponed Primaries During the Pandemic. Here's a List.*, N.Y. TIMES (Aug. 10, 2020), https://www.nytimes.com/article/2020-campaign-primary-calendar-coronavirus.html [https://perma.cc/UHW5-GNC3] (reporting that Alaska, Connecticut, Delaware, Georgia, Hawaii, Indiana, Kentucky, Louisiana, Maryland, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, West Virginia, and Wyoming "either pushed back their presidential primaries or switched to voting by mail with extended deadlines").

encountered a wide variety of obstacles as they attempted to address these looming health concerns.

In some states, policymakers quickly became embroiled in politics that hindered their ability to alter the election rules. For example, in Wisconsin, the Democratic governor's call for postponement was rebuffed by a Republican legislature, with each accusing the other of leveraging the pandemic for political gain.[118] The governor, after acknowledging that he lacked authority to order postponement,[119] issued an executive order the day before the election postponing in-person voting and extending the absentee ballot deadline for sixty days.[120] The fight over postponement ended up in the Wisconsin Supreme Court, where a divided court rejected the government's attempt to postpone in a party-line vote by elected judges, one of whom was in a tough reelection fight.[121]

Even states with unified government were sometimes unable to mount a coordinated response, resulting in chaos and uncertainty as scheduled elections loomed. While Ohio was the first state to postpone its primary, just four days after the President's emergency declaration, it was the governor who ordered the postponement, after the legislature rebuffed his call to act, despite the governor's admission that he lacked authority to postpone the election.[122] Lawsuits,[123] misinformation, and

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118. Governor Tony Evers, *Gov. Evers Calls for Special Session on Spring Election*, FACEBOOK (Apr. 3, 2020), https://www.facebook.com/GovernorTonyEvers/videos/215709093029087 [https://perma.cc/9T9Z-PJHZ].

119. "Folks, I can't move this election or change the rules on my own. My hands are tied," Evers said in the Facebook video. *Id.* "And that's why I spoke to legislative leaders about this weeks ago. I even publicly called upon them to act. They have made it clear they are unwilling to make changes." *Id.*

120. See Astead W. Herndon & Jim Rutenberg, *Wisconsin Election Fight Heralds a National Battle Over Virus-Era Voting*, N.Y. TIMES (Apr. 6, 2020), https://www.nytimes.com/2020/04/06/us/politics/wisconsin-primary-voting-coronavirus.html [https://perma.cc/3HPD-5VFD].

121. *See id.*

122. FRANK LAROSE, DIRECTIVE 2020-06: ORDER FROM DIRECTOR OF HEALTH DR. AMY ACTON CLOSING POLLS FOR THE MARCH 17, 2020 PRESIDENTIAL PRIMARY ELECTION (Mar. 16, 2020), https://www.ohiosos.gov/globalassets/elections/directives/2020/dir2020-06.pdf [https://perma.cc/A7QC-E2TM].

123. The judge issued the following statement: "There are too many factors to balance in this unchartered territory to say that we ought to take this away from the legislature and elected statewide officials, and throw it to a Common Pleas court judge

confusion in the media and among local election officials and poll workers ensued,[124] until the Ohio Supreme Court allowed the postponement to proceed, in a ruling issued at 4:00 AM the morning of the scheduled election—just two-and-a-half hours before voting would otherwise have begun.[125]

In states with robust election emergency laws, leaders were able to navigate the primary season with the most success. For example, in Georgia, the Governor declared a state emergency, which authorized the Georgia Secretary of State, under state law, to postpone the presidential primary.[126] The Secretary of State immediately postponed the primary until late May, and later until June 9, the latest possible date under state law.[127] The extra time permitted the Secretary of State's office to mail absentee ballot applications to all 6.9 million active registered voters in the state.[128] The result was a five-fold increase in votes cast by mail, in addition to a surge in in-person voting.[129] The resulting turnout

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in Columbus 12 hours before the election." Eric Heisig, *Who is Richard Frye, the Franklin County Judge Who Helped Throw Ohio's Election into Disarray Amid Coronavirus Outbreak?*, CLEVELAND (May 17, 2020, 6:05 PM), https://www.cleveland.com/court-justice/2020/03/who-is-richard-frye-the-franklin-county-judge-who-helped-throw-ohios-election-to-disarray-amid-coronavirus-outbreak.html [https://perma.cc/FAZ7-D5LB].

124. At one point, media outlets mistakenly reported that the election had been postponed, and state officials conveyed the same message to county boards of elections who told poll workers not to show up for work the next day. Clarifying phone calls followed, alerting poll workers to show up for the election that was still on (until it wasn't). Rick Rouan & John Futty, *Coronavirus: Ohio Supreme Court Allows Delay to Primary Election*, AKRON BEACON J. (Mar. 17, 2020), https://www.beaconjournal.com/story/news/politics/elections/2020/03/17/coronavirus-ohio-supreme-court-allows/1511690007 [https://perma.cc/3TQS-YAT9].

125. *Id.*

126. Mark Niesse, *Georgia Primary Delayed Again to June 9 During Coronavirus Emergency*, ATLANTA J.-CONST. (Apr. 9, 2020), https://www.ajc.com/news/state--regional-govt--politics/georgia-primary-delayed-again-june-during-coronavirus-emergency/W5ElsYWTsP5clpNAVTYXnO [https://perma.cc/H7AT-7J5C].

127. *Id.*

128. *Id.*

129. Mark Niesse, *Turnout Broke Records in Georgia Primary Despite Coronavirus Threat*, ATLANTA J.-CONST. (July 11, 2020), https://www.ajc.com/news/state--regional-govt--politics/turnout-broke-records-georgia-primary-despite-coronavirus-threat/G1JnSflr1YMOU06btlnbVJ [https://perma.cc/DZD7-W73J]; David Wickert & Mark Niesse, *Georgia Primary Election Results Finalized After Three Weeks*, ATLANTA J.-

"shatter[ed] the state's record for turnout set in the presidential primary four years" earlier.[130]

As the primary season ended, it became apparent that COVID-19 was not going anywhere and that states would need to evaluate whether their voting laws would adequately protect the public health during the November 2020 presidential election. Some states—Oregon, Washington, Colorado, and Utah[131]—were in relatively good shape because, well before the pandemic, they had already moved to an election system that could minimize health risks: universal mail in balloting. Hawaii's legislature had also decided pre-pandemic, in 2019, to move to universal vote-by-mail, and its August 2020 primary was the state's first vote-by-mail election.[132]

By October 13, three weeks before the election, states' COVID-19 accommodations could be sorted into four basic categories. *Universal mail-in voting*: ten states and the District of Columbia implemented universal mail-in voting, meaning ballots were mailed to all registered voters.[133] *Universal absentee voting*: fifteen states sent absentee ballot

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CONST. (Jul. 9, 2020), https://www.ajc.com/news/state--regional-govt--politics/georgia-primary-election-results-finalized-after-three-weeks/BnK2LwCTzJTGbroHsJjWaN [https://perma.cc/C8WD-6E9Z].

130. Niese, *supra* note 129.

131. Utah authorized its counties to institute universal vote-by-mail in 2012, and by 2018, all Utah counties had adopted that approach. *See* John Franchi, *Why Vote by Mail Works in Utah*, FOX NEWS (June 10, 2020, 9:53 PM), https://www.fox13now.com/news/local-news/why-vote-by-mail-works-in-utah [https://perma.cc/RB7W-33L7].

132. *See The 2020 Elections Are Hawaii's First Conducted (Almost) Entirely by Mail*, HAW. NEWS NOW (June 11, 2020, 8:02 PM), https://www.hawaiinewsnow.com/2020/06/11/primary-election-is-hawaiis-first-conducted-almost-entirely-by-mail [https://perma.cc/E2P5-9NL3].

133. These states were California, Colorado, Hawaii, Montana, Nevada, New Jersey, Oregon, Utah, Vermont, and Washington. *See* Juliette Love, Matt Stevens, & Lazaro Gamio, *Where Americans Can Vote by Mail in the 2020 Elections*, N.Y. TIMES (Aug. 14, 2020), https://www.nytimes.com/interactive/2020/08/11/us/politics/vote-by-mail-us-states.html [https://perma.cc/K86V-UZLD]. In the case of Montana, authority was granted to each county to make the determination whether to administer universal mail-in voting. All but ten of the counties chose to do so. *See* Gwen Florio, *46 Montana Counties File Mail Ballot Plans*, MISSOULIAN (Sept. 4, 2020), https://missoulian.com/news/state-and-regional/govt-and-politics/46-montana-counties-file-mail-ballot-plans/article_b14cfead-9bbc-5601-95c3-d69c0a0563f0.html [https://perma.cc/P5RH-X7X8].

applications to all registered voters.[134] *No-excuse absentee voting*: twenty states provided an absentee ballot to anybody who requested one, either by moving to a no-excuse system or by specifying that fear of COVID-19 exposure satisfied one of the existing excuses for absentee voting.[135] *Status quo*: five states did very little to address the risks of COVID-19, retaining the preexisting rules that limited absentee ballots to a limited set of voters.[136]

The impact of these various approaches to the 2020 election is visible in Figure 4, which highlights counties where a COVID-19 outbreak would be the deadliest. Most of these counties are in the South, but there are high-risk areas across the upper Midwest and in parts of the Southwest as well. Approximately one-third of the counties at highest risk for COVID-19 are located in states that refused to allow COVID-19 exposure as a justification for absentee voting.

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134. These states were Arizona, Connecticut, Delaware, Iowa, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, North Dakota, Ohio, Rhode Island, South Dakota, Wisconsin, and Wyoming. In Arizona, counties sent registered voters an application to join the "Permanent Early Voting List" which would make them eligible to receive an actual ballot in all future elections for which they are eligible to vote. Because North Dakota does not require voters to register, it mailed applications for mail in-ballots (before its June primary) to "all active voters"—that is, "anyone who cast a ballot in the last two elections." Voters could use that application to request a mail-in-ballot for both the primary and general election. *See* Michelle Griffith, *North Dakota Has Sent Out More than Twice the Number of Mail-in Ballots to Residents than in 2016*, GRAND FORKS HERALD (Oct. 14, 2020, 7:06 AM), https://www.inforum.com/news/north-dakota-has-sent-out-more-than-twice-the-number-of-mail-in-ballots-to-residents-than-in-2016 [https://perma.cc/9BJY-4PFU].

135. These states were Alabama, Alaska, Arkansas, Florida, Georgia, Idaho, Illinois, Kansas, Kentucky, Maine, Missouri, New Hampshire, New Mexico, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, Virginia, and West Virginia. *See* Eliza Sweren-Becker, Anne Glatz, & Elisabeth Campbell, *Voting During Covid-19*, BRENNAN CTR. FOR JUST. (Nov. 20, 2020), https://www.brennancenter.org/our-work/research-reports/voting-during-covid-19 [https://perma.cc/2K3B-C8CW].

136. Kate Rabinowitz & Brittany Renee Mayes, *At Least 84% of American Voters Can Cast Ballots by Mail in the Fall,* WASH. POST (Sept. 25, 2020), https://www.washingtonpost.com/graphics/2020/politics/vote-by-mail-states [https://perma.cc/JJ4D-3QKR] (reporting on absentee voting in Texas, Louisiana, Mississippi, Tennessee, and Indiana); *see also* Harding v. Edwards, 484 F. Supp. 3d 299, 309, 316 (M.D. La. 2020) (interpreting Louisiana eligibility requirements to include those who were actually sick with COVID-19 or caring for somebody who was currently sick with COVID-19).

We examined the impact of the strict absentee ballot policy in Texas above. But Texas was hardly the only state that chose to accommodate elderly voters but not racial minorities. For example, Mississippi's absentee ballot law protects voters who are 65 and older by allowing them to request a mail-in ballot without further justification. Younger voters, on the other hand, may only request an absentee ballot upon proof of a "temporary or permanent physical disability" that makes in-person voting a "substantial hardship."[137]

A state lower court interpreted this provision to cover individuals who have an underlying health condition that puts them at high-risk for COVID-19, but the Mississippi Supreme Court rejected this interpretation just six weeks before the November election.[138]

Twenty-six of Mississippi's eighty-two counties—close to a third—were in the top decile of the country's most vulnerable counties, yet not one was on this highest-risk list because of age. The primary driver of vulnerability in twenty-five of these counties was race and, in the final county, it was other socioeconomic factors.[139] Mississippi's absentee ballot law, then, does an incredibly poor job of addressing the primary drivers of COVID-19 risk in its most at-risk counties.

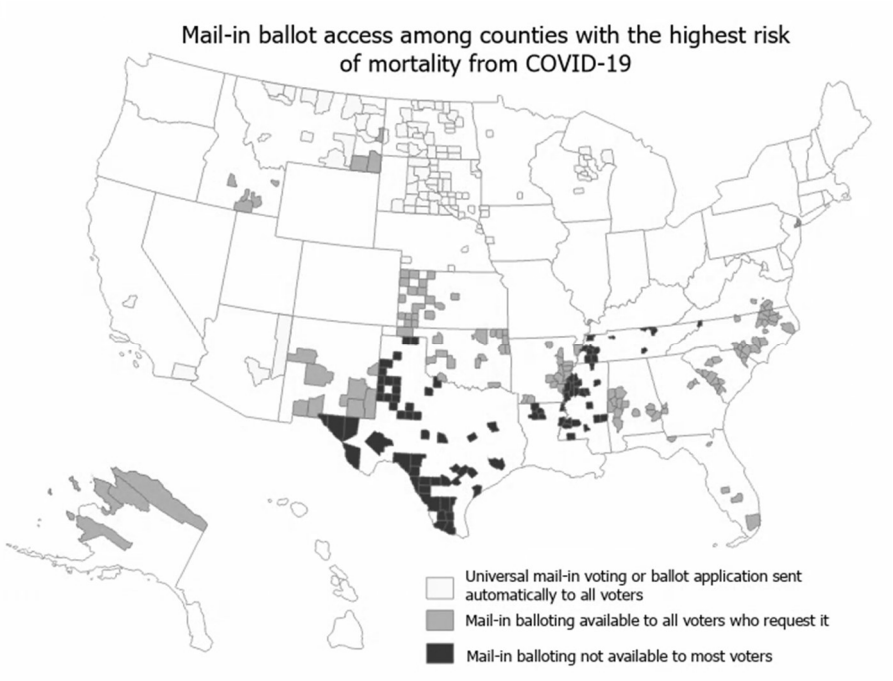
FIGURE 4. County-level map of mail-in ballot access in the 10% of counties with the highest risk for COVID-19 mortality (i.e., deaths as a percent of

137. Watson v. Oppenheim, 301 So. 3d 37, 39 (Miss. 2020).

138. *See id.* at 42 ("Having a preexisting condition that puts a voter at a higher risk does not automatically create a temporary disability for absentee-voting purposes."). While some of the predisposing health conditions (such as diabetes) may qualify as disabilities, others likely do not, such as obesity or smoking history.

139. Lei Zhang, Stephanie T. Mcleod, Rodolfo Vargas, Xiaojian Liu, Dorthy K. Young, & Thomas E. Dobbs, *Subgroup Comparison of COVID-19 Case and Mortality with Associated Factors in Mississippi: Findings from Analysis of the First Four Months of Public Data*, 34 J. BIOETHICAL RSCH. 446, 447 (2020).

the population).



A similar story played out in Louisiana, whose absentee eligibility requirements paralleled Mississippi's until a federal court intervened. Finding that the denial of access to absentee ballots imposed on an undue burden on those individuals' voting rights, the district court ordered Louisiana to expand absentee ballot access to those at high risk because of a serious underlying health condition (as well as people in quarantine, with symptoms, or caring for someone with COVID-19).[140] The expansion still fell well short of a "no excuse" dispensation for absentee ballots, which would have protected racial minorities and other voters who chose to opt-in.[141]

Just like Mississippi and Texas, not a single Louisiana county is in our top-decile of COVID-19 case fatality because of age. In twelve of the fifteen extremely vulnerable (top decile) counties in Louisiana, the primary driver of that vulnerability is race; other socioeconomic factors

140. *See Harding*, 484 F. Supp. 3d at 317, 319.
141. *See, e.g.*, Zhang et al., *supra* note 139.

are at play in the remaining three counties.[142] Yet Louisiana made only the most begrudging accommodations for any vulnerable people other than those over sixty-five, and only then because a federal court compelled it to do so.[143]

These examples highlight a troubling trend of seemingly isolated events. Zooming out; however, systematic and disturbing patterns emerge that suggest a systematic relationship between public health, race, and voting rights that influenced the decisions of leaders in Texas, Mississippi, Louisiana, and beyond. And let there be no mistake, each of these states made these choices despite many warnings and, in some cases, lawsuits aimed at forcing the states to not put voters in such a bind.[144] These policy choices were no coincidence.

Perhaps most troubling, our maps make clear that many of the states that made the fewest accommodations for vulnerable voters in general, and racial minorities in particular, are jurisdictions that were formerly covered by section 5 of the VRA, before *Shelby County* invalidated its coverage formula. This pattern suggests both an ongoing need for the protections that section 5 once afforded minority voters and the potential for using data about racial health disparities to inform a new coverage formula.

IV. COVID'S LESSONS FOR THE FUTURE OF VOTING RIGHTS

As Part III demonstrated, the COVID-19 pandemic precipitated a variety of changes to state voting law. Although many of the most vulnerable counties in the country did not make sufficient accommodations for vulnerable voters to vote safely during the 2020 elections, many states and counties did expand voting options to allow vulnerable individuals to vote with less risk to their health.[145]

In states across the country, legislatures are now debating the pandemic's lessons for voting laws. Hundreds of bills have been introduced—some proposing to strengthen and expand COVID-19 voter

142. *See infra* Appendix.
143. *See Harding*, 484 F. Supp. 3d at 299, 305.
144. *See, e.g.*, *id.*
145. Some of these changes are limited to this particular pandemic, either because the changes were written to be COVID-19 specific or because they were time-limited, short-term adjustments, expiring after the November 2020 election. Others, by their terms, will persist beyond the COVID-19 pandemic, unless they are repealed.

accommodations like vote-by-mail and early voting, while many others would contract and restrict voters' options and access, sometimes proposing much more restrictive rules than were in place even before the pandemic.[146] Some of these bills are incorporating lessons of the pandemic, while others are trying to engineer election results that will favor one party or candidate or another.

While the specifics of post-COVID voter reform are beyond the scope of this paper, here we consider some high-level lessons that move us beyond the current crisis and that we hope might instruct policymakers who are interested in making their election systems more resilient. First, the pandemic has dramatically illustrated the need for resilient voting procedures—informed by vulnerability data—that can quickly be adapted during future public health emergencies and other kinds of disasters to ensure that all voters—and particularly racial minorities—can safely cast their ballots. Second, the COVID-19 voter experience underscores that the public-health benefits of voting rules like mail-in balloting can only be fully captured if voters—particularly racial minorities with disproportionate health risks—trust the "safer," healthier voting procedures.

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146. *See, e.g.*, Nathaniel Rakich & Jasmine Mithani, *What Absentee Voting Looked Like in All 50 States*, FIVETHIRTYEIGHT (Feb. 9, 2021), https://fivethirtyeight.com/features/what-absentee-voting-looked-like-in-all-50-states [https://perma.cc/NGY9-LWW7] (explaining that while some states are considering making vote-by-mail expansions permanent, others are considering restricting absentee voting); *Voting Laws Roundup: January 2021*, BRENNAN CTR. FOR JUST. (Jan. 26, 2021), https://www.brennancenter.org/our-work/research-reports/voting-laws-roundup-january-2021 [https://perma.cc/NDY4-5LMQ] (observing that, following the 2020 general election turnout, some legislators have introduced an increased number of voting restriction bills while others have advanced bills expanding voter access); Stephen Fowler, *Georgia House Passes Elections Bill that Would Limit Absentee and Early Voting*, NPR (Mar. 1, 2021, 5:47 PM), https://www.npr.org/2021/03/01/972631655/georgia-house-passes-elections-bill-that-would-limit-absentee-and-early-voting [https://perma.cc/P69L-7VHL] (observing that Georgia Republicans passed a bill enacting more restrictions on absentee voting and cutting back on weekend early voting hours); Kelly Mena, *More Than 100 Bills That Would Restrict Voting Are Moving Through State Legislatures*, CNN (Feb. 2, 2021), https://www.cnn.com/2021/02/02/politics/voting-rights-state-legislation/index.html [https://perma.cc/66GU-FTMT] (explaining that twenty-eight states advanced 106 voting restriction bills primarily focused on limiting vote-by-mail, such as Arizona where Republicans introduced legislation that would repeal the state's permanent early voting list, which allows voters to automatically receive their ballots by mail for every election).

Finally, and perhaps most importantly, the COVID-19 pandemic has laid bare how racial disparities in health, rooted in social and historical inequities, can suppress the vote in communities of color, in all elections, not just during pandemics. Our empirical evidence of this voter suppression can and should inform debates over the future of the VRA, as well as litigation under section 2 of the current VRA. This kind of health data should play a much more important role in shaping and interpreting voter rights protections in the future.

A. Developing Resilient, Data-Driven Approaches to Disaster Voting

Disaster policy—when it's not simply reactive to the latest catastrophe— often focuses on fostering the resilience of key systems, like our electoral system. The pandemic has underscored how critical it is to have resilient emergency voting procedures that can ensure that everyone, particularly racial minorities disadvantaged by current and historical inequities, can vote safely and easily.

A resilient voting scheme for emergencies is one that can continue to perform its core, essential functions in the face of stressors that create serious disruption and disturbance. It is not enough that the system continues to serve its most basic function—to elect leaders—if other core functions are neglected.[147] The Fifteenth Amendment makes clear that another such core function is inclusion and non-discrimination. Section 2 of the VRA adds additional context: to ensure that the "social and historical" subordination of BIPOC people does not continue to perpetuate unequal access to the ballot.[148] Thus, an emergency voting scheme must be resilient in at least two ways: 1) it must continue to function during disasters and 2) must do so in a way that ensures that inequities—like health disparities rooted in the U.S.'s abhorrent history of racial oppression—do not limit racial minorities' electoral voice.

Because public health crises and other disasters are likely to have an outsized effect on individuals and communities of color, when states fail

147. *See, e.g.*, BRIAN WALKER & DAVID SALT, RESILIENCE PRACTICE: BUILDING CAPACITY TO ABSORB DISTURBANCE AND MAINTAIN FUNCTION (2012); ANDREW ZOLLI & ANN MARIE HEALY, RESILIENCE: WHY THINGS BOUNCE BACK 6–7 (2012) (explaining that resilience is neither inherently good nor bad—it all depends on whether the resilient system itself is normatively good or bad). Indeed, section Five of the VRA exists precisely because the racist and exclusionary voting schemes in many states were highly resilient against reform efforts.

148. Thornburg v. Gingles, 478 U.S. 30, 47 (1986).

to make appropriate accommodations—with a particular eye toward protecting the voting rights of racial minorities—racial minorities will be disproportionately deprived of access to the ballot.

Our assessment of COVID-19 voter accommodations suggests the importance of a data-driven approach to planning for, implementing, and evaluating emergency voting measures. In future pandemics or other disasters that jeopardize safe voting or voting access, vulnerability mapping that incorporates health data directly (rates of different diseases or health conditions that predispose people to sickness or more serious outcomes) or that incorporates the social determinants of health should be used to determine where voting accommodations are the most critical and to determine where to triage limited resources (including polling places and poll workers).

While there may not always be time during a crisis to develop a specific vulnerability index, as we have here for COVID-19, tools like the CDC's Social Vulnerability Index ("SVI") can be useful proxies for advanced planning, with more specific data integrated over time or used after-the-fact to assess what could have been done better. Indeed, while social vulnerability often has broader connotations, the CDC describes the social vulnerability captured by its SVI in terms of external stressors on health.[149] The SVI and other similar tools can thus be used to help plan in advance for emergency voting procedures that will best ensure that voters in disadvantaged communities will have equal access to the ballot.

Additionally, the COVID-19 experience, viewed through the lens of resilience scholarship, suggests that disaster voting accommodations are likely to be most effective when they are resilient and robust across various individual voter circumstances and across various disaster scenarios. Many of the COVID-inspired changes to state voting laws may thus promote the electoral system's resilience by expanding the range of voting methods available to voters—particularly vulnerable voters, as well as the range of voting options available for system administrators to shift between when disaster strikes. Diversity and

149. *CDC/ATSDR Social Vulnerability Index*, AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY (Mar. 15, 2022), https://www.atsdr.cdc.gov/placeandhealth/svi/index.html [https://perma.cc/3JMA-UH65] (defining social vulnerability by referencing "the potential negative effects on communities caused by external stresses on human health").

redundancy are important features of resilient systems,[150] and together, these factors suggest that a system is resilient when it incorporates a variety of different mechanisms or approaches to accomplish essential functions.[151]

Thus, a voting system that incorporates both mail-in and in-person balloting is presumably more resilient—more able to perform its core functions in a wide range of different disasters scenarios—than one with either method alone, assuming that jurisdictions continue to invest enough in both methods that they remain viable voting mechanisms, hopefully in routine times, but at least in moments of crisis. Those options build flexibility into the existing system, allowing vulnerable voters to choose methods that will best protect their own health and allowing administrators to pivot (at least more) quickly and adapt to various kinds of challenges.

Disaster voting procedures are also likely to be the most resilient when it comes to protecting vulnerable voters' access to the vote if they are streamlined and easy for voters—particularly those who are most impacted by the disaster— to access and use. The COVID-19 voting experience confirms, for example, that voters were most likely to utilize mail-in-balloting when they didn't have to jump through any hoops to do so: the largest increases in vote-by-mail were in states that proactively moved, for the first time, to universal mail-in-voting or that mailed absentee-ballot applications to every registered voter, not in those states that simply expanded the availability of absentee voting but required voters to initiate absentee-ballot requests themselves.[152]

Disaster voting accommodations are also likely to be most effective when state law provides clear pathways for authorizing emergency voter procedures (to minimize last-minute litigation over voting

150. *See* ZOLLI & HEALY, *supra* note 147, at 13.

151. *See id.* at 6–7, 13. Disaster planning is plagued by a tendency to plan for the last disaster, ensuring that systems will work in a similar disaster but failing to consider how changed system features may function in other kinds of crises. FARBER ET AL., *supra* note 10, at 228.

152. Data from the November 2020 general election confirm that "the biggest spikes" in voting by mail "occurred in places that went the furthest to encourage mail voting (i.e., those that automatically sent every registered voter a ballot), especially those with little history of mail voting prior to 2020." Rakich & Mithani, *supra* note 146 (noting that the jurisdictions with the biggest vote-by-mail increases include New Jersey, the District of Columbia, and Vermont).

procedures)[153] and when those procedures have been well tested in advance. As Part IV.C. suggests, because many voters experience health barriers to voting even outside of disaster situations and because emergency measures will be easiest to implement if they are not too dissimilar from standard election procedures, there is wisdom in having regular election procedures that meet these same criteria.

B. Building Trust in Less Traditional Voting Methods

Of course, the public (and individual) health benefits of mail-in voting and other less traditional voting methods will not be fully realized—either during disasters or typical elections—if many voters with mail-in balloting options choose not to utilize them. Regardless of the vote-by-mail options available in a county (whether universal, excuse or no-excuse), almost all voters still have the option of voting in person. Every universal mail-in jurisdiction except Oregon[154] allows voters to elect to vote in person.[155] Moreover, even voters who affirmatively request a

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153. Much of the litigation that has plagued COVID-19 voter accommodations in many states has challenged the authority of governors, election officials or courts (rather than state legislatures) to order those changes. *See, e.g.*, Election Integrity Project Cal., Inc. v. Padilla, No. 2:21-CV-00032-AB (MAAx), 2021 WL 3828457, at *1 (C.D. Cal. Jan. 11, 2021) (challenging the California governor's authority to implement voting accommodations for COVID-19).

154. Oregon has no in-person voting, but counties do provide "privacy booths" where voters can fill out their ballots. *See, e.g.*, *Voting in Oregon FAQ*, DESCHUTES CNTY., https://www.deschutes.org/clerk/page/voting-oregon-faq [https://perma.cc/S9VB-CG9S].

155. *See Election Administration Guidance Under COVID-19*, CAL. SEC'Y OF STATE 2–3 (2020) [hereinafter CALIFORNIA ELECTION GUIDANCE], https://elections.cdn.sos.ca.gov/ccrov/pdf/2020/july/20154jl.pdf [https://perma.cc/J5PY-MHUS] (setting forth guidelines for in-person voting); *Election Day FAQs*, COLO. SEC'Y OF STATE https://www.sos.state.co.us/pubs/elections/FAQs/ElectionDay.html [https://perma.cc/B4VA-CEE3]; *FAQs: Early Voting and Election Day*, D.C. BD. ELECTIONS, https://www.dcboe.org/FAQS/Election-Day (advising that voters can still vote in person); *Voting by Mail*, HAW. OFF. OF ELECTIONS, https://elections.hawaii.gov/frequently-asked-questions/voting-by-mail [https://perma.cc/AT6W-2ESQ] [https://perma.cc/XW6J-3P4M] ("[Y]ou may vote in-person by visiting any voter service center in your county."); *Early Voting Information*, NEV. SEC'Y OF STATE, https://www.nvsos.gov/sos/elections/voters/early-voting-information [https://perma.cc/C524-KXK5]; *Have Elections Moved or Changed in New Jersey Because of COVID-19?*, N.J. COVID-19 INFO. HUB, https://covid19.nj.gov/faqs/nj-information/reopening-guidance-and-restrictions/how-can-i-vote-this-november-

mail-in ballot can, in many jurisdictions, change their mind and vote in person, usually by provisional ballot, which will typically be verified and counted after Election Day.[156] Preserving the right to vote in-person is important not only because it increases the resiliency of the electoral system but also because some voters will strongly prefer to do so—including voters with disabilities that can best be accommodated by in-person voting, non-English speakers who may best access translation

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how-have-elections-moved-or-changed-in-new-jersey-because-of-covid-19 [https://perma.cc/F3Y2-4P7R] (noting that voters can choose whether to vote in-person by provisional ballot); *Utah's Official Voter Information Pamphlet: General Election 2020*, UTAH ELECTIONS OFF. 1, https://voteinfo.utah.gov/wp-content/uploads/sites/42/2020/10/Utah-VIP-2020-General-FIN.pdf [https://perma.cc/5AZG-7RHM] (noting that voters are encouraged, but not required, to surrender mail-in-ballots to aid efficient ballot processing); *Election Day FAQs*, VT. SEC'Y OF STATE, https://sos.vermont.gov/elections/voters/voter-faqs/#q2 [https://perma.cc/PL4D-BNC8]; *Frequently Asked Questions on Voting By Mail*, WASH. SEC'Y OF STATE, https://www.sos.wa.gov/elections/faq_vote_by_mail.aspx [https://perma.cc/2QZ4-AE35]. Voters are typically asked to bring and surrender their mail-in ballot; those who do not or cannot will usually be asked to vote a provisional ballot and/or attest in writing that they won't also vote by mail. *See, e.g.*, Carly Severn, *What's Different About Voting in California this Year*?, KQED (Sept. 25, 2020), https://www.kqed.org/news/11839465/whats-different-about-voting-in-california-this-year [https://perma.cc/Q2NA-QQ86] (explaining that in-person voters who do not surrender their mail in ballot will vote with a provisional ballot); *Facts vs. Myths: 2020 Nevada General Election*, NEV. SEC'Y OF STATE, https://www.nvsos.gov/sos/home/showdocument?id=8842 [https://perma.cc/2LTC-MD66] (in-person voters must sign a document attesting that they will not vote their mail-in ballot). In Utah, the legislature eliminated in-person voting during its June primaries, citing COVID-19 risk, but restored it (with additional outdoor voting options) for the November 2020 election. *See* Sophia Eppolito, *Utah Passes Election Bill Requiring In-Person Voting Options*, AP NEWS (Aug. 20, 2020), https://apnews.com/article/498e9703035cf43458c1631146bd880b [https://perma.cc/V3ES-M8WM]; Utah S.B. 6007, Amendments to Elections, https://le.utah.gov/~2020S6/bills/static/SB6007.html [https://perma.cc/5X7P-RNMC].

156. *See, e.g.*, *Provisional Ballots*, NAT'L CONF. STATE LEGISLATURES (Jan. 10, 2022), https://www.ncsl.org/research/elections-and-campaigns/provisional-ballots.aspx#Why? [https://perma.cc/E6PL-F9BJ] (listing states that allow a voter who requested, but did not cast, an absentee ballot to vote an in-person provisional ballot).

services in person,[157] and people of color seeking extra reassurance their vote will be counted.[158]

Yet, to maximize the public-health benefits of mail-in-voting generally and the benefits to BIPOC communities in particular, states need to find ways to help voters feel comfortable using them. This need was particularly acute during the pandemic because many jurisdictions, anticipating large increases in voting-by-mail, consolidated and reduced the number of in-person polling places or voting centers or allowed some rural counties with fewer residents "to close traditional polling places," with in-person voting available only at the county election office.[159] If more voters than anticipated opted to forgo mail-in-voting and vote in person, the reduced number of in-person locations would mean crowded polling places, long lines, and long (public) transit times—all of which would exacerbate COVID-19 transmission risk.

Even outside of the pandemic context, adoption of less traditional voting methods to help ease the health costs of voting that disproportionately burden minority voters will be less effective if BIPOC voters do not trust that votes cast using these methods will be counted. Data from a 2000-person survey we fielded between September 23, 2020 and October 3, 2020 demonstrates that Black and Latino survey respondents were less confident than white respondents that votes in

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157. John Myers, *How California Is Preparing for In-Person Voting This Year Due to Coronavirus*, L.A. TIMES (Aug. 7, 2020, 5:00 AM), https://www.latimes.com/california/story/2020-08-07/californians-voting-election-coronavirus-rules-for-november [https://perma.cc/P2YR-JUZA] ("The challenges in planning for in-person voting have received little attention, overshadowed by California's high-profile push to encourage as many voters as possible to cast their ballots from home. But some, particularly those who speak a language other than English and those with physical limitations, are still likely to seek out an in-person voting location.").

158. *See* Russell Berman, *What Really Scares Voting Experts About the Postal Service*, ATLANTIC (Aug. 14, 2020), https://www.theatlantic.com/politics/archive/2020/08/how-postal-service-preparing-election/615271 [https://perma.cc/FA7L-ZPFP].

159. *See* Nathaniel Rakich, Maya Sweedler & Julia Wolfe, *How to Vote in the 2020 Election*, FIVETHIRTYEIGHT (Nov. 2, 2020, 7:50 AM), https://projects.fivethirtyeight.com/how-to-vote-2020 [https://perma.cc/W2PV-74TB] (citing to Nebraska and Minnesota, and noting that California "[c]ounties have the option to consolidate polling places."). Certain jurisdictions, including the District of Columbia, Maryland, New Jersey, and North Dakota, have reduced the number of in-person polling locations or voting centers. *See id.*

the November election would be accurately counted in their community, with 48.3% of white respondents saying they were "very confident" votes in their area would be accurately counted, but only 27.1% of Latino and 34.3% of Black respondents expressing that same level of confidence.[160] When asked about their confidence that votes would be accurately counted in the United States more generally, 41.8% of White respondents were "very confident," while only 25.7% and 29.5% of Latino and Black respondents, respectively, shared that confidence.[161]

Those differing confidence levels might partially explain racial differences in plans to vote by mail or absentee ballot: 51.2% of White respondents, but only 41.4% of Hispanic respondents and 43.5% of Black respondents, said that they planned to vote by mail or absentee ballot.[162] It is interesting to note, however, that despite differential trust levels, there was more unmet demand for the opportunity to vote by mail among Black voters than white voters: almost twice as many Black voters (9.8%) as white voters (5.4%) said they would vote by mail if that option were available to them, but it was not.[163] Perhaps in part because minority voters disproportionately reported that the safer vote-by-mail options they wanted were unavailable to them, a higher share of Black and Latino respondents also reported being "very concerned" that "COVID-19's impact on voter turnout [would] affect the outcome of the November election."[164]

The level of concern about votes being accurately counted was undoubtedly heightened during the 2020 election by then President Trump's rhetoric about mail-in-balloting fraud,[165] his assaults on the mail system,[166] and related attempts to halt (or pledges not to count)

160. Survey on file with authors.
161. Survey on file with authors.
162. Survey on file with authors.
163. Survey on file with authors.
164. Survey on file with authors. 42.5% of Hispanic respondents, 41.5% of Black respondents, and 36.7% of white respondents said they were "very concerned" about this possibility.
165. *See, e.g.*, Donald J. Trump (@realDonaldTrump), TWITTER (May 28, 2020, 9:00 PM), https://www.thetrumparchive.com/?searchbox=%22massive+fraud%22 [https://perma.cc/4G8D-S2RD] (asserting that mail-in voting will lead to "massive fraud").
166. *See, e.g.*, Berman, *supra* note 158.

vote by mail.[167] Nevertheless, concerns voiced during the 2020 election cycle give some sense of the types of concerns voters, and particularly minority voters, may have about voting by mail and other less traditional voting methods.

These voter concerns took several forms: (1) concerns that their ballot would not be received in a timely manner; (2) concerns that their individual ballot would be disqualified and not counted; and (3) concerns that all or some significant subset of mail-in ballots would not be counted because of the rhetoric around fraud.

First, some voters were concerned that the Post Office would not be able to deliver their ballots quickly enough to meet deadlines.[168] These fears were likely fueled by President Trump's comments tying his opposition to Post Office emergency funding to his desire to discourage mail-in ballots,[169] reports that Post Offices had been ordered to decommission mail sorting machines in many cities[170] and to change overtime and mail-pick-up rules,[171] and letters the Post Office sent to

167. Michael Crowley, *Trump Won't Commit to 'Peaceful' Post-Election Transfer of Power*, N.Y. TIMES (Sept. 23, 2020), https://www.nytimes.com/2020/09/23/us/politics/trump-power-transfer-2020-election.html [https://perma.cc/JWL8-JEJ5] (reporting how President Trump may not willingly participate in the peaceful transfer power because he specifically referred to "[g]et[ting] rid of the ballots"). One Republican Senator from Florida even proposed a bill to exclude ballots that are not counted within 24-hours of Election Day. Nick Gevas, *Sen. Rick Scott Introduces Bill Requiring Mail-In Ballots Be Counted Within 24 Hours of Election Day*, FOX NEWS (Sept. 28, 2020), https://www.foxnews.com/politics/florida-gop-senator-introduces-bill-requiring-mail-in-ballots-be-counted-within-24-hours-of-election-day [https://perma.cc/47HT-3VZK].

168. Laws about when ballots must be received to be counted vary by state. In some states, the timeliness of the ballot turns on the time it was postmarked, while in others it depends on the time the ballot was received. *See, e.g.*, *Table 11: Receipt and Postmark Deadlines for Absentee Ballots/Mail Ballots*, NAT'L CONF. STATE LEGISLATURES (July 12, 2022), https://www.ncsl.org/research/elections-and-campaigns/vopp-table-11-receipt-and-postmark-deadlines-for-absentee-ballots.aspx [https://perma.cc/UNM9-UNQJ].

169. *See, e.g.*, Berman, *supra* note 158.

170. *See, e.g.*, Luke Broadwater, Hailey Fuchs & Nick Corasaniti, *Postal Service Warns States It May Not Meet Mail-in Ballot Deadlines*, N.Y. TIMES (Aug. 31, 2020), https://www.nytimes.com/2020/08/14/us/politics/usps-vote-mail.html [https://perma.cc/KTG2-BXXV].

171. *See, e.g.*, Berman, *supra* note 158.

most states warning that their mail-in-balloting deadlines might be cutting things too close for the Post Office to deliver ballots on time.[172]

Even before the current controversy some voters—particularly racial minorities—were skeptical about entrusting their ballots to the Post Office. A 2017 survey of California voters showed that voters who chose to drop off their mail-in-ballots at drop boxes rather than mail them in often did so because they lacked trust that the Post Office would deliver their ballots.[173] Importantly, racial minorities expressed significantly more distrust in the Post Office: while only twenty-one percent of white voters who declined to mail their ballots said they distrusted the Post Office, that number was twenty-nine percent for Latinos, thirty-two percent for African Americans, and forty-seven percent for Asian Americans.[174]

Second, some voters were concerned that their individual ballots would be disqualified because of potential voter error in filling out or returning the ballot, such as so-called "signature [mis]matching," when the voter's signature is judged not to match the reference signature on file, or other issues with the ballot. These concerns are not unreasonable, as mail-in ballots have a higher disqualification rate than other voting methods.[175] Even more troubling, empirical evidence suggests that voters of color and new voters are more likely to have their

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172. *See, e.g.*, Broadwater et al., *supra* note 170.

173. *The California Voter Experience Study: A Statewide Survey of Voter Perspectives on Vote-by-Mail and Vote Centers*, U.C. DAVIS CTR. FOR REG'L CHANGE 2 (2017), https://regionalchange.ucdavis.edu/sites/g/files/dgvnsk986/files/inline-files/UCDavisCCEPIssueBrief3VoteCenterStatewideSurveyBrief.pdf [https://perma.cc/54SG-G2X6].

174. *See id.*

175. Jeffrey Toobin, *The Legal Fight Awaiting Us After the Election*, NEW YORKER (Sept. 21, 2020), https://www.newyorker.com/magazine/2020/09/28/the-legal-fight-awaiting-us-after-the-election [https://perma.cc/92QB-36YD]; Pam Fessler & Elena Moore, *More than 550,000 Primary Absentee Ballots Rejected in 2020, Far Outpacing 2016*, NPR (Aug. 22, 2020, 5:00 AM), https://www.npr.org/2020/08/22/904693468/more-than-550-000-primary-absentee-ballots-rejected-in-2020-far-outpacing-2016 [https://perma.cc/D8XW-VMED] (noting that because voting machines prevent errors like voting for too many candidates and because poll workers can help catch other mistakes before a ballot is cast in-person, "only about one-hundredth of a percent of in-person ballots are rejected compared with about 1% of mail-in ballots").

ballots disqualified.[176] Unfortunately, that means that many of the voters who most need mail-in balloting options to protect their health are most (and most justifiably) concerned about their mail in ballots not being counted.

Finally, some voters were concerned, because of Trump's attacks on mail-in-balloting in the run up to the November 2020 general election, that all, or some subset of, mail-in ballots would not be counted.[177] Hopefully, the fact that mail-in ballots cast in the November election were, in fact, counted helps assuage some of these latter fears. Voters should also be reassured by initial statistics that suggest that mail-in ballots in the 2020 general election were rejected at a much lower rate than in past elections.[178]

Nonetheless, all jurisdictions need to consider mechanisms that provide voters assurances that their votes have been received, verified, and properly counted. States that lack robust tracking systems for mail-in ballots should adopt them and opportunities to "cure" defective ballots (that would otherwise be rejected) should be expanded.[179]

Additionally, simplifying ballot design and promoting voter education campaigns (in multiple languages) can help voters understand and be confident in filling out their ballots.[180] Jurisdictions should also establish clear rules in advance about how ballots that are filled out incorrectly but manifest a clear intent to vote for a certain candidate (by, say,

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176. *See* Fessler & Moore, *supra* note 175; Sophia Chou & Tyler Dukes, *In North Carolina, Black Voters' Mail-in Ballots Much More Likely to Be Rejected Than Those from Any Other Race*, PROPUBLICA (Sept. 23, 2020, 2:30 PM), https://www.propublica.org/article/in-north-carolina-black-voters-mail-in-ballots-much-more-likely-to-be-rejected-than-those-from-any-other-race [https://perma.cc/B96S-J2KY].

177. *See, e.g.*, Berman, *supra* note 158.

178. *See, e.g.*, Fessler & Moore, *supra* note 175.

179. *See, e.g.*, Jocelyn Grzeszczak, *These Are the States Where You Can Track Your Mail-in Vote*, NEWSWEEK (Aug. 18, 2020; 1:50 PM), https://www.newsweek.com/these-are-states-where-you-can-track-your-mail-vote-1525920 [https://perma.cc/B6DA-LQPT].

180. States should be proactively eliminating any identifying pitfalls or traps—such as the rejection of so called "naked ballots," mailed without their secrecy covers. that could lead to large numbers of ballot disqualifications. *See, e.g.*, Jane C. Timm, *'Naked Ballots,' Explained: In Pennsylvania, New Court Ruling Complicates Mail-in Voting*, NBC NEWS (Sept. 27, 2020; 4:30 PM), https://www.nbcnews.com/politics/2020-election/naked-ballots-explained-pennsylvania-new-court-ruling-complicates-mail-voting-n1241017 [https://perma.cc/ZB9W-U7ZZ].

circling the candidate's name rather than filling in the bubble) should be treated, before partisan wrangling over particular ballots begins.[181]

It may be more difficult to establish clear rules in advance about how to judge whether signatures are a "close enough" match, but jurisdictions should establish clear, transparent appeals procedures that give voters adequate notice and time to respond to signature-mismatch disqualifications. In order to facilitate a timely ballot-verification process (with opportunities for voters to appeal disqualification of their votes), states should also change their election rules to allow processing (if not counting) of mail-in ballots on receipt or at least many days before Election Day. Moreover, jurisdictions should adopt, in advance, rules that help mitigate the risk that signatures will be disqualified for partisan reasons, including having bipartisan representation on judging committees and ensuring that signature judges cannot access a voter's party affiliation.

Jurisdictions can also ameliorate concerns about mail-in ballot receipt by providing alternative methods for returning mail-in ballots, including depositing ballots in secure drop boxes[182] and returning mail-in ballots to polling places (particularly during early voting).[183]

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181. Of course, partisan influence on these rules cannot be entirely eliminated, even if rules are established in advance, because if Democrats remain more likely to vote by mail than Republicans will be incentivized to adopt stricter rules that disqualify more ballots. *See Election 2020: Voters Are Highly Engaged, but Nearly Half Expect to Have Difficulties Voting*, PEW RSCH. CTR. (Aug. 13, 2020), https://www.pewresearch.org/politics/2020/08/13/election-2020-voters-are-highly-engaged-but-nearly-half-expect-to-have-difficulties-voting [https://perma.cc/S4TG-SQS3] (reporting results of a survey showing that eighty percent of registered voters who support or lean toward Trump prefer to vote in-person "either on Election Day (60%) or earlier (20%)" with only seventeen percent preferring to vote by mail, whereas fifty-eight percent of Biden (or Biden-leaning) voters prefer to vote-by-mail).

182. *See* CALIFORNIA ELECTION GUIDANCE, *supra* note 155, at 24 (noting that "[v]oters distrustful of mail service or late in completing their mail ballot can still be nudged to avoid in-person voting locations by providing a convenient, non-mail alternative for returning their ballot," such as a "drive-through drop-off site" equipped with a "secure drop box"). Providing these alternatives also allows for voters to return mail-in ballots without paying additional postage.

183. Raúl Macías, *Voters Should be Able to Return Absentee Ballots to Polling Places*, BRENNAN CTR. FOR JUST. (Sept. 10, 2020), https://www.brennancenter.org/our-work/analysis-opinion/voters-should-be-able-return-absentee-ballots-polling-places [https://perma.cc/8GYW-696Y] (explaining although returning mail-in ballots to a

Unfortunately, rather than adopting measures that would give vulnerable voters added assurances that their ballots have been received and counted, many states are considering legislation that would do the opposite: toughening signature requirements, eliminating secure-ballot boxes as a mechanism for ballot receipt, and otherwise making it harder for mail-in-ballots to count.[184]

Many of these proposed measures are likely to disproportionately deter racial minorities from protecting their health by voting by mail. Legislators, courts, and litigants should thus view these measures—both during the pandemic and after—through the lens of their impacts on health-cost-of-voting for racial minorities and other vulnerable voters. The next Section takes up this question more fully.

C. Focusing on Protecting Voter Health in Every Election

The most important lessons of the COVID-19 voter experience aren't merely lessons for future disasters, but for how we think about and protect the voting rights of racial minorities in every election. As is often the case with devastating disasters, the COVID-19 experience has exposed preexisting patterns of vulnerability and racial inequity that have not been adequately accounted for in existing laws and scholarship. In particular, the COVID-19 voter experience has brought into sharp focus the underappreciated ways that racial health disparities, rooted in the subordination of BIPOC people, limit minority access to the ballot, not just during pandemics, but in every election. Going forward, these racial disparities in health, confirmed by our empirical data,[185] should be a critical part of any legislative reinvigoration of the VRA and—lacking that—a critical component of litigation to enforce section 2 of the current VRA.

By highlighting how health considerations impact and alter individual costs of voting, COVID-19 has illuminated the risks that in-person

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polling place in-person does involve some COVID-19 exposure risk, the process could be streamlined so voters are only briefly at the polling location). At this late date, it may be more practical for counties to pursue (and publicize) this latter option, as drop boxes can be expensive and take considerable time to source. *See* Nathaniel Persily & Charles Stewart III, *With Six Weeks to the Election, Six Ways to Protect It*, N.Y. TIMES (Sept. 20, 2020), https://www.nytimes.com/2020/09/20/opinion/2020-election-security-voting.html [https://perma.cc/D77P-3WGH].

184. *See, e.g.*, Macías, *supra* note 183.

185. *See supra* Part II.

Election Day voting poses for those whose health predisposes them to contagious illness, those whose inflexible jobs or lack of health insurance mean they cannot afford to get sick, or those whose health circumstances make voting at a traditional polling place difficult or even impossible. While COVID-19 is, despite former President Trumps' frequent protests to the contrary, not the same as annual influenza,[186] influenza does pose serious risks to some voters and prior research has demonstrated that influenza outbreaks correlate with lower voter turnout.[187] Evidence also suggests that people who vote are healthier than those who do not and that these voter-participation gaps can have significant effects on healthcare policy.[188]

These health vulnerabilities, exposed and exacerbated by the COVID-19 pandemic, suggest that, for the most at-risk voters, "convenience voting" should be reconceptualized as "survival voting" in circumstances that extend well beyond the current crisis. These methods of voting—like easy access to vote-by-mail—provide important protection for voters with certain disabilities and those with other health conditions that make voting in-person at crowded polling places on Election Day in early November difficult, dangerous, and sometimes deadly. And because, as Part III demonstrated, racial minorities are likely to be overrepresented among voters whose health is most vulnerable, failure to account for the differential health costs of voting when designing voting procedures will disproportionately limit racial minorities access to the vote and to electoral power.[189]

The pandemic has thus made clear that health considerations—and racial health disparities, in particular—should play a much more important role in reinvigorating the VRA for a new century, in designing voting procedures for every election, and in section 2 litigation (under

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186. *See* Megan McArdle, *COVID-19 Isn't the Flu. Trump's Comparison Is Reckless.*, WASH. POST (Oct. 6, 2020, 3:47 PM), https://www.washingtonpost.com/opinions/2020/10/06/covid-19-isnt-flu-trumps-comparison-is-reckless [https://perma.cc/P38Q-MR3P].

187. *See* Robert Urbatsch, *Influenza and Voter Turnout*, 40 SCANDINAVIAN POL. STUD. 107, 116 (2017) (finding influenza outbreaks correlated with lower voter turnout in both the U.S. and Finland).

188. Sean McElwee, *Health Care Policy Is Undermined by Voting Barriers,* CENTURY FOUND. (May 9, 2018), https://tcf.org/content/report/health-care-policy-undermined-voting-barriers [https://perma.cc/554H-GG57].

189. *See supra* Part III (discussing the impact of COVID-19 on election laws and voters).

the current VRA) challenging procedures that are likely to limit minority ballot access. Data about regional variations in racial health disparities, and how different jurisdictions accommodated (or not) those disparities during the pandemic, could also play an important role in developing a new coverage formula for section 5 of the VRA.

A new health lens on the racial impacts of voting rules would beneficially inform—and perhaps even fundamentally alter—how we address some common voting rights issues. For example, while we often consider long polling place wait times as a potential barrier to voters who have rigid work schedules and who lose hourly wages for any time they must take off work to vote, we often overlook how long lines can also be a barrier to those in poor health or with certain kinds of disabilities.[190] Long wait times increase the risk of disease exposure, not only to COVID-19 but to other illnesses like seasonal flu, tax voters with limited energy or limited ability to stand for long periods, and pose difficulties for those with frequent medical needs (to take medication, use the bathroom, etc.) or with limited tolerance for heat or cold.

This focus on the health costs of voting makes clear that well-documented, disproportionately long wait times in minority neighborhoods[191] inflict a double whammy on minority voters: both the economic and health costs are substantial and may simply be too high a cost for some potential voters to pay. The same is also true of other voting inconveniences that are more commonly encountered by BIPOC

190. *See, e.g.*, Hannah Klain, Kevin Morris, Rebecca Ayala, & Max Feldman, *Waiting to Vote*, BRENNAN CTR. FOR JUST. (June 3, 2020), https://www.brennancenter.org/our-work/research-reports/waiting-vote [https://perma.cc/Q83K-UNYP]. *See generally Equity vs. Equality: What's the Difference*, GEO. WASH. U. MILKEN INST. SCH. PUB. HEALTH (Nov. 5, 2020), https://onlinepublichealth.gwu.edu/resources/equity-vs-equality [https://perma.cc/P2ZN-3SZT] (discussing the difference and importance of health equality and equity so that resources are directed appropriately to meet people's ongoing needs).

191. *See, e.g.*, Stephen Pettigrew, *The Racial Gap in Wait Times: Why Minority Precincts Are Underserved by Local Election Officials*, 132 POL. SCI. Q. 527, 527–528 (2017) (finding that voting lines in predominantly minority precincts areare twice as long as as predominantly white precincts, that "minorities are three times as likely to wait longer than 30 minutes and six times as likely to wait more than 60 minutes," and that a less white neighborhood is likely to have a longer line than a more white neighborhood in the same county or town).

voters, such as having to travel longer distances to polling stations.[192] The health lens reminds us that the costs of "inconvenient voting" are not merely economic, and the cumulative health and economic costs may disproportionately deter BIPOC voters from casting their ballots.

In sum, a new focus on racial health disparities—and the empirical evidence we present of how those disparities can be used as a tool for voter suppression—should change how lawmakers, courts, and litigants conceptualize barriers to racial minorities exercise of the franchise.

CONCLUSION

While data about racial disparities in health has traditionally played only a very limited role in assessing how voting rules affect the voting rights of racial minorities, the COVID-19 voter experience has powerfully exposed how those disparities undermine minority voice and voting power not just during pandemics, but in every election. Empirical evidence generated by our COVID-19 Vulnerability Index demonstrates that politicians leveraged health disparities, rooted in the subordination of racial minorities, to suppress the vote of racial minorities in the 2020 general election and to further entrench racial inequity in voting.

This evidence arrives at a critical juncture for the Voting Rights Act, which has been stripped of much of its bite by the Supreme Court and is currently being debated by Congress. A new focus on the disparate health effects of voting rules, grounded in the kind of solid empirical evidence we provide, could reinvigorate the VRA—providing new avenues for assessing voting rights, for litigating and judging voter suppression claims under section 2, and even for informing a new coverage formula to resurrect section 5. The clear and compelling story told by our data are a clarion call to legislators, courts, and litigators to reconceptualize and strengthen voting rights by recognizing and accounting for the barriers that health disparities pose to minority access to the ballot. The data provided in this Article shows that racist barriers to the franchise are not dead, even if they are not as obvious as literacy tests or a lynching mob. To the contrary, in 2020 voter suppression took the form of scaring off voters who proved unwilling to

192. *See* Michael E. Shepherd, Adriane Fresh, Nick Eubank, & Joshua D. Clinton, *The Politics of Locating Polling Places: Race and Partisanship in North Carolina Election Administration, 2008–2016*, 20 ELECTION L.J. 155, 162, 173 (2021).

risk their lives to vote. And, given the way the virus has ravished populations of racial minorities, a number of those who showed up to vote were made to pay with their lives.

APPENDIX
SURVIVAL VOTING AND MINORITY POLITICAL RIGHTS

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Data Sources

COVID Case Counts

Case Counts We relied on daily county-level cumulative counts of cases and deaths as compiled by The New York Times based on reports from state and local health agencies(?). Case counts from May 1, 2020, through October 4, 2020, were used; mortality data were considered through October 18, 2020. Counts for the five burroughs of New York City represent five countes (FIPS codes 36061, 36005, 36047, 36081, 36085) but were aggregated into a single reporting unit in The New York Times data.

Demographic Variables

Age
For each county, percent of persons over 65 years old was sourced from Table S0101 of the 2018 5-year ACS (U.S. Census Bureau 2018a). The field used was *Estimate of the Percent of the Total Population*. The selected age category was 65 years and over.

Race
The most accurate race/ethnicity data are on the decennial census. The ACS is the best supplement for years between censuses. Race and ethnicity data were obtained from Subject Table 0601 of the 2018 5-year ACS (U.S. Census Bureau 2018d). Race/ethnicity entered the model through a single measure of the percent of the population in each county who did not solely identify as white alone, not Hispanic or Latino. This percentage was calculated by subtracting the *Estimate Total Population, white alone, not Hispanic or Latino* field from 100.

Economic Indicators

Economic indicators included county-based information on percentage of essential workers, percentage living in poverty, and percent with health insurance.

Essential Workers
Essential workers were defined as those in healthcare support occupations, food service and preparation-related occupations, and

production, transportation and material moving occupations. We relied on Subject Table S2401 of the 2018 5-year ACS (U.S. Census Bureau 2018b). Percent essential workers was calculated as the sum of fields *Estimate Total Civilian employed population 16 years and over, Service occupations, Food preparation and serving related occupations, Total Civilian employed population 16 years and over, Service occupations, Healthcare support occupations, Civilian employed population 16 years and over, Production, transportation, and material moving occupations* divided by the total population in the county.

Health Insurance

We relied on Data Profile DP03 of the 2018 5-year ACS (U.S. Census Bureau 2018c) for the percent of each county with no health insurance; the field used was *Percent Estimate!!HEALTH INSURANCE COVERAGE!!Civilian noninstitutionalized population!!No health insurance coverage*.

Poverty

We relied on Data Profile DP03 of the 2018 5-year ACS (U.S. Census Bureau 2018c) for the percentage of families who live below the poverty level; the field used was *Percent Estimate of Families and People Whose Income in the Past Twelve Months in Below the Poverty Line.*

Health Measures

Health measures included county-level information on cause-specific mortality rates, disease Specific prevalence rates, and risk factors for disease

COPD

COPD Age-adjusted death rates due to chronic obstructive pulmonary disease were obtained from the CDC WONDER database (ICD-10 Code J44.9: Chronic obstructive pulmonary disease, unspecified) (Centers for Disease Control and Prevention, National Center for Health Statistics 2019).

Heart Disease
Age-adjusted deaths due to heart disease from 2016 to 2018 among those over age 35 were obtained from the CDC Interactive Atlas of Heart Disease and Stroke (Centers for Disease Control and Prevention 2018). Bristol Bay and Skagway, Alaska, lacked heart disease data; the heart disease mortality rate for these two counties was imputed to be the same as the state value.

Diabetes
County-level, age-adjusted percentage with diagnosed diabetes among individuals over age 20 years and percentage with obesity among individuals over age 20 years come from the Centers for Disease Control and Prevention 2017 Behavioral Risk Factor Surveillance System.

Smoking
Data for adult smoking was retrieved from the 2016 Behavioral Risk Factor Surveillance System (BRFSS) as stored in the 2019 U.S. County Rankings Database (Centers for Disease Control and Prevention 2016).

In Table 1 (next page), we present summary statistics for the demographic variables, economic indicators, and health measures above for all 3,142 counties as well as for the counties with the highest observed mortality rates and for the counties with the highest observed case fatality rates. Counties in the top decile of observed mortality rates are those with more individuals identifying as belonging to a minority race, more families without health insurance, more diabetes, more heart disease, and much higher population density.

Table 1: Model variables for all 3142 counties and for counties in the top decile according to the
observed COVID-19 mortality rate and case fatality rate. Table entries are mean (SD).

	Top Decile MR (N=314)		Top Decile CFR (N=314)		All Counties (N=3142)	
Minority Race	40.73	(26.0)	42.75	(21.3)	23.5	(20.2)
Uninsured	13.03	(5.8)	14.05	(5)	10.08	(5.1)
Essential Workers	10.8	(2.7)	10.31	(2.2)	11.34	(2.9)
Over 65 Years	18.16	(4.2)	18.61	(4.7)	18.37	(4.6)
Current Smokers	19.33	(3.6)	19.04	(3.3)	17.87	(3.7)
Diabetes	12.35	(4.3)	12.79	(4.4)	10.49	(3.5)
Heart Disease (Deaths/1000)	46.13	(67.2)	35.38	(57.4)	34.25	(111.9)
COPD (Deaths/1000)	38.85	(14.5)	37.91	(13.3)	38.22	(13.0)
Pop. Density (per sq. mile)	637.51	(5059.2)	151.82	(565.1)	267.54	(1782.4)

Model Specification

One important feature of the data is that nearly one-sixth of the counties experienced no deaths between January 29, 2020, and October 4, 2020. Consequently, this analysis uses a negative binomial hurdle model to allow covariate relationships to differ for counties with no observed COVID-19 attributable fatalities while still accounting for the discrete nature of the case counts. The model includes daily cases as an offset on the log scale which effectively converts the deaths modeled to case fatality rates. Making use of a Bayesian modeling framework, relatively diffuse priors were used on all parameters. An adaptive Metropolis-within-Gibbs sampler (SCAM; Haario et al., 2005) was used to fit the model using code written in R.

Counties with high expected vulnerability to in-person voting were identified by computing the posterior probability that a county has a COVID-19 mortality rate in the top decile nationwide. Due to advances in treatment as the pandemic unfolded, a sensitivity analysis was limited to cases diagnosed between May 1, 2020, and October 4, 2020.

Letting Y_i represent the deaths in county i, we allow for excess zeros (counties with no observed
deaths in the given time window) by creating a mixture:

$$Y_i \sim (1-\pi_i)I(w_i = 0 \text{ and } y_i = 0) + \pi_i \text{NB}(\phi_i, r)I(w_i = 1)$$

where π_i, the probability of having any deaths in the county, is modeled using a logistic component that depends on county-level measures:

$$\text{logit}(\pi_i) = \beta_0 + \beta_1 \text{Over65}_i + \beta_2 \text{Minority}_i + \cdots + \beta_p \text{COPD}_i$$

Then we model the non-zero death counts with a negative binomial regression component that allows for adjustment due to number of observed cases and population size:

$$P(Y_i|r, w_i = 1) = \frac{\Gamma(y_i + r)}{\Gamma(r)y_i!}(1-\phi_i)^r \phi_i^{y_i}$$

with

$$\phi_i = \frac{\exp(\beta_0 + \beta_1 \text{Over65}_i + \beta_2 \text{Minority}_i + \cdots + \beta_s \text{Cases}_i)}{1 + \exp(\beta_0 + \beta_1 \text{Over65}_i + \beta_2 \text{Minority}_i + \cdots + \beta_s \text{Cases}_i)}$$

From this model, we obtained the posterior predictive distribution for each county's case fatality rate from COVID-19. These posterior predictions were used to obtain a vulnerability index based stratifying the counties into risk-deciles based on the posterior predicted case fatality rates, taking into account uncertainty in both the parameters and the sampling variability in the observed data. The posterior predictive distribution facilitates inference to determine how often a county will fall in the top-decile with respect to the mortality rate. A similar model where we do not account for cases of COVID-19

allowed us to obtain a second vulnerability index based on the mortality rate.

Table 2 summarizes the model variables for those counties identified in the top decile with
respect to either the MR-based vulnerability index or the CFR-based vulnerability index.

Table 2: Model variables for all 3142 counties and for counties in the top decile according to the COVID-19 Vulnerability Index (CFR and MR). Table entries are mean (SD).

	Top Decile MR (N=308)		Top Decile CFR (N=306)		All Counties (N=3142)	
Minority Race	52.99	(23.6)	62.91	(16.3)	23.5	(20.2)
Uninsured	15.62	(7)	16.65	(6.5)	10.08	(5.1)
Essential Workers	9.52	(2.6)	9.93	(2.8)	11.34	(2.9)
Over 65 Years	17.27	(5.1)	17.06	(.4.7)	18.37	(4.6)
Current Smokers	19.71	(5.3)	20.73	(5)	17.87	(3.7)
Diabetes	12.54	(4.7)	14.12	(4.6)	10.49	(3.5)
Heart Disease (Deaths/1000)	48.87	(57)	41.43	(56.6)	34.25	(111.9)
COPD (Deaths/1000)	39.74	(16.1)	34.4	(12.6)	38.22	(13)
Pop. Density (per sq. mile)	694.18	(5164.5)	758.05	(5175.2)	267.54	(1782.4)

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County Deciles

On the following pages we present the COVID-19 case mortality and case fatality rate deciles for each county based on the model predictions.

State	County	County population	Case *Mortality* (Decile)	Case *Fatality* (Decile)
Alabama	Autauga	55200	4	5
Alabama	Baldwin	208107	3	6
Alabama	Barbour	25782	7	10
Alabama	Bibb	22527	6	6
Alabama	Blount	57645	6	6
Alabama	Bullock	10352	10	10
Alabama	Butler	20025	8	9
Alabama	Calhoun	115098	7	7
Alabama	Chambers	33826	9	9
Alabama	Cherokee	25853	2	5
Alabama	Chilton	43930	3	7
Alabama	Choctaw	13075	3	10
Alabama	Clarke	24387	9	10
Alabama	Clay	13378	3	6
Alabama	Cleburne	14938	4	5
Alabama	Coffee	51288	6	7
Alabama	Colbert	54495	8	7
Alabama	Conecuh	12514	10	10
Alabama	Coosa	10855	10	10
Alabama	Covington	37351	6	8
Alabama	Crenshaw	13865	5	8
Alabama	Cullman	82313	7	5
Alabama	Dale	49255	6	8
Alabama	Dallas	40029	10	10
Alabama	DeKalb	71200	7	6
Alabama	Elmore	81212	5	7
Alabama	Escambia	37328	8	10
Alabama	Etowah	102939	9	7
Alabama	Fayette	16585	8	7
Alabama	Franklin	31542	4	6
Alabama	Geneva	26491	7	8
Alabama	Greene	8426	10	10
Alabama	Hale	14887	10	10
Alabama	Henry	17124	5	8
Alabama	Houston	104352	7	8
Alabama	Jackson	52094	7	5
Alabama	Jefferson	659892	9	9
Alabama	Lamar	13933	8	8
Alabama	Lauderdale	92585	6	6

Alabama	Lawrence	33171	6	8
Alabama	Lee	159287	2	6
Alabama	Limestone	93052	4	5
Alabama	Lowndes	10236	10	10
Alabama	Macon	19054	10	10
Alabama	Madison	357560	5	7
Alabama	Marengo	19538	9	10
Alabama	Marion	29965	4	7
Alabama	Marshall	95145	7	6
Alabama	Mobile	414659	5	8
Alabama	Monroe	21512	9	10
Alabama	Montgomery	226941	9	10
Alabama	Morgan	119122	7	6
Alabama	Perry	9486	10	10
Alabama	Pickens	20298	10	9
Alabama	Pike	33403	4	8
Alabama	Randolph	22574	4	7
Alabama	Russell	58213	5	9
Alabama	St. Clair	87306	3	4
Alabama	Shelby	211261	4	5
Alabama	Sumter	12985	10	10
Alabama	Talladega	80565	7	8
Alabama	Tallapoosa	40636	7	8
Alabama	Tuscaloosa	206213	5	6
Alabama	Walker	64493	5	6
Alabama	Washington	16643	5	8
Alabama	Wilcox	10809	10	10
Alabama	Winston	23875	8	7
Alaska	Aleutians East Borough	3425	8	10
Alaska	Aleutians West Census Area	5750	1	6
Alaska	Anchorage Municipality	296112	9	7
Alaska	Bethel Census Area	18040	10	10
Alaska	Denali Borough	2232	1	2
Alaska	Dillingham Census Area	4975	10	10
Alaska	Fairbanks North Star Borough	99653	3	5
Alaska	Haines Borough	2518	1	8
Alaska	Juneau and Borough	32330	2	6
Alaska	Kenai Peninsula Borough	58220	8	6
Alaska	Ketchikan Gateway Borough	13804	3	7

Alaska	Kodiak Island Borough	13649	7	7
Alaska	Kusilvak Census Area	8198	10	10
Alaska	Matanuska-Susitna Borough	103464	7	5
Alaska	Nome Census Area	9925	10	10
Alaska	North Slope Borough	9797	10	10
Alaska	Northwest Arctic Borough	7734	10	10
Alaska	Petersburg Borough	3255	1	8
Alaska	Prince of Wales-Hyder Census Area	6474	4	10
Alaska	Sitka and Borough	8738	7	7
Alaska	Skagway Municipality	1061	1	2
Alaska	Southeast Fairbanks Census Area	6876	9	6
Alaska	Valdez-Cordova Census Area	9301	3	7
Alaska	Wrangell and Borough	2484	1	10
Alaska	Yukon-Koyukuk Census Area	5415	10	10
Arizona	Apache	71522	10	10
Arizona	Cochise	126279	9	9
Arizona	Coconino	140217	7	7
Arizona	Gila	53400	10	10
Arizona	Graham	37879	10	8
Arizona	Greenlee	9504	8	8
Arizona	La Paz	20701	10	10
Arizona	Maricopa	4253913	7	7
Arizona	Mohave	206064	7	8
Arizona	Navajo	108705	10	10
Arizona	Pima	1019722	8	9
Arizona	Pinal	419721	9	9
Arizona	Santa Cruz	46584	10	10
Arizona	Yavapai	224645	7	7
Arizona	Yuma	207829	10	10
Arkansas	Arkansas	18124	7	8
Arkansas	Ashley	20537	7	7
Arkansas	Baxter	41219	5	5
Arkansas	Benton	258980	4	4
Arkansas	Boone	37288	5	3
Arkansas	Bradley	10948	9	9
Arkansas	Calhoun	5202	7	6
Arkansas	Carroll	27887	6	6
Arkansas	Chicot	10826	10	10

Arkansas	Clark	22385	6	6
Arkansas	Clay	15061	6	2
Arkansas	Cleburne	25230	2	4
Arkansas	Cleveland	8226	6	6
Arkansas	Columbia	23892	9	9
Arkansas	Conway	20906	7	7
Arkansas	Craighead	105701	7	5
Arkansas	Crawford	62472	4	4
Arkansas	Crittenden	49013	9	9
Arkansas	Cross	16998	8	8
Arkansas	Dallas	7432	9	9
Arkansas	Desha	11887	9	9
Arkansas	Drew	18502	9	8
Arkansas	Faulkner	122416	2	4
Arkansas	Franklin	17780	3	4
Arkansas	Fulton	12139	6	6
Arkansas	Garland	98296	8	8
Arkansas	Grant	18086	3	4
Arkansas	Greene	44623	6	2
Arkansas	Hempstead	22018	9	9
Arkansas	Hot Spring	33520	8	6
Arkansas	Howard	13389	7	7
Arkansas	Independence	37264	3	3
Arkansas	Izard	13559	9	7
Arkansas	Jackson	17225	10	9
Arkansas	Jefferson	70424	9	10
Arkansas	Johnson	26291	2	5
Arkansas	Lafayette	6915	9	9
Arkansas	Lawrence	16669	4	4
Arkansas	Lee	9398	9	10
Arkansas	Lincoln	13695	8	8
Arkansas	Little River	12417	8	8
Arkansas	Logan	21757	5	5
Arkansas	Lonoke	72206	2	4
Arkansas	Madison	16076	4	5
Arkansas	Marion	16438	6	6
Arkansas	Miller	43759	6	7
Arkansas	Mississippi	42831	9	8
Arkansas	Monroe	7249	9	10
Arkansas	Montgomery	8993	6	7

Arkansas	Nevada	8440	9	9
Arkansas	Newton	7848	5	5
Arkansas	Ouachita	24106	10	9
Arkansas	Perry	10322	2	4
Arkansas	Phillips	19034	10	10
Arkansas	Pike	10808	4	6
Arkansas	Poinsett	24054	8	7
Arkansas	Polk	20163	9	7
Arkansas	Pope	63644	3	4
Arkansas	Prairie	8244	6	7
Arkansas	Pulaski	393463	8	8
Arkansas	Randolph	17603	6	5
Arkansas	St. Francis	26294	9	10
Arkansas	Saline	118009	4	4
Arkansas	Scott	10442	6	6
Arkansas	Searcy	7923	4	6
Arkansas	Sebastian	127461	7	7
Arkansas	Sevier	17193	9	8
Arkansas	Sharp	17043	9	8
Arkansas	Stone	12446	2	7
Arkansas	Union	39732	7	8
Arkansas	Van Buren	16684	6	7
Arkansas	Washington	228529	6	5
Arkansas	White	78804	6	5
Arkansas	Woodruff	6660	9	10
Arkansas	Yell	21573	5	6
California	Alameda	1643700	2	8
California	Alpine	1146	10	9
California	Amador	37829	3	8
California	Butte	227075	1	6
California	Calaveras	45235	1	7
California	Colusa	21464	8	9
California	Contra Costa	1133247	2	8
California	Del Norte	27424	4	8
California	El Dorado	186661	1	5
California	Fresno	978130	7	9
California	Glenn	27897	6	8
California	Humboldt	135768	1	5
California	Imperial	180216	10	10
California	Inyo	18085	2	8

California	Kern	883053	8	9
California	Kings	150075	10	9
California	Lake	64148	1	8
California	Lassen	31185	10	7
California	Los Angeles	10098052	8	9
California	Madera	155013	8	9
California	Marin	260295	1	7
California	Mariposa	17540	1	5
California	Mendocino	87422	2	8
California	Merced	269075	9	9
California	Modoc	8938	5	8
California	Mono	14174	8	6
California	Monterey	433212	8	9
California	Napa	140530	4	7
California	Nevada	99092	2	5
California	Orange	3164182	4	8
California	Placer	380077	1	5
California	Plumas	18699	1	5
California	Riverside	2383286	6	9
California	Sacramento	1510023	4	8
California	San Benito	59416	5	8
California	San Bernardino	2135413	9	9
California	San Diego	3302833	4	8
California	San Francisco	870044	2	8
California	San Joaquin	732212	4	8
California	San Luis Obispo	281455	2	7
California	San Mateo	765935	2	8
California	Santa Barbara	443738	2	8
California	Santa Clara	1922200	3	8
California	Santa Cruz	273765	2	6
California	Shasta	179085	7	6
California	Sierra	2930	1	4
California	Siskiyou	43540	5	7
California	Solano	438530	4	8
California	Sonoma	501317	1	6
California	Stanislaus	539301	5	8
California	Sutter	95872	9	8
California	Tehama	63373	5	7
California	Trinity	12862	4	7
California	Tulare	460477	8	9

California	Tuolumne	53932	5	6
California	Ventura	848112	4	8
California	Yolo	214977	3	7
California	Yuba	75493	6	8
Colorado	Adams	497115	9	7
Colorado	Alamosa	16444	8	8
Colorado	Arapahoe	636671	7	5
Colorado	Archuleta	12908	7	7
Colorado	Baca	3563	8	7
Colorado	Bent	5809	10	9
Colorado	Boulder	321030	2	2
Colorado	Broomfield	66120	3	3
Colorado	Chaffee	19164	4	6
Colorado	Cheyenne	2039	7	4
Colorado	Clear Creek	9379	2	3
Colorado	Conejos	8142	9	9
Colorado	Costilla	3687	10	10
Colorado	Crowley	5630	10	7
Colorado	Custer	4640	8	9
Colorado	Delta	30346	7	7
Colorado	Denver	693417	9	7
Colorado	Dolores	1841	2	3
Colorado	Douglas	328614	2	1
Colorado	Eagle	54357	3	3
Colorado	Elbert	25162	2	1
Colorado	El Paso	688153	7	4
Colorado	Fremont	47002	10	7
Colorado	Garfield	58538	6	5
Colorado	Gilpin	5924	1	1
Colorado	Grand	15066	3	2
Colorado	Gunnison	16537	1	1
Colorado	Hinsdale	878	2	7
Colorado	Huerfano	6583	10	9
Colorado	Jackson	1296	6	8
Colorado	Jefferson	570427	4	3
Colorado	Kiowa	1449	2	3
Colorado	Kit Carson	7635	9	7
Colorado	Lake	7585	7	6
Colorado	La Plata	55101	4	3
Colorado	Larimer	338161	2	1

Colorado	Las Animas	14179	9	9
Colorado	Lincoln	5548	10	7
Colorado	Logan	21689	9	4
Colorado	Mesa	149998	8	5
Colorado	Mineral	823	5	4
Colorado	Moffat	13060	5	4
Colorado	Montezuma	25909	9	8
Colorado	Montrose	41268	7	7
Colorado	Morgan	28257	8	5
Colorado	Otero	18325	10	9
Colorado	Ouray	4722	5	5
Colorado	Park	17392	1	3
Colorado	Phillips	4318	9	6
Colorado	Pitkin	17909	2	3
Colorado	Prowers	12052	10	8
Colorado	Pueblo	164685	10	8
Colorado	Rio Blanco	6465	3	2
Colorado	Rio Grande	11351	8	9
Colorado	Routt	24874	2	1
Colorado	Saguache	6468	9	10
Colorado	San Juan	544	6	6
Colorado	San Miguel	7968	1	1
Colorado	Sedgwick	2350	9	7
Colorado	Summit	30429	4	1
Colorado	Teller	24113	4	4
Colorado	Washington	4840	8	5
Colorado	Weld	295123	7	4
Colorado	Yuma	10069	3	5
Connecticut	Fairfield	944348	6	6
Connecticut	Hartford	894730	4	6
Connecticut	Litchfield	183031	2	2
Connecticut	Middlesex	163368	2	3
Connecticut	New Haven	859339	6	6
Connecticut	New London	268881	1	4
Connecticut	Tolland	151269	1	1
Connecticut	Windham	116538	1	2
Delaware	Kent	174822	4	7
Delaware	New Castle	555133	6	7
Delaware	Sussex	219540	6	8
District of Columbia	District of Columbia	684498	6	9

Florida	Alachua	263148	3	7
Florida	Baker	27785	3	6
Florida	Bay	182482	4	7
Florida	Bradford	26979	4	8
Florida	Brevard	576808	4	8
Florida	Broward	1909151	9	9
Florida	Calhoun	14444	8	9
Florida	Charlotte	176954	4	8
Florida	Citrus	143087	5	7
Florida	Clay	207291	3	6
Florida	Collier	363922	8	9
Florida	Columbia	69105	5	8
Florida	DeSoto	36399	10	10
Florida	Dixie	16437	2	9
Florida	Duval	924229	7	8
Florida	Escambia	311522	6	8
Florida	Flagler	107139	4	9
Florida	Franklin	11736	3	9
Florida	Gadsden	46017	9	10
Florida	Gilchrist	17615	6	8
Florida	Glades	13363	9	10
Florida	Gulf	16055	5	8
Florida	Hamilton	14269	7	10
Florida	Hardee	27228	6	9
Florida	Hendry	40127	9	10
Florida	Hernando	182696	5	9
Florida	Highlands	102101	9	9
Florida	Hillsborough	1378883	6	9
Florida	Holmes	19430	8	8
Florida	Indian River	150984	5	8
Florida	Jackson	48472	9	9
Florida	Jefferson	14105	7	9
Florida	Lafayette	8744	5	9
Florida	Lake	335362	5	9
Florida	Lee	718679	8	9
Florida	Leon	288102	4	7
Florida	Levy	39961	6	9
Florida	Liberty	8365	6	8
Florida	Madison	18474	9	10
Florida	Manatee	373853	7	8

Florida	Marion	348371	6	9
Florida	Martin	157581	3	8
Florida	Miami-Dade	2715516	10	10
Florida	Monroe	76325	8	8
Florida	Nassau	80578	3	6
Florida	Okaloosa	200737	6	7
Florida	Okeechobee	40572	8	10
Florida	Orange	1321194	7	9
Florida	Osceola	338619	9	10
Florida	Palm Beach	1446277	8	9
Florida	Pasco	510593	6	9
Florida	Pinellas	957875	4	8
Florida	Polk	668671	6	9
Florida	Putnam	72766	7	10
Florida	St. Johns	235503	3	5
Florida	St. Lucie	305591	6	9
Florida	Santa Rosa	170442	3	6
Florida	Sarasota	412144	4	7
Florida	Seminole	455086	2	8
Florida	Sumter	120999	2	8
Florida	Suwannee	43924	4	8
Florida	Taylor	22098	5	8
Florida	Union	15239	3	8
Florida	Volusia	527634	5	9
Florida	Wakulla	31877	3	5
Florida	Walton	65858	8	7
Florida	Washington	24566	7	8
Georgia	Appling	18454	2	8
Georgia	Atkinson	8265	7	9
Georgia	Bacon	11228	2	8
Georgia	Baker	3189	8	10
Georgia	Baldwin	45286	4	9
Georgia	Banks	18510	2	4
Georgia	Barrow	76887	3	7
Georgia	Bartow	103620	3	4
Georgia	Ben Hill	17154	7	10
Georgia	Berrien	19025	3	7
Georgia	Bibb	153490	8	10
Georgia	Bleckley	12775	2	7
Georgia	Brantley	18561	2	5

Georgia	Brooks	15622	8	10
Georgia	Bryan	35885	1	5
Georgia	Bulloch	74782	1	7
Georgia	Burke	22550	8	10
Georgia	Butts	23750	5	7
Georgia	Calhoun	6428	5	10
Georgia	Camden	52714	2	7
Georgia	Candler	10827	3	9
Georgia	Carroll	116022	6	7
Georgia	Catoosa	66299	2	4
Georgia	Charlton	12983	5	9
Georgia	Chatham	287049	3	9
Georgia	Chattahoochee	10767	9	9
Georgia	Chattooga	24817	3	6
Georgia	Cherokee	241910	3	5
Georgia	Clarke	124602	5	8
Georgia	Clay	3001	10	10
Georgia	Clayton	278666	9	10
Georgia	Clinch	6743	6	9
Georgia	Cobb	745057	5	8
Georgia	Coffee	42961	8	9
Georgia	Colquitt	45606	3	10
Georgia	Columbia	147295	3	5
Georgia	Cook	17184	9	9
Georgia	Coweta	140516	3	6
Georgia	Crawford	12344	2	8
Georgia	Crisp	22846	7	10
Georgia	Dade	16227	4	7
Georgia	Dawson	23861	3	5
Georgia	Decatur	26833	8	10
Georgia	DeKalb	743187	8	10
Georgia	Dodge	20919	4	8
Georgia	Dooly	13905	8	10
Georgia	Dougherty	91049	7	10
Georgia	Douglas	141840	7	9
Georgia	Early	10348	9	10
Georgia	Echols	3994	8	9
Georgia	Effingham	58689	1	2
Georgia	Elbert	19212	9	8
Georgia	Emanuel	22499	7	10

Georgia	Evans	10727	2	8
Georgia	Fannin	24925	3	7
Georgia	Fayette	111369	3	7
Georgia	Floyd	96824	6	7
Georgia	Forsyth	219880	2	5
Georgia	Franklin	22514	7	7
Georgia	Fulton	1021902	6	9
Georgia	Gilmer	29922	5	8
Georgia	Glascock	3009	1	3
Georgia	Glynn	83974	3	8
Georgia	Gordon	56790	5	5
Georgia	Grady	24926	8	10
Georgia	Greene	16976	7	10
Georgia	Gwinnett	902298	8	9
Georgia	Habersham	44289	5	7
Georgia	Hall	195961	5	7
Georgia	Hancock	8535	10	10
Georgia	Haralson	28956	3	2
Georgia	Harris	33590	1	7
Georgia	Hart	25631	5	7
Georgia	Heard	11677	2	3
Georgia	Henry	221307	6	8
Georgia	Houston	151682	4	8
Georgia	Irwin	9268	7	9
Georgia	Jackson	65755	3	3
Georgia	Jasper	13784	5	7
Georgia	Jeff Davis	14991	3	9
Georgia	Jefferson	15772	9	10
Georgia	Jenkins	8827	1	9
Georgia	Johnson	9730	4	9
Georgia	Jones	28548	4	9
Georgia	Lamar	18513	7	8
Georgia	Lanier	10366	4	9
Georgia	Laurens	47418	6	9
Georgia	Lee	29348	2	7
Georgia	Liberty	62108	5	9
Georgia	Lincoln	7799	8	9
Georgia	Long	18156	1	8
Georgia	Lowndes	114582	8	9
Georgia	Lumpkin	31951	1	3

Georgia	McDuffie	21498	6	9
Georgia	McIntosh	14120	5	10
Georgia	Macon	13480	7	10
Georgia	Madison	28900	3	6
Georgia	Marion	8484	2	9
Georgia	Meriwether	21113	5	9
Georgia	Miller	5836	8	9
Georgia	Mitchell	22432	5	9
Georgia	Monroe	27010	4	8
Georgia	Montgomery	9036	2	8
Georgia	Morgan	18235	4	8
Georgia	Murray	39557	6	4
Georgia	Muscogee	196670	5	9
Georgia	Newton	106497	6	9
Georgia	Oconee	37017	1	3
Georgia	Oglethorpe	14784	2	6
Georgia	Paulding	155840	2	5
Georgia	Peach	26966	8	10
Georgia	Pickens	30832	4	7
Georgia	Pierce	19164	1	6
Georgia	Pike	18082	3	5
Georgia	Polk	41621	6	7
Georgia	Pulaski	11295	6	10
Georgia	Putnam	21503	4	9
Georgia	Quitman	2276	10	10
Georgia	Rabun	16457	7	8
Georgia	Randolph	7087	7	10
Georgia	Richmond	201463	9	10
Georgia	Rockdale	89011	7	10
Georgia	Schley	5211	5	9
Georgia	Screven	13990	1	9
Georgia	Seminole	8437	10	9
Georgia	Spalding	64719	7	9
Georgia	Stephens	25676	5	7
Georgia	Stewart	6042	5	10
Georgia	Sumter	30352	8	10
Georgia	Talbot	6378	9	10
Georgia	Taliaferro	1665	9	10
Georgia	Tattnall	25353	7	10
Georgia	Taylor	8193	10	10

Georgia	Telfair	16115	5	10
Georgia	Terrell	8859	7	10
Georgia	Thomas	44730	4	9
Georgia	Tift	40510	8	8
Georgia	Toombs	27048	6	9
Georgia	Towns	11417	3	6
Georgia	Treutlen	6777	2	8
Georgia	Troup	69774	3	7
Georgia	Turner	7962	9	10
Georgia	Twiggs	8284	6	10
Georgia	Union	22775	3	7
Georgia	Upson	26216	6	8
Georgia	Walker	68824	4	6
Georgia	Walton	90132	2	5
Georgia	Ware	35599	6	9
Georgia	Warren	5346	8	10
Georgia	Washington	20461	10	10
Georgia	Wayne	29767	6	8
Georgia	Webster	2613	4	10
Georgia	Wheeler	7939	1	9
Georgia	White	28928	4	6
Georgia	Whitfield	103849	9	7
Georgia	Wilcox	8846	9	10
Georgia	Wilkes	9884	10	10
Georgia	Wilkinson	9078	3	8
Georgia	Worth	20656	5	10
Hawaii	Hawaii	197658	1	10
Hawaii	Honolulu	987638	2	10
Hawaii	Kauai	71377	1	9
Hawaii	Maui	165281	1	9
Idaho	Ada	446052	3	2
Idaho	Adams	4019	6	8
Idaho	Bannock	85065	5	3
Idaho	Bear Lake	5962	5	4
Idaho	Benewah	9086	4	6
Idaho	Bingham	45551	7	5
Idaho	Blaine	21994	5	4
Idaho	Boise	7163	3	7
Idaho	Bonner	42711	3	4
Idaho	Bonneville	112397	5	2

Idaho	Boundary	11549	5	6
Idaho	Butte	2602	2	4
Idaho	Camas	886	2	6
Idaho	Canyon	212230	8	6
Idaho	Caribou	6918	4	3
Idaho	Cassia	23615	8	6
Idaho	Clark	1077	7	9
Idaho	Clearwater	8640	10	7
Idaho	Custer	4141	5	6
Idaho	Elmore	26433	4	6
Idaho	Franklin	13279	3	1
Idaho	Fremont	12965	4	3
Idaho	Gem	17052	9	7
Idaho	Gooding	15169	8	7
Idaho	Idaho	16337	7	5
Idaho	Jefferson	27969	3	2
Idaho	Jerome	23431	9	7
Idaho	Kootenai	153605	5	3
Idaho	Latah	39239	2	1
Idaho	Lemhi	7798	6	6
Idaho	Lewis	3845	9	7
Idaho	Lincoln	5321	9	8
Idaho	Madison	38705	7	2
Idaho	Minidoka	20615	9	8
Idaho	Nez Perce	40155	8	4
Idaho	Oneida	4326	3	2
Idaho	Owyhee	11455	10	9
Idaho	Payette	23041	7	5
Idaho	Power	7713	7	8
Idaho	Shoshone	12526	7	6
Idaho	Teton	11080	4	2
Idaho	Twin Falls	83666	7	3
Idaho	Valley	10401	2	4
Idaho	Washington	10025	9	8
Illinois	Adams	66427	7	3
Illinois	Alexander	6532	8	7
Illinois	Bond	16712	5	1
Illinois	Boone	53606	7	2
Illinois	Brown	6675	7	3
Illinois	Bureau	33381	8	3

Illinois	Calhoun	4858	7	2
Illinois	Carroll	14562	7	2
Illinois	Cass	12665	7	1
Illinois	Champaign	209448	6	4
Illinois	Christian	33231	5	2
Illinois	Clark	15836	4	1
Illinois	Clay	13338	8	2
Illinois	Clinton	37628	5	1
Illinois	Coles	51736	3	1
Illinois	Cook	5223719	9	8
Illinois	Crawford	19088	5	2
Illinois	Cumberland	10865	4	1
Illinois	DeKalb	104200	3	2
Illinois	De Witt	16042	5	3
Illinois	Douglas	19714	6	3
Illinois	DuPage	931743	7	4
Illinois	Edgar	17539	6	1
Illinois	Edwards	6507	2	1
Illinois	Effingham	34174	7	1
Illinois	Fayette	21724	9	2
Illinois	Ford	13398	7	1
Illinois	Franklin	39127	7	4
Illinois	Fulton	35418	5	2
Illinois	Gallatin	5157	2	2
Illinois	Greene	13218	5	1
Illinois	Grundy	50509	5	1
Illinois	Hamilton	8221	6	2
Illinois	Hancock	18112	6	1
Illinois	Hardin	4009	6	4
Illinois	Henderson	6884	5	3
Illinois	Henry	49464	8	2
Illinois	Iroquois	28169	8	2
Illinois	Jackson	58551	6	5
Illinois	Jasper	9598	5	1
Illinois	Jefferson	38169	5	2
Illinois	Jersey	22069	7	2
Illinois	Jo Daviess	21834	4	2
Illinois	Johnson	12602	8	6
Illinois	Kane	530839	8	6
Illinois	Kankakee	111061	9	4

Illinois	Kendall	124626	6	3
Illinois	Knox	50999	8	5
Illinois	Lake	703619	7	5
Illinois	LaSalle	110401	7	3
Illinois	Lawrence	16189	10	6
Illinois	Lee	34527	6	2
Illinois	Livingston	36324	8	2
Illinois	Logan	29207	8	4
Illinois	McDonough	30875	5	3
Illinois	McHenry	307789	4	2
Illinois	McLean	173219	5	2
Illinois	Macon	106512	9	7
Illinois	Macoupin	45719	6	2
Illinois	Madison	265670	5	2
Illinois	Marion	38084	8	3
Illinois	Marshall	11794	4	2
Illinois	Mason	13778	4	1
Illinois	Massac	14430	9	6
Illinois	Menard	12367	5	2
Illinois	Mercer	15693	3	1
Illinois	Monroe	33936	4	1
Illinois	Montgomery	29009	4	4
Illinois	Morgan	34426	9	5
Illinois	Moultrie	14703	4	1
Illinois	Ogle	51328	4	1
Illinois	Peoria	184463	8	6
Illinois	Perry	21384	7	3
Illinois	Piatt	16427	5	1
Illinois	Pike	15754	8	3
Illinois	Pope	4249	4	4
Illinois	Pulaski	5611	10	7
Illinois	Putnam	5746	3	1
Illinois	Randolph	32546	7	4
Illinois	Richland	15881	5	1
Illinois	Rock Island	145275	8	5
Illinois	St. Clair	263463	8	6
Illinois	Saline	24231	4	3
Illinois	Sangamon	197661	7	4
Illinois	Schuyler	7064	8	6
Illinois	Scott	5047	4	2

Illinois	Shelby	21832	4	1
Illinois	Stark	5500	6	2
Illinois	Stephenson	45433	7	4
Illinois	Tazewell	133852	5	1
Illinois	Union	17127	6	3
Illinois	Vermilion	78407	8	5
Illinois	Wabash	11573	5	1
Illinois	Warren	17338	8	4
Illinois	Washington	14155	3	1
Illinois	Wayne	16487	7	5
Illinois	White	14025	4	2
Illinois	Whiteside	56396	8	3
Illinois	Will	688697	7	4
Illinois	Williamson	67299	6	4
Illinois	Winnebago	286174	7	4
Illinois	Woodford	38817	4	1
Indiana	Adams	35195	6	2
Indiana	Allen	370016	7	4
Indiana	Bartholomew	81893	6	3
Indiana	Benton	8667	8	3
Indiana	Blackford	12129	6	2
Indiana	Boone	64321	2	1
Indiana	Brown	15034	4	4
Indiana	Carroll	19994	3	1
Indiana	Cass	38084	6	5
Indiana	Clark	115702	4	2
Indiana	Clay	26268	6	2
Indiana	Clinton	32301	6	3
Indiana	Crawford	10581	2	2
Indiana	Daviess	32937	5	3
Indiana	Dearborn	49501	3	1
Indiana	Decatur	26552	3	1
Indiana	DeKalb	42704	2	1
Indiana	Delaware	115616	4	4
Indiana	Dubois	42418	2	1
Indiana	Elkhart	203604	8	4
Indiana	Fayette	23259	7	3
Indiana	Floyd	76809	3	2
Indiana	Fountain	16486	7	4
Indiana	Franklin	22842	2	1

Indiana	Fulton	20212	4	2
Indiana	Gibson	33596	4	1
Indiana	Grant	66944	7	5
Indiana	Greene	32295	4	4
Indiana	Hamilton	316095	4	2
Indiana	Hancock	73830	4	2
Indiana	Harrison	39712	2	2
Indiana	Hendricks	160940	4	2
Indiana	Henry	48483	5	3
Indiana	Howard	82387	7	5
Indiana	Huntington	36378	4	2
Indiana	Jackson	43938	5	2
Indiana	Jasper	33449	4	1
Indiana	Jay	20993	7	3
Indiana	Jefferson	32237	4	1
Indiana	Jennings	27727	3	1
Indiana	Johnson	151564	4	2
Indiana	Knox	37409	6	3
Indiana	Kosciusko	78806	5	1
Indiana	LaGrange	38942	4	4
Indiana	Lake	486849	9	8
Indiana	LaPorte	110552	7	6
Indiana	Lawrence	45619	4	3
Indiana	Madison	129505	8	7
Indiana	Marion	944523	9	8
Indiana	Marshall	46595	7	3
Indiana	Martin	10210	2	1
Indiana	Miami	35901	6	2
Indiana	Monroe	145403	2	2
Indiana	Montgomery	38276	4	2
Indiana	Morgan	69727	3	2
Indiana	Newton	14018	6	4
Indiana	Noble	47451	3	1
Indiana	Ohio	5887	1	1
Indiana	Orange	19547	2	2
Indiana	Owen	20878	6	4
Indiana	Parke	16996	6	4
Indiana	Perry	19141	2	1
Indiana	Pike	12411	2	1
Indiana	Porter	168041	7	3

Indiana	Posey	25589	2	1
Indiana	Pulaski	12660	3	1
Indiana	Putnam	37559	3	3
Indiana	Randolph	25076	8	3
Indiana	Ripley	28425	6	1
Indiana	Rush	16704	2	1
Indiana	St. Joseph	269240	8	5
Indiana	Scott	23743	3	1
Indiana	Shelby	44399	5	2
Indiana	Spencer	20526	3	1
Indiana	Starke	22941	4	3
Indiana	Steuben	34474	3	1
Indiana	Sullivan	20792	8	4
Indiana	Switzerland	10628	6	6
Indiana	Tippecanoe	189294	6	3
Indiana	Tipton	15218	5	2
Indiana	Union	7153	2	1
Indiana	Vanderburgh	181313	5	3
Indiana	Vermillion	15560	6	3
Indiana	Vigo	107693	7	3
Indiana	Wabash	31631	7	2
Indiana	Warren	8247	3	2
Indiana	Warrick	61928	4	2
Indiana	Washington	27827	2	2
Indiana	Wayne	66613	8	6
Indiana	Wells	27947	5	1
Indiana	White	24217	7	3
Indiana	Whitley	33649	4	1
Iowa	Adair	7124	7	3
Iowa	Adams	3726	4	2
Iowa	Allamakee	13880	6	2
Iowa	Appanoose	12510	9	4
Iowa	Audubon	5637	2	2
Iowa	Benton	25626	5	1
Iowa	Black Hawk	133009	5	1
Iowa	Boone	26399	2	1
Iowa	Bremer	24782	7	1
Iowa	Buchanan	21125	3	1
Iowa	Buena Vista	20260	7	2
Iowa	Butler	14735	7	1

Iowa	Calhoun	9780	9	2
Iowa	Carroll	20344	4	1
Iowa	Cass	13191	5	2
Iowa	Cedar	18445	3	1
Iowa	Cerro Gordo	42984	7	1
Iowa	Cherokee	11468	7	2
Iowa	Chickasaw	12099	5	1
Iowa	Clarke	9282	1	1
Iowa	Clay	16313	7	2
Iowa	Clayton	17672	4	1
Iowa	Clinton	47218	6	2
Iowa	Crawford	17132	4	2
Iowa	Dallas	84002	5	1
Iowa	Davis	8885	8	5
Iowa	Decatur	8044	5	5
Iowa	Delaware	17258	3	1
Iowa	Des Moines	39600	7	3
Iowa	Dickinson	17056	7	2
Iowa	Dubuque	96802	4	1
Iowa	Emmet	9551	6	2
Iowa	Fayette	19929	6	2
Iowa	Floyd	15858	8	3
Iowa	Franklin	10245	9	5
Iowa	Fremont	6968	3	2
Iowa	Greene	9003	8	3
Iowa	Grundy	12341	6	1
Iowa	Guthrie	10674	6	2
Iowa	Hamilton	15110	7	1
Iowa	Hancock	10888	5	1
Iowa	Hardin	17127	7	2
Iowa	Harrison	14143	5	2
Iowa	Henry	19926	5	1
Iowa	Howard	9264	4	1
Iowa	Humboldt	9566	6	1
Iowa	Ida	6916	6	1
Iowa	Iowa	16207	4	1
Iowa	Jackson	19395	6	1
Iowa	Jasper	36891	4	2
Iowa	Jefferson	18077	7	4
Iowa	Johnson	147001	3	1

Iowa	Calhoun	9780	9	2
Iowa	Carroll	20344	4	1
Iowa	Cass	13191	5	2
Iowa	Cedar	18445	3	1
Iowa	Cerro Gordo	42984	7	1
Iowa	Cherokee	11468	7	2
Iowa	Chickasaw	12099	5	1
Iowa	Clarke	9282	1	1
Iowa	Clay	16313	7	2
Iowa	Clayton	17672	4	1
Iowa	Clinton	47218	6	2
Iowa	Crawford	17132	4	2
Iowa	Dallas	84002	5	1
Iowa	Davis	8885	8	5
Iowa	Decatur	8044	5	5
Iowa	Delaware	17258	3	1
Iowa	Des Moines	39600	7	3
Iowa	Dickinson	17056	7	2
Iowa	Dubuque	96802	4	1
Iowa	Emmet	9551	6	2
Iowa	Fayette	19929	6	2
Iowa	Floyd	15858	8	3
Iowa	Franklin	10245	9	5
Iowa	Fremont	6968	3	2
Iowa	Greene	9003	8	3
Iowa	Grundy	12341	6	1
Iowa	Guthrie	10674	6	2
Iowa	Hamilton	15110	7	1
Iowa	Hancock	10888	5	1
Iowa	Hardin	17127	7	2
Iowa	Harrison	14143	5	2
Iowa	Henry	19926	5	1
Iowa	Howard	9264	4	1
Iowa	Humboldt	9566	6	1
Iowa	Ida	6916	6	1
Iowa	Iowa	16207	4	1
Iowa	Jackson	19395	6	1
Iowa	Jasper	36891	4	2
Iowa	Jefferson	18077	7	4
Iowa	Johnson	147001	3	1

Iowa	Wayne	6413	7	6
Iowa	Webster	36757	8	2
Iowa	Winnebago	10571	5	1
Iowa	Winneshiek	20401	2	1
Iowa	Woodbury	102398	6	2
Iowa	Worth	7489	5	1
Iowa	Wright	12804	7	2
Kansas	Allen	12630	5	3
Kansas	Anderson	7852	5	3
Kansas	Atchison	16363	5	3
Kansas	Barber	4733	6	4
Kansas	Barton	26791	9	5
Kansas	Bourbon	14702	7	5
Kansas	Brown	9664	10	5
Kansas	Butler	66468	6	2
Kansas	Chase	2645	8	5
Kansas	Chautauqua	3367	7	6
Kansas	Cherokee	20331	7	5
Kansas	Cheyenne	2677	8	5
Kansas	Clark	2053	9	7
Kansas	Clay	8142	9	4
Kansas	Cloud	9060	9	3
Kansas	Coffey	8296	4	4
Kansas	Comanche	1780	9	5
Kansas	Cowley	35591	8	5
Kansas	Crawford	39108	5	3
Kansas	Decatur	2881	6	4
Kansas	Dickinson	19004	4	3
Kansas	Doniphan	7736	8	3
Kansas	Douglas	119319	2	2
Kansas	Edwards	2925	9	5
Kansas	Elk	2562	8	8
Kansas	Ellis	28878	5	1
Kansas	Ellsworth	6293	9	4
Kansas	Finney	36957	10	7
Kansas	Ford	34484	10	7
Kansas	Franklin	25563	2	1
Kansas	Geary	34895	7	8
Kansas	Gove	2619	9	6
Kansas	Graham	2545	10	7

Kansas	Grant	7616	10	9
Kansas	Gray	6037	8	3
Kansas	Greeley	1200	10	8
Kansas	Greenwood	6156	6	4
Kansas	Hamilton	2616	10	9
Kansas	Harper	5673	9	6
Kansas	Harvey	34555	8	4
Kansas	Haskell	4047	9	7
Kansas	Hodgeman	1842	10	6
Kansas	Jackson	13318	8	5
Kansas	Jefferson	18888	4	2
Kansas	Jewell	2916	8	5
Kansas	Johnson	585502	4	3
Kansas	Kearny	3932	10	7
Kansas	Kingman	7470	8	4
Kansas	Kiowa	2526	7	5
Kansas	Labette	20367	7	4
Kansas	Lane	1642	9	4
Kansas	Leavenworth	80042	3	3
Kansas	Lincoln	3097	5	3
Kansas	Linn	9635	7	6
Kansas	Logan	2810	9	5
Kansas	Lyon	33299	8	3
Kansas	McPherson	28630	6	2
Kansas	Marion	12032	4	2
Kansas	Marshall	9798	9	2
Kansas	Meade	4261	10	7
Kansas	Miami	33127	2	2
Kansas	Mitchell	6222	7	4
Kansas	Montgomery	32970	5	6
Kansas	Morris	5566	7	5
Kansas	Morton	2838	10	8
Kansas	Nemaha	10104	9	1
Kansas	Neosho	16125	8	5
Kansas	Ness	2955	9	4
Kansas	Norton	5486	10	4
Kansas	Osage	15882	6	4
Kansas	Osborne	3603	4	4
Kansas	Ottawa	5902	5	3
Kansas	Pawnee	6709	10	7

Kansas	Phillips	5408	8	3
Kansas	Pottawatomie	23545	1	1
Kansas	Pratt	9582	8	3
Kansas	Rawlins	2509	9	5
Kansas	Reno	63101	9	4
Kansas	Republic	4686	9	2
Kansas	Rice	9762	8	5
Kansas	Riley	75296	4	2
Kansas	Rooks	5118	9	4
Kansas	Rush	3102	9	4
Kansas	Russell	6977	10	5
Kansas	Saline	54977	6	3
Kansas	Scott	4949	9	4
Kansas	Sedgwick	512064	9	6
Kansas	Seward	22692	10	8
Kansas	Shawnee	178284	8	6
Kansas	Sheridan	2506	9	3
Kansas	Sherman	5966	9	7
Kansas	Smith	3663	8	4
Kansas	Stafford	4214	9	6
Kansas	Stanton	2063	9	8
Kansas	Stevens	5686	10	8
Kansas	Sumner	23208	5	3
Kansas	Thomas	7824	7	1
Kansas	Trego	2858	8	3
Kansas	Wabaunsee	6888	7	3
Kansas	Wallace	1575	9	5
Kansas	Washington	5525	8	2
Kansas	Wichita	2143	10	7
Kansas	Wilson	8780	8	5
Kansas	Woodson	3170	4	6
Kansas	Wyandotte	164345	10	9
Kentucky	Adair	19241	5	3
Kentucky	Allen	20794	1	2
Kentucky	Anderson	22214	1	2
Kentucky	Ballard	8090	3	6
Kentucky	Barren	43680	4	4
Kentucky	Bath	12268	2	2
Kentucky	Bell	27188	6	6
Kentucky	Boone	129095	3	1

Kentucky	Bourbon	20144	3	4
Kentucky	Boyd	48091	7	6
Kentucky	Boyle	29913	6	5
Kentucky	Bracken	8306	1	1
Kentucky	Breathitt	13116	5	5
Kentucky	Breckinridge	20080	2	3
Kentucky	Bullitt	79466	2	1
Kentucky	Butler	12745	2	3
Kentucky	Caldwell	12727	7	5
Kentucky	Calloway	38776	3	2
Kentucky	Campbell	92267	3	2
Kentucky	Carlisle	4841	5	3
Kentucky	Carroll	10711	2	2
Kentucky	Carter	27290	5	5
Kentucky	Casey	15796	6	6
Kentucky	Christian	72263	6	7
Kentucky	Clark	35872	2	3
Kentucky	Clay	20621	6	4
Kentucky	Clinton	10211	7	4
Kentucky	Crittenden	9083	2	4
Kentucky	Cumberland	6713	6	6
Kentucky	Daviess	99937	3	3
Kentucky	Edmonson	12122	5	4
Kentucky	Elliott	7517	9	5
Kentucky	Estill	14313	3	4
Kentucky	Fayette	318734	6	5
Kentucky	Fleming	14479	2	3
Kentucky	Floyd	36926	8	6
Kentucky	Franklin	50296	2	4
Kentucky	Fulton	6210	4	7
Kentucky	Gallatin	8703	2	2
Kentucky	Garrard	17328	2	2
Kentucky	Grant	24915	2	1
Kentucky	Graves	37294	7	4
Kentucky	Grayson	26178	2	1
Kentucky	Green	11023	4	2
Kentucky	Greenup	35765	7	5
Kentucky	Hancock	8719	2	1
Kentucky	Hardin	108095	4	3
Kentucky	Harlan	27134	5	7

Kentucky	Harrison	18668	1	1
Kentucky	Hart	18627	4	2
Kentucky	Henderson	46137	5	5
Kentucky	Henry	15814	2	2
Kentucky	Hickman	4568	5	7
Kentucky	Hopkins	45664	6	5
Kentucky	Jackson	13373	2	4
Kentucky	Jefferson	767154	6	5
Kentucky	Jessamine	52422	2	2
Kentucky	Johnson	22843	7	6
Kentucky	Kenton	164688	2	2
Kentucky	Knott	15513	5	7
Kentucky	Knox	31467	2	4
Kentucky	Larue	14156	2	1
Kentucky	Laurel	60180	3	3
Kentucky	Lawrence	15783	5	5
Kentucky	Lee	6751	10	5
Kentucky	Leslie	10472	4	5
Kentucky	Letcher	22676	3	6
Kentucky	Lewis	13490	2	2
Kentucky	Lincoln	24458	4	4
Kentucky	Livingston	9263	6	5
Kentucky	Logan	26849	3	3
Kentucky	Lyon	8186	3	5
Kentucky	McCracken	65284	8	6
Kentucky	McCreary	17635	7	6
Kentucky	McLean	9331	5	4
Kentucky	Madison	89700	2	1
Kentucky	Magoffin	12666	7	5
Kentucky	Marion	19232	6	2
Kentucky	Marshall	31166	3	3
Kentucky	Martin	11919	7	7
Kentucky	Mason	17153	4	4
Kentucky	Meade	28326	2	2
Kentucky	Menifee	6405	1	5
Kentucky	Mercer	21516	2	2
Kentucky	Metcalfe	10004	3	2
Kentucky	Monroe	10634	9	5
Kentucky	Montgomery	27759	2	2
Kentucky	Morgan	13285	3	4

Kentucky	Muhlenberg	31081	3	4
Kentucky	Nelson	45388	2	1
Kentucky	Nicholas	7100	1	4
Kentucky	Ohio	24071	3	3
Kentucky	Oldham	65374	2	1
Kentucky	Owen	10741	1	1
Kentucky	Owsley	4463	9	6
Kentucky	Pendleton	14520	2	1
Kentucky	Perry	26917	5	5
Kentucky	Pike	60483	4	5
Kentucky	Powell	12321	6	3
Kentucky	Pulaski	64145	5	4
Kentucky	Robertson	2143	6	4
Kentucky	Rockcastle	16827	1	2
Kentucky	Rowan	24499	2	1
Kentucky	Russell	17760	7	5
Kentucky	Scott	53517	1	1
Kentucky	Shelby	46786	3	4
Kentucky	Simpson	18063	3	1
Kentucky	Spencer	18246	2	1
Kentucky	Taylor	25500	5	3
Kentucky	Todd	12350	3	4
Kentucky	Trigg	14344	3	5
Kentucky	Trimble	8637	1	1
Kentucky	Union	14802	3	4
Kentucky	Warren	126427	2	1
Kentucky	Washington	12019	5	3
Kentucky	Wayne	20609	7	6
Kentucky	Webster	13155	3	2
Kentucky	Whitley	36089	4	4
Kentucky	Wolfe	7223	5	5
Kentucky	Woodford	26097	3	3
Louisiana	Acadia	62568	4	6
Louisiana	Allen	25661	5	7
Louisiana	Ascension	121176	4	6
Louisiana	Assumption	22714	7	9
Louisiana	Avoyelles	40882	5	8
Louisiana	Beauregard	36769	3	7
Louisiana	Bienville	13668	10	10
Louisiana	Bossier	126131	7	7

Louisiana	Caddo	248361	9	9
Louisiana	Calcasieu	200182	5	7
Louisiana	Caldwell	9996	10	8
Louisiana	Cameron	6868	1	2
Louisiana	Catahoula	9893	9	8
Louisiana	Claiborne	16153	10	10
Louisiana	Concordia	20021	10	10
Louisiana	De Soto	27216	8	9
Louisiana	East Baton Rouge	444094	7	9
Louisiana	East Carroll	7225	10	10
Louisiana	East Feliciana	19499	10	9
Louisiana	Evangeline	33636	9	9
Louisiana	Franklin	20322	10	10
Louisiana	Grant	22348	7	7
Louisiana	Iberia	72691	5	8
Louisiana	Iberville	32956	10	9
Louisiana	Jackson	15926	9	8
Louisiana	Jefferson	435300	8	9
Louisiana	Jefferson Davis	31467	5	6
Louisiana	Lafayette	240091	5	7
Louisiana	Lafourche	98214	3	5
Louisiana	LaSalle	14949	9	7
Louisiana	Lincoln	47356	9	8
Louisiana	Livingston	138111	2	3
Louisiana	Madison	11472	10	10
Louisiana	Morehouse	25992	10	9
Louisiana	Natchitoches	38963	9	9
Louisiana	Orleans	389648	8	10
Louisiana	Ouachita	156075	9	8
Louisiana	Plaquemines	23373	8	8
Louisiana	Pointe Coupee	22158	9	9
Louisiana	Rapides	131546	8	8
Louisiana	Red River	8618	9	9
Louisiana	Richland	20474	10	9
Louisiana	Sabine	24088	10	9
Louisiana	St. Bernard	45694	3	7
Louisiana	St. Charles	52724	6	6
Louisiana	St. Helena	10411	9	10
Louisiana	St. James	21357	5	8
Louisiana	St. John the Baptist	43446	8	9

Louisiana	St. Landry	83449	9	9
Louisiana	St. Martin	53752	4	7
Louisiana	St. Mary	51734	5	8
Louisiana	St. Tammany	252093	4	6
Louisiana	Tangipahoa	130504	6	7
Louisiana	Tensas	4666	10	10
Louisiana	Terrebonne	112587	2	7
Louisiana	Union	22475	9	9
Louisiana	Vermilion	59867	2	5
Louisiana	Vernon	51007	3	8
Louisiana	Washington	46457	9	9
Louisiana	Webster	39631	9	9
Louisiana	West Baton Rouge	25860	8	7
Louisiana	West Carroll	11180	10	9
Louisiana	West Feliciana	15377	1	8
Louisiana	Winn	14494	10	9
Maine	Androscoggin	107444	1	2
Maine	Aroostook	68269	1	6
Maine	Cumberland	290944	1	2
Maine	Franklin	30019	1	3
Maine	Hancock	54541	1	5
Maine	Kennebec	121545	1	3
Maine	Knox	39823	1	4
Maine	Lincoln	34067	1	4
Maine	Oxford	57325	1	4
Maine	Penobscot	151748	1	3
Maine	Piscataquis	16887	1	5
Maine	Sagadahoc	35277	1	3
Maine	Somerset	50710	1	4
Maine	Waldo	39418	1	5
Maine	Washington	31694	1	6
Maine	York	203102	1	2
Maryland	Allegany	71977	9	5
Maryland	Anne Arundel	567696	2	5
Maryland	Baltimore	827625	5	7
Maryland	Calvert	91082	1	4
Maryland	Caroline	32875	2	6
Maryland	Carroll	167522	1	2
Maryland	Cecil	102517	1	2
Maryland	Charles	157671	5	8

Maryland	Dorchester	32261	4	9
Maryland	Frederick	248472	2	4
Maryland	Garrett	29376	6	4
Maryland	Harford	251025	2	4
Maryland	Howard	315327	2	7
Maryland	Kent	19593	2	7
Maryland	Montgomery	1040133	4	8
Maryland	Prince George's	906202	10	10
Maryland	Queen Anne's	49355	1	3
Maryland	St. Mary's	111531	1	5
Maryland	Somerset	25737	10	9
Maryland	Talbot	37211	1	7
Maryland	Washington	149811	4	5
Maryland	Wicomico	102172	3	6
Maryland	Worcester	51564	2	7
Maryland	Baltimore city	614700	10	10
Massachusetts	Barnstable	213690	1	4
Massachusetts	Berkshire	127328	1	4
Massachusetts	Bristol	558905	2	2
Massachusetts	Dukes	17313	2	4
Massachusetts	Essex	781024	3	4
Massachusetts	Franklin	70935	1	3
Massachusetts	Hampden	469116	4	5
Massachusetts	Hampshire	161159	1	2
Massachusetts	Middlesex	1595192	1	3
Massachusetts	Nantucket	11101	2	2
Massachusetts	Norfolk	698249	1	4
Massachusetts	Plymouth	512135	1	3
Massachusetts	Suffolk	791766	6	8
Massachusetts	Worcester	822280	1	2
Michigan	Alcona	10364	3	4
Michigan	Alger	9194	5	6
Michigan	Allegan	115250	2	1
Michigan	Alpena	28612	4	3
Michigan	Antrim	23177	3	4
Michigan	Arenac	15165	8	6
Michigan	Baraga	8507	10	8
Michigan	Barry	60057	4	2
Michigan	Bay	104786	6	2
Michigan	Benzie	17552	6	6

Michigan	Berrien	154807	8	6
Michigan	Branch	43584	6	2
Michigan	Calhoun	134473	6	5
Michigan	Cass	51460	6	4
Michigan	Charlevoix	26219	4	4
Michigan	Cheboygan	25458	5	6
Michigan	Chippewa	37834	7	7
Michigan	Clare	30616	7	7
Michigan	Clinton	77896	3	2
Michigan	Crawford	13836	4	5
Michigan	Delta	36190	8	4
Michigan	Dickinson	25570	8	3
Michigan	Eaton	109155	3	3
Michigan	Emmet	33039	5	3
Michigan	Genesee	409361	7	6
Michigan	Gladwin	25289	7	5
Michigan	Gogebic	15414	7	5
Michigan	Grand Traverse	91746	1	2
Michigan	Gratiot	41067	6	3
Michigan	Hillsdale	45830	4	2
Michigan	Houghton	36360	3	3
Michigan	Huron	31543	4	3
Michigan	Ingham	289564	4	4
Michigan	Ionia	64176	4	1
Michigan	Iosco	25247	6	5
Michigan	Iron	11212	6	4
Michigan	Isabella	70775	3	1
Michigan	Jackson	158913	5	3
Michigan	Kalamazoo	261573	3	2
Michigan	Kalkaska	17463	3	5
Michigan	Kent	643140	5	2
Michigan	Keweenaw	2130	8	7
Michigan	Lake	11763	4	6
Michigan	Lapeer	88202	2	1
Michigan	Leelanau	21639	3	5
Michigan	Lenawee	98474	3	3
Michigan	Livingston	188482	2	1
Michigan	Luce	6364	5	6
Michigan	Mackinac	10817	8	8
Michigan	Macomb	868704	5	3

Michigan	Manistee	24444	3	6
Michigan	Marquette	66939	5	2
Michigan	Mason	28884	2	4
Michigan	Mecosta	43264	2	1
Michigan	Menominee	23234	4	1
Michigan	Midland	83389	4	2
Michigan	Missaukee	15006	3	5
Michigan	Monroe	149699	3	1
Michigan	Montcalm	63209	4	3
Michigan	Montmorency	9261	7	7
Michigan	Muskegon	173043	7	4
Michigan	Newaygo	48142	4	3
Michigan	Oakland	1250843	5	5
Michigan	Oceana	26417	8	6
Michigan	Ogemaw	20928	7	5
Michigan	Ontonagon	5968	8	6
Michigan	Osceola	23232	4	4
Michigan	Oscoda	8277	6	6
Michigan	Otsego	24397	5	3
Michigan	Ottawa	284034	3	1
Michigan	Presque Isle	12797	5	5
Michigan	Roscommon	23877	8	6
Michigan	Saginaw	192778	8	6
Michigan	St. Clair	159566	3	2
Michigan	St. Joseph	60897	4	3
Michigan	Sanilac	41376	3	3
Michigan	Schoolcraft	8069	2	5
Michigan	Shiawassee	68493	2	1
Michigan	Tuscola	53250	3	2
Michigan	Van Buren	75272	7	5
Michigan	Washtenaw	365961	2	3
Michigan	Wayne	1761382	8	8
Michigan	Wexford	33111	2	2
Minnesota	Aitkin	15834	8	4
Minnesota	Anoka	347431	5	1
Minnesota	Becker	33773	8	3
Minnesota	Beltrami	46117	8	6
Minnesota	Benton	39779	6	1
Minnesota	Big Stone	5016	7	3
Minnesota	Blue Earth	66322	3	1

Minnesota	Brown	25211	7	1
Minnesota	Carlton	35540	7	2
Minnesota	Carver	100416	3	1
Minnesota	Cass	29022	9	6
Minnesota	Chippewa	12010	9	4
Minnesota	Chisago	54727	3	1
Minnesota	Clay	62801	5	1
Minnesota	Clearwater	8812	9	5
Minnesota	Cook	5311	3	6
Minnesota	Cottonwood	11372	9	4
Minnesota	Crow Wing	63855	7	2
Minnesota	Dakota	418201	5	1
Minnesota	Dodge	20582	2	1
Minnesota	Douglas	37203	8	1
Minnesota	Faribault	13896	4	2
Minnesota	Fillmore	20888	3	1
Minnesota	Freeborn	30526	6	3
Minnesota	Goodhue	46217	4	1
Minnesota	Grant	5938	6	2
Minnesota	Hennepin	1235478	6	3
Minnesota	Houston	18663	4	1
Minnesota	Hubbard	20862	7	3
Minnesota	Isanti	38974	4	1
Minnesota	Itasca	45203	7	4
Minnesota	Jackson	10047	5	2
Minnesota	Kanabec	16004	5	2
Minnesota	Kandiyohi	42658	9	2
Minnesota	Kittson	4337	7	2
Minnesota	Koochiching	12644	4	3
Minnesota	Lac qui Parle	6773	8	3
Minnesota	Lake	10569	6	2
Minnesota	Lake of the Woods	3809	1	1
Minnesota	Le Sueur	27983	3	1
Minnesota	Lincoln	5707	7	3
Minnesota	Lyon	25839	6	1
Minnesota	McLeod	35825	6	1
Minnesota	Mahnomen	5506	10	10
Minnesota	Marshall	9392	6	2
Minnesota	Martin	19964	6	3
Minnesota	Meeker	23079	6	1

Minnesota	Mille Lacs	25728	8	2
Minnesota	Morrison	32949	6	1
Minnesota	Mower	39602	6	3
Minnesota	Murray	8353	6	2
Minnesota	Nicollet	33783	2	1
Minnesota	Nobles	21839	8	4
Minnesota	Norman	6559	7	3
Minnesota	Olmsted	153065	4	2
Minnesota	Otter Tail	57992	8	3
Minnesota	Pennington	14184	3	1
Minnesota	Pine	29129	7	3
Minnesota	Pipestone	9185	7	2
Minnesota	Polk	31591	8	2
Minnesota	Pope	10980	5	1
Minnesota	Ramsey	541493	7	5
Minnesota	Red Lake	4008	7	2
Minnesota	Redwood	15331	9	4
Minnesota	Renville	14721	8	3
Minnesota	Rice	65765	5	1
Minnesota	Rock	9413	7	1
Minnesota	Roseau	15462	4	4
Minnesota	St. Louis	200080	5	2
Minnesota	Scott	143372	5	1
Minnesota	Sherburne	93231	3	1
Minnesota	Sibley	14912	4	1
Minnesota	Stearns	156819	5	1
Minnesota	Steele	36676	4	1
Minnesota	Stevens	9784	5	1
Minnesota	Swift	9411	8	3
Minnesota	Todd	24440	7	3
Minnesota	Traverse	3337	7	4
Minnesota	Wabasha	21500	5	1
Minnesota	Wadena	13646	7	2
Minnesota	Waseca	18809	3	1
Minnesota	Washington	253317	4	1
Minnesota	Watonwan	10973	8	5
Minnesota	Wilkin	6343	7	2
Minnesota	Winona	50847	3	1
Minnesota	Wright	132745	4	1
Minnesota	Yellow Medicine	9868	7	2

Mississippi	Adams	31547	10	10
Mississippi	Alcorn	37180	6	7
Mississippi	Amite	12468	9	10
Mississippi	Attala	18581	10	9
Mississippi	Benton	8253	9	9
Mississippi	Bolivar	32592	10	10
Mississippi	Calhoun	14571	7	8
Mississippi	Carroll	10129	10	9
Mississippi	Chickasaw	17279	8	9
Mississippi	Choctaw	8321	10	9
Mississippi	Claiborne	9120	10	10
Mississippi	Clarke	15928	7	8
Mississippi	Clay	19808	9	10
Mississippi	Coahoma	23802	10	10
Mississippi	Copiah	28721	9	10
Mississippi	Covington	19091	8	8
Mississippi	DeSoto	176132	6	6
Mississippi	Forrest	75517	6	8
Mississippi	Franklin	7757	9	9
Mississippi	George	23710	4	7
Mississippi	Greene	13714	6	8
Mississippi	Grenada	21278	8	9
Mississippi	Hancock	46653	3	7
Mississippi	Harrison	202626	5	8
Mississippi	Hinds	241774	9	10
Mississippi	Holmes	18075	10	10
Mississippi	Humphreys	8539	10	10
Mississippi	Issaquena	1328	9	9
Mississippi	Itawamba	23480	5	4
Mississippi	Jackson	142014	6	7
Mississippi	Jasper	16529	9	10
Mississippi	Jefferson	7346	10	10
Mississippi	Jefferson Davis	11495	10	10
Mississippi	Jones	68454	7	8
Mississippi	Kemper	10107	10	10
Mississippi	Lafayette	53459	6	6
Mississippi	Lamar	61223	4	7
Mississippi	Lauderdale	77323	9	9
Mississippi	Lawrence	12630	8	8
Mississippi	Leake	22870	10	10

Mississippi	Lee	84915	7	6
Mississippi	Leflore	29804	10	10
Mississippi	Lincoln	34432	8	8
Mississippi	Lowndes	59437	8	9
Mississippi	Madison	103498	5	7
Mississippi	Marion	25202	7	9
Mississippi	Marshall	35787	10	9
Mississippi	Monroe	35840	8	8
Mississippi	Montgomery	10198	10	9
Mississippi	Neshoba	29376	8	9
Mississippi	Newton	21524	6	8
Mississippi	Noxubee	10828	10	10
Mississippi	Oktibbeha	49481	6	8
Mississippi	Panola	34243	10	9
Mississippi	Pearl River	55149	3	7
Mississippi	Perry	12028	6	7
Mississippi	Pike	39737	7	10
Mississippi	Pontotoc	31315	5	5
Mississippi	Prentiss	25360	6	6
Mississippi	Quitman	7372	10	10
Mississippi	Rankin	151240	4	6
Mississippi	Scott	28415	10	10
Mississippi	Sharkey	4511	10	10
Mississippi	Simpson	27073	8	9
Mississippi	Smith	16063	3	7
Mississippi	Stone	18375	5	5
Mississippi	Sunflower	26532	10	10
Mississippi	Tallahatchie	14361	9	10
Mississippi	Tate	28493	8	7
Mississippi	Tippah	21990	7	7
Mississippi	Tishomingo	19478	7	7
Mississippi	Tunica	10170	9	10
Mississippi	Union	28356	4	4
Mississippi	Walthall	14601	10	10
Mississippi	Warren	47075	6	10
Mississippi	Washington	47086	10	10
Mississippi	Wayne	20422	8	9
Mississippi	Webster	9828	3	6
Mississippi	Wilkinson	8990	10	10
Mississippi	Winston	18358	10	10

Mississippi	Yalobusha	12421	9	9
Mississippi	Yazoo	27974	9	10
Missouri	Adair	25325	5	2
Missouri	Andrew	17403	3	1
Missouri	Atchison	5270	7	4
Missouri	Audrain	25735	3	3
Missouri	Barry	35493	6	7
Missouri	Barton	11850	5	5
Missouri	Bates	16374	5	4
Missouri	Benton	18989	6	7
Missouri	Bollinger	12281	5	4
Missouri	Boone	176515	5	3
Missouri	Buchanan	89076	7	4
Missouri	Butler	42733	7	6
Missouri	Caldwell	9049	6	4
Missouri	Callaway	44840	8	5
Missouri	Camden	45096	7	6
Missouri	Cape Girardeau	78324	8	4
Missouri	Carroll	8843	9	7
Missouri	Carter	6197	5	5
Missouri	Cass	102678	3	3
Missouri	Cedar	13938	5	6
Missouri	Chariton	7546	7	5
Missouri	Christian	84275	4	3
Missouri	Clark	6800	5	3
Missouri	Clay	239164	1	3
Missouri	Clinton	20475	3	3
Missouri	Cole	76740	9	5
Missouri	Cooper	17622	7	3
Missouri	Crawford	24280	8	6
Missouri	Dade	7590	9	6
Missouri	Dallas	16499	3	5
Missouri	Daviess	8302	4	5
Missouri	DeKalb	12564	6	4
Missouri	Dent	15504	5	5
Missouri	Douglas	13374	3	6
Missouri	Dunklin	30428	9	8
Missouri	Franklin	102781	2	1
Missouri	Gasconade	14746	2	2
Missouri	Gentry	6665	8	4

Missouri	Greene	288429	5	4
Missouri	Grundy	10039	7	5
Missouri	Harrison	8554	9	7
Missouri	Henry	21765	10	8
Missouri	Hickory	9368	6	7
Missouri	Holt	4456	8	4
Missouri	Howard	10113	5	3
Missouri	Howell	40102	3	7
Missouri	Iron	10221	3	5
Missouri	Jackson	692003	5	7
Missouri	Jasper	119238	3	3
Missouri	Jefferson	223302	5	2
Missouri	Johnson	53689	3	2
Missouri	Knox	3951	7	7
Missouri	Laclede	35507	3	3
Missouri	Lafayette	32589	4	3
Missouri	Lawrence	38133	6	5
Missouri	Lewis	10027	3	2
Missouri	Lincoln	55563	3	2
Missouri	Linn	12186	3	5
Missouri	Livingston	15076	5	6
Missouri	McDonald	22827	4	6
Missouri	Macon	15254	8	5
Missouri	Madison	12205	8	5
Missouri	Maries	8884	5	5
Missouri	Marion	28672	8	5
Missouri	Mercer	3664	4	5
Missouri	Miller	25049	4	2
Missouri	Mississippi	13748	10	9
Missouri	Moniteau	15958	8	4
Missouri	Monroe	8654	8	6
Missouri	Montgomery	11545	2	3
Missouri	Morgan	20137	7	7
Missouri	New Madrid	17811	10	8
Missouri	Newton	58202	3	4
Missouri	Nodaway	22547	5	1
Missouri	Oregon	10699	4	6
Missouri	Osage	13619	4	1
Missouri	Ozark	9236	2	6
Missouri	Pemiscot	17031	9	8

Missouri	Perry	19146	5	1
Missouri	Pettis	42371	8	5
Missouri	Phelps	44789	4	3
Missouri	Pike	18489	8	5
Missouri	Platte	98824	1	4
Missouri	Polk	31549	5	3
Missouri	Pulaski	52591	4	7
Missouri	Putnam	4815	8	6
Missouri	Ralls	10217	4	2
Missouri	Randolph	24945	6	4
Missouri	Ray	22825	2	2
Missouri	Reynolds	6315	9	5
Missouri	Ripley	13693	8	7
Missouri	St. Charles	389985	5	2
Missouri	St. Clair	9383	8	6
Missouri	Ste. Genevieve	17871	4	1
Missouri	St. Francois	66342	7	3
Missouri	St. Louis	998684	8	7
Missouri	Saline	23102	7	5
Missouri	Schuyler	4502	5	4
Missouri	Scotland	4898	9	8
Missouri	Scott	38729	9	6
Missouri	Shannon	8246	2	5
Missouri	Shelby	6061	6	5
Missouri	Stoddard	29512	8	6
Missouri	Stone	31527	5	6
Missouri	Sullivan	6317	9	7
Missouri	Taney	54720	8	8
Missouri	Texas	25671	7	8
Missouri	Vernon	20691	4	4
Missouri	Warren	33908	4	3
Missouri	Washington	24931	7	3
Missouri	Wayne	13308	5	7
Missouri	Webster	38082	4	4
Missouri	Worth	2040	7	6
Missouri	Wright	18293	2	6
Missouri	St. Louis city	311273	9	9
Montana	Beaverhead	9393	7	4
Montana	Big Horn	13376	10	10
Montana	Blaine	6727	10	10

Montana	Broadwater	5834	5	4
Montana	Carbon	10546	7	4
Montana	Carter	1318	10	7
Montana	Cascade	81746	9	5
Montana	Chouteau	5789	10	8
Montana	Custer	11845	7	3
Montana	Daniels	1753	10	7
Montana	Dawson	9191	7	1
Montana	Deer Lodge	9100	9	6
Montana	Fallon	2838	8	2
Montana	Fergus	11273	9	6
Montana	Flathead	98082	7	3
Montana	Gallatin	104729	4	1
Montana	Garfield	1141	8	5
Montana	Glacier	13699	10	10
Montana	Golden Valley	724	3	6
Montana	Granite	3269	6	6
Montana	Hill	16439	9	6
Montana	Jefferson	11778	7	4
Montana	Judith Basin	1951	6	4
Montana	Lake	29774	9	9
Montana	Lewis and Clark	67077	6	2
Montana	Liberty	2280	7	5
Montana	Lincoln	19358	8	7
Montana	McCone	1630	9	6
Montana	Madison	8218	8	5
Montana	Meagher	1968	4	7
Montana	Mineral	4211	6	6
Montana	Missoula	115983	2	1
Montana	Musselshell	4807	6	5
Montana	Park	16246	6	4
Montana	Petroleum	432	2	5
Montana	Phillips	4124	9	8
Montana	Pondera	6044	9	8
Montana	Powder River	1619	5	5
Montana	Powell	6861	10	6
Montana	Prairie	1342	10	5
Montana	Ravalli	41902	8	5
Montana	Richland	11360	6	2
Montana	Roosevelt	11228	10	10

Montana	Rosebud	9250	9	9
Montana	Sanders	11521	6	7
Montana	Sheridan	3574	9	4
Montana	Silver Bow	34814	8	3
Montana	Stillwater	9410	5	3
Montana	Sweet Grass	3653	9	4
Montana	Teton	6080	7	5
Montana	Toole	4976	8	4
Montana	Treasure	777	2	6
Montana	Valley	7532	9	7
Montana	Wheatland	2149	4	5
Montana	Wibaux	1175	9	6
Montana	Yellowstone	157816	5	2
Nebraska	Adams	31583	5	2
Nebraska	Antelope	6372	6	3
Nebraska	Arthur	418	9	7
Nebraska	Banner	696	5	5
Nebraska	Blaine	480	6	3
Nebraska	Boone	5313	6	2
Nebraska	Box Butte	11089	8	3
Nebraska	Boyd	2042	8	6
Nebraska	Brown	2988	7	4
Nebraska	Buffalo	49030	5	1
Nebraska	Burt	6528	9	5
Nebraska	Butler	8067	6	1
Nebraska	Cass	25702	4	2
Nebraska	Cedar	8523	4	1
Nebraska	Chase	3734	8	4
Nebraska	Cherry	5790	4	3
Nebraska	Cheyenne	9852	8	2
Nebraska	Clay	6232	7	3
Nebraska	Colfax	10760	8	4
Nebraska	Cuming	8991	7	3
Nebraska	Custer	10830	5	3
Nebraska	Dakota	20317	9	7
Nebraska	Dawes	8896	6	4
Nebraska	Dawson	23804	8	5
Nebraska	Deuel	1894	5	5
Nebraska	Dixon	5746	8	3
Nebraska	Dodge	36683	8	4

Nebraska	Douglas	554992	9	5
Nebraska	Dundy	2023	7	6
Nebraska	Fillmore	5574	9	5
Nebraska	Franklin	3006	5	3
Nebraska	Frontier	2609	7	5
Nebraska	Furnas	4786	8	4
Nebraska	Gage	21595	6	2
Nebraska	Garden	1860	6	6
Nebraska	Garfield	1975	7	3
Nebraska	Gosper	2015	4	2
Nebraska	Grant	718	7	5
Nebraska	Greeley	2410	8	5
Nebraska	Hall	61343	8	4
Nebraska	Hamilton	9178	5	1
Nebraska	Harlan	3438	7	5
Nebraska	Hayes	943	3	3
Nebraska	Hitchcock	2843	7	5
Nebraska	Holt	10245	4	3
Nebraska	Hooker	691	8	5
Nebraska	Howard	6405	6	2
Nebraska	Jefferson	7188	8	3
Nebraska	Johnson	5197	9	5
Nebraska	Kearney	6552	6	1
Nebraska	Keith	8099	9	5
Nebraska	Keya Paha	792	6	6
Nebraska	Kimball	3667	8	5
Nebraska	Knox	8460	7	6
Nebraska	Lancaster	310094	4	2
Nebraska	Lincoln	35433	8	4
Nebraska	Logan	886	7	2
Nebraska	Loup	585	8	2
Nebraska	McPherson	454	3	3
Nebraska	Madison	35164	7	2
Nebraska	Merrick	7803	8	2
Nebraska	Morrill	4841	10	7
Nebraska	Nance	3554	9	3
Nebraska	Nemaha	7004	5	3
Nebraska	Nuckolls	4275	5	2
Nebraska	Otoe	15896	7	3
Nebraska	Pawnee	2676	7	4

Nebraska	Perkins	2907	8	4
Nebraska	Phelps	9120	5	2
Nebraska	Pierce	7157	4	1
Nebraska	Platte	33063	7	2
Nebraska	Polk	5255	5	4
Nebraska	Red Willow	10806	6	2
Nebraska	Richardson	8009	8	4
Nebraska	Rock	1350	6	6
Nebraska	Saline	14288	8	3
Nebraska	Sarpy	178351	6	2
Nebraska	Saunders	21024	5	2
Nebraska	Scotts Bluff	36255	10	7
Nebraska	Seward	17127	3	1
Nebraska	Sheridan	5234	9	7
Nebraska	Sherman	3042	4	3
Nebraska	Sioux	1266	2	6
Nebraska	Stanton	5992	2	1
Nebraska	Thayer	5098	7	2
Nebraska	Thomas	645	7	4
Nebraska	Thurston	7140	10	10
Nebraska	Valley	4224	7	5
Nebraska	Washington	20219	6	2
Nebraska	Wayne	9367	4	1
Nebraska	Webster	3571	8	5
Nebraska	Wheeler	822	2	3
Nebraska	York	13799	8	4
Nevada	Churchill	24010	9	8
Nevada	Clark	2141574	9	9
Nevada	Douglas	47828	6	7
Nevada	Elko	52252	8	6
Nevada	Esmeralda	981	5	8
Nevada	Eureka	1830	1	2
Nevada	Humboldt	16904	2	5
Nevada	Lander	5746	8	7
Nevada	Lincoln	5174	10	8
Nevada	Lyon	53155	6	7
Nevada	Mineral	4448	10	10
Nevada	Nye	43705	9	9
Nevada	Pershing	6611	7	8
Nevada	Storey	3941	3	7

Nevada	Washoe	450486	8	6
Nevada	White Pine	9737	9	8
Nevada	Carson	54467	10	8
New Hampshire	Belknap	60640	2	3
New Hampshire	Carroll	47840	1	4
New Hampshire	Cheshire	76263	1	2
New Hampshire	Coos	32038	2	6
New Hampshire	Grafton	89811	1	3
New Hampshire	Hillsborough	411087	1	2
New Hampshire	Merrimack	149452	1	1
New Hampshire	Rockingham	305129	1	1
New Hampshire	Strafford	128237	1	1
New Hampshire	Sullivan	43125	1	2
New Jersey	Atlantic	268539	7	8
New Jersey	Bergen	929999	6	8
New Jersey	Burlington	446367	4	6
New Jersey	Camden	507367	8	8
New Jersey	Cape May	93705	2	6
New Jersey	Cumberland	153400	5	8
New Jersey	Essex	793555	10	10
New Jersey	Gloucester	290852	2	4
New Jersey	Hudson	668631	9	9
New Jersey	Hunterdon	125051	1	3
New Jersey	Mercer	368762	7	8
New Jersey	Middlesex	826698	7	8
New Jersey	Monmouth	623387	3	5
New Jersey	Morris	494383	2	5
New Jersey	Ocean	591939	3	6
New Jersey	Passaic	504041	9	8
New Jersey	Salem	63336	2	6
New Jersey	Somerset	330176	3	6
New Jersey	Sussex	142298	1	2
New Jersey	Union	553066	8	8
New Jersey	Warren	106293	1	3
New Mexico	Bernalillo	677692	10	9
New Mexico	Catron	3539	4	8
New Mexico	Chaves	65459	10	9
New Mexico	Cibola	26978	10	10
New Mexico	Colfax	12353	10	10
New Mexico	Curry	50199	10	8

New Mexico	De Baca	2060	10	10
New Mexico	Do√î√∏Œ©a Ana	215338	10	10
New Mexico	Eddy	57437	10	8
New Mexico	Grant	28061	9	9
New Mexico	Guadalupe	4382	10	10
New Mexico	Harding	459	8	9
New Mexico	Hidalgo	4371	9	9
New Mexico	Lea	70126	10	9
New Mexico	Lincoln	19482	10	9
New Mexico	Los Alamos	18356	1	5
New Mexico	Luna	24264	10	10
New Mexico	McKinley	72849	10	10
New Mexico	Mora	4563	9	10
New Mexico	Otero	65745	9	9
New Mexico	Quay	8373	10	9
New Mexico	Rio Arriba	39307	10	10
New Mexico	Roosevelt	19117	10	8
New Mexico	Sandoval	140769	10	9
New Mexico	San Juan	127455	10	10
New Mexico	San Miguel	28034	10	10
New Mexico	Santa Fe	148917	10	10
New Mexico	Sierra	11135	10	9
New Mexico	Socorro	17000	10	10
New Mexico	Taos	32888	10	10
New Mexico	Torrance	15595	9	9
New Mexico	Union	4175	10	10
New Mexico	Valencia	75956	10	10
New York	Albany	307426	2	5
New York	Allegany	47025	2	2
New York	Bronx	1437872	10	10
New York	Broome	194402	2	4
New York	Cattaraugus	77686	2	5
New York	Cayuga	77868	1	3
New York	Chautauqua	129656	1	4
New York	Chemung	85740	3	4
New York	Chenango	48348	1	3
New York	Clinton	80794	1	2
New York	Columbia	60919	1	5
New York	Cortland	48123	1	2
New York	Delaware	45502	1	4

New York	Dutchess	293894	1	5
New York	Erie	919866	4	5
New York	Essex	37751	1	3
New York	Franklin	50692	1	6
New York	Fulton	53743	1	3
New York	Genesee	58112	2	3
New York	Greene	47617	1	5
New York	Hamilton	4575	1	5
New York	Herkimer	62505	1	3
New York	Jefferson	114448	1	4
New York	Kings	2600747	10	10
New York	Lewis	26719	1	3
New York	Livingston	63907	1	2
New York	Madison	71359	1	2
New York	Monroe	744248	3	5
New York	Montgomery	49426	1	5
New York	Nassau	1356564	3	7
New York	New York	1632480	10	10
New York	Niagara	211704	2	4
New York	Oneida	230782	3	5
New York	Onondaga	464242	3	5
New York	Ontario	109472	1	3
New York	Orange	378227	2	5
New York	Orleans	41175	1	4
New York	Oswego	119104	1	1
New York	Otsego	60244	1	3
New York	Putnam	99070	2	3
New York	Queens	2298513	10	10
New York	Rensselaer	159431	1	3
New York	Richmond	474101	10	7
New York	Rockland	323686	4	6
New York	St. Lawrence	109558	1	3
New York	Saratoga	227377	1	2
New York	Schenectady	154883	1	5
New York	Schoharie	31364	1	4
New York	Schuyler	17992	1	2
New York	Seneca	34612	1	5
New York	Steuben	96927	1	3
New York	Suffolk	1487901	2	6
New York	Sullivan	75211	1	6

New York	Tioga	49045	1	2
New York	Tompkins	102962	1	3
New York	Ulster	179303	1	5
New York	Warren	64480	1	3
New York	Washington	61828	1	3
New York	Wayne	90856	1	3
New York	Westchester	968815	6	8
New York	Wyoming	40565	1	3
New York	Yates	25009	1	6
North Carolina	Alamance	160576	5	7
North Carolina	Alexander	37119	5	4
North Carolina	Alleghany	10973	3	7
North Carolina	Anson	25306	7	9
North Carolina	Ashe	26786	4	6
North Carolina	Avery	17501	8	7
North Carolina	Beaufort	47243	4	8
North Carolina	Bertie	19644	10	10
North Carolina	Bladen	33778	9	10
North Carolina	Brunswick	126860	3	8
North Carolina	Buncombe	254474	1	5
North Carolina	Burke	89712	3	4
North Carolina	Cabarrus	201448	3	6
North Carolina	Caldwell	81779	3	5
North Carolina	Camden	10447	1	4
North Carolina	Carteret	68920	4	8
North Carolina	Caswell	22746	6	8
North Carolina	Catawba	156729	4	4
North Carolina	Chatham	69791	3	8
North Carolina	Cherokee	27668	2	7
North Carolina	Chowan	14205	7	9
North Carolina	Clay	10813	1	5
North Carolina	Cleveland	97159	5	7
North Carolina	Columbus	56293	10	10
North Carolina	Craven	103082	5	8
North Carolina	Cumberland	332106	6	9
North Carolina	Currituck	25796	1	5
North Carolina	Dare	35741	2	6
North Carolina	Davidson	164664	3	6
North Carolina	Davie	41991	3	5
North Carolina	Duplin	59062	8	9

North Carolina	Durham	306457	5	8
North Carolina	Edgecombe	53332	9	10
North Carolina	Forsyth	371573	7	8
North Carolina	Franklin	64902	4	8
North Carolina	Gaston	216585	3	5
North Carolina	Gates	11563	1	7
North Carolina	Graham	8557	1	7
North Carolina	Granville	58874	4	8
North Carolina	Greene	21008	9	9
North Carolina	Guilford	523582	6	8
North Carolina	Halifax	51737	10	10
North Carolina	Harnett	130361	5	8
North Carolina	Haywood	60433	2	5
North Carolina	Henderson	113625	2	6
North Carolina	Hertford	24153	9	10
North Carolina	Hoke	53239	8	9
North Carolina	Hyde	5393	1	9
North Carolina	Iredell	172525	2	4
North Carolina	Jackson	42256	3	7
North Carolina	Johnston	191172	5	7
North Carolina	Jones	9695	9	10
North Carolina	Lee	60125	3	8
North Carolina	Lenoir	57227	9	10
North Carolina	Lincoln	81441	2	3
North Carolina	McDowell	45109	3	4
North Carolina	Macon	34410	2	8
North Carolina	Madison	21405	2	3
North Carolina	Martin	23054	9	10
North Carolina	Mecklenburg	1054314	5	8
North Carolina	Mitchell	15040	7	6
North Carolina	Montgomery	27338	7	9
North Carolina	Moore	95629	3	7
North Carolina	Nash	94003	7	9
North Carolina	New Hanover	224231	2	5
North Carolina	Northampton	20186	10	10
North Carolina	Onslow	193912	4	7
North Carolina	Orange	142938	1	5
North Carolina	Pamlico	12742	7	9
North Carolina	Pasquotank	39479	4	9
North Carolina	Pender	59020	3	7

North Carolina	Perquimans	13459	4	8
North Carolina	Person	39305	3	7
North Carolina	Pitt	177372	5	8
North Carolina	Polk	20458	1	7
North Carolina	Randolph	142958	3	5
North Carolina	Richmond	45189	9	10
North Carolina	Robeson	133442	10	10
North Carolina	Rockingham	91270	6	8
North Carolina	Rowan	139605	4	6
North Carolina	Rutherford	66532	4	6
North Carolina	Sampson	63561	9	9
North Carolina	Scotland	35262	9	10
North Carolina	Stanly	61114	2	5
North Carolina	Stokes	45905	3	5
North Carolina	Surry	72099	4	6
North Carolina	Swain	14254	8	10
North Carolina	Transylvania	33513	1	7
North Carolina	Tyrrell	4119	5	10
North Carolina	Union	226694	2	4
North Carolina	Vance	44482	9	10
North Carolina	Wake	1046558	2	7
North Carolina	Warren	20033	10	10
North Carolina	Washington	12156	6	10
North Carolina	Watauga	54117	1	2
North Carolina	Wayne	124002	7	9
North Carolina	Wilkes	68460	5	7
North Carolina	Wilson	81336	8	9
North Carolina	Yadkin	37665	4	5
North Carolina	Yancey	17667	6	7
North Dakota	Adams	2351	8	5
North Dakota	Barnes	10836	9	2
North Dakota	Benson	6886	10	10
North Dakota	Billings	946	1	1
North Dakota	Bottineau	6589	8	4
North Dakota	Bowman	3195	1	1
North Dakota	Burke	2213	6	1
North Dakota	Burleigh	93737	7	1
North Dakota	Cass	174202	5	1
North Dakota	Cavalier	3824	10	5
North Dakota	Dickey	4970	8	3

North Dakota	Divide	2369	7	5
North Dakota	Dunn	4387	7	6
North Dakota	Eddy	2313	10	4
North Dakota	Emmons	3352	5	5
North Dakota	Foster	3290	10	4
North Dakota	Golden Valley	1882	6	5
North Dakota	Grand Forks	70400	8	2
North Dakota	Grant	2380	8	5
North Dakota	Griggs	2266	10	4
North Dakota	Hettinger	2576	9	6
North Dakota	Kidder	2460	9	4
North Dakota	LaMoure	4100	8	3
North Dakota	Logan	1927	2	2
North Dakota	McHenry	5927	7	2
North Dakota	McIntosh	2654	5	3
North Dakota	McKenzie	12536	6	4
North Dakota	McLean	9608	9	5
North Dakota	Mercer	8570	8	3
North Dakota	Morton	30544	7	1
North Dakota	Mountrail	10152	10	8
North Dakota	Nelson	2920	9	4
North Dakota	Oliver	1837	7	6
North Dakota	Pembina	7016	9	4
North Dakota	Pierce	4210	10	6
North Dakota	Ramsey	11557	10	5
North Dakota	Ransom	5361	5	1
North Dakota	Renville	2495	8	1
North Dakota	Richland	16288	4	1
North Dakota	Rolette	14603	10	10
North Dakota	Sargent	3883	5	1
North Dakota	Sheridan	1405	3	4
North Dakota	Sioux	4413	10	10
North Dakota	Slope	704	1	5
North Dakota	Stark	30876	5	1
North Dakota	Steele	1910	9	5
North Dakota	Stutsman	21064	9	2
North Dakota	Towner	2246	10	7
North Dakota	Traill	8019	9	3
North Dakota	Walsh	10802	10	3
North Dakota	Ward	69034	8	2

North Dakota	Wells	4055	5	3
North Dakota	Williams	34061	7	3
Ohio	Adams	27878	6	4
Ohio	Allen	103642	6	3
Ohio	Ashland	53477	2	2
Ohio	Ashtabula	98136	4	4
Ohio	Athens	65936	2	2
Ohio	Auglaize	45784	2	1
Ohio	Belmont	68472	5	5
Ohio	Brown	43679	2	2
Ohio	Butler	378294	4	3
Ohio	Carroll	27578	2	4
Ohio	Champaign	38864	2	1
Ohio	Clark	135198	6	4
Ohio	Clermont	203216	3	2
Ohio	Clinton	41896	1	1
Ohio	Columbiana	104003	4	4
Ohio	Coshocton	36574	2	2
Ohio	Crawford	42021	3	2
Ohio	Cuyahoga	1253783	8	8
Ohio	Darke	51734	4	1
Ohio	Defiance	38279	5	2
Ohio	Delaware	197008	2	2
Ohio	Erie	75136	5	4
Ohio	Fairfield	152910	4	3
Ohio	Fayette	28645	3	2
Ohio	Franklin	1275333	6	6
Ohio	Fulton	42305	2	1
Ohio	Gallia	30195	6	5
Ohio	Geauga	93961	3	3
Ohio	Greene	165811	5	4
Ohio	Guernsey	39274	3	3
Ohio	Hamilton	812037	7	6
Ohio	Hancock	75690	2	1
Ohio	Hardin	31542	3	1
Ohio	Harrison	15307	3	4
Ohio	Henry	27316	2	1
Ohio	Highland	43007	2	2
Ohio	Hocking	28495	4	3
Ohio	Holmes	43859	2	3

Ohio	Huron	58457	2	1
Ohio	Jackson	32524	5	4
Ohio	Jefferson	66886	5	5
Ohio	Knox	61215	2	2
Ohio	Lake	230052	5	3
Ohio	Lawrence	60622	5	4
Ohio	Licking	172293	3	2
Ohio	Logan	45307	2	1
Ohio	Lorain	306713	5	5
Ohio	Lucas	432379	6	5
Ohio	Madison	43988	3	3
Ohio	Mahoning	231064	8	7
Ohio	Marion	65344	5	3
Ohio	Medina	177257	2	1
Ohio	Meigs	23160	3	5
Ohio	Mercer	40806	2	1
Ohio	Miami	104800	4	2
Ohio	Monroe	14090	4	5
Ohio	Montgomery	532034	8	7
Ohio	Morgan	14702	6	6
Ohio	Morrow	34976	2	2
Ohio	Muskingum	86076	4	2
Ohio	Noble	14443	8	5
Ohio	Ottawa	40709	3	3
Ohio	Paulding	18872	3	1
Ohio	Perry	35985	1	1
Ohio	Pickaway	57420	4	3
Ohio	Pike	28214	6	5
Ohio	Portage	162644	2	1
Ohio	Preble	41207	3	1
Ohio	Putnam	33969	2	1
Ohio	Richland	121324	6	5
Ohio	Ross	77051	3	4
Ohio	Sandusky	59299	2	2
Ohio	Scioto	76377	4	4
Ohio	Seneca	55475	3	1
Ohio	Shelby	48797	1	1
Ohio	Stark	373475	4	4
Ohio	Summit	541810	5	5
Ohio	Trumbull	201794	6	5

Ohio	Tuscarawas	92526	4	1
Ohio	Union	55654	2	1
Ohio	Van Wert	28281	3	1
Ohio	Vinton	13111	1	2
Ohio	Warren	226564	3	2
Ohio	Washington	60671	4	4
Ohio	Wayne	116208	3	3
Ohio	Williams	36936	2	1
Ohio	Wood	129936	2	1
Ohio	Wyandot	22107	3	1
Oklahoma	Adair	22113	10	10
Oklahoma	Alfalfa	5857	10	7
Oklahoma	Atoka	13874	10	9
Oklahoma	Beaver	5415	9	7
Oklahoma	Beckham	22621	7	6
Oklahoma	Blaine	9634	9	8
Oklahoma	Bryan	45759	9	8
Oklahoma	Caddo	29342	10	10
Oklahoma	Canadian	136710	6	4
Oklahoma	Carter	48406	8	7
Oklahoma	Cherokee	48599	10	10
Oklahoma	Choctaw	14886	10	10
Oklahoma	Cimarron	2189	9	8
Oklahoma	Cleveland	276733	5	5
Oklahoma	Coal	5618	10	9
Oklahoma	Comanche	122561	9	8
Oklahoma	Cotton	5929	10	8
Oklahoma	Craig	14493	10	9
Oklahoma	Creek	71160	6	6
Oklahoma	Custer	29209	9	6
Oklahoma	Delaware	42112	10	10
Oklahoma	Dewey	4918	9	7
Oklahoma	Ellis	4072	10	6
Oklahoma	Garfield	62190	8	5
Oklahoma	Garvin	27823	10	8
Oklahoma	Grady	54733	6	5
Oklahoma	Grant	4418	6	4
Oklahoma	Greer	5943	9	8
Oklahoma	Harmon	2721	8	9
Oklahoma	Harper	3847	9	6

Oklahoma	Haskell	12704	9	9
Oklahoma	Hughes	13460	10	10
Oklahoma	Jackson	25384	9	7
Oklahoma	Jefferson	6223	9	8
Oklahoma	Johnston	11041	10	9
Oklahoma	Kay	44880	9	7
Oklahoma	Kingfisher	15618	8	6
Oklahoma	Kiowa	9001	9	8
Oklahoma	Latimer	10495	8	10
Oklahoma	Le Flore	49909	8	8
Oklahoma	Lincoln	34854	6	6
Oklahoma	Logan	46044	5	6
Oklahoma	Love	9933	10	8
Oklahoma	McClain	38634	8	6
Oklahoma	McCurtain	32966	10	9
Oklahoma	McIntosh	19819	10	9
Oklahoma	Major	7718	10	6
Oklahoma	Marshall	16376	10	9
Oklahoma	Mayes	40980	9	8
Oklahoma	Murray	13875	9	7
Oklahoma	Muskogee	69084	10	9
Oklahoma	Noble	11411	9	6
Oklahoma	Nowata	10383	10	10
Oklahoma	Okfuskee	12115	10	10
Oklahoma	Oklahoma	782051	9	8
Oklahoma	Okmulgee	38889	8	9
Oklahoma	Osage	47311	7	8
Oklahoma	Ottawa	31566	9	9
Oklahoma	Pawnee	16428	9	9
Oklahoma	Payne	81512	6	5
Oklahoma	Pittsburg	44382	9	9
Oklahoma	Pontotoc	38358	10	8
Oklahoma	Pottawatomie	72000	9	8
Oklahoma	Pushmataha	11119	8	9
Oklahoma	Roger Mills	3708	8	6
Oklahoma	Rogers	90814	6	6
Oklahoma	Seminole	25071	9	9
Oklahoma	Sequoyah	41359	9	9
Oklahoma	Stephens	43983	9	7
Oklahoma	Texas	21121	9	7

Oklahoma	Tillman	7515	10	10
Oklahoma	Tulsa	642781	8	7
Oklahoma	Wagoner	77850	6	8
Oklahoma	Washington	52001	8	8
Oklahoma	Washita	11432	6	4
Oklahoma	Woods	9127	9	4
Oklahoma	Woodward	20967	7	4
Oregon	Baker	15984	3	6
Oregon	Benton	89780	1	2
Oregon	Clackamas	405788	1	3
Oregon	Clatsop	38562	1	4
Oregon	Columbia	50851	1	3
Oregon	Coos	63308	1	7
Oregon	Crook	22337	1	5
Oregon	Curry	22507	1	7
Oregon	Deschutes	180640	1	3
Oregon	Douglas	108323	1	5
Oregon	Gilliam	1907	1	6
Oregon	Grant	7183	5	5
Oregon	Harney	7228	4	7
Oregon	Hood River	23131	1	6
Oregon	Jackson	214267	3	6
Oregon	Jefferson	23143	9	9
Oregon	Josephine	85481	1	6
Oregon	Klamath	66310	2	7
Oregon	Lake	7843	5	7
Oregon	Lane	368882	1	4
Oregon	Lincoln	47881	1	7
Oregon	Linn	122870	1	3
Oregon	Malheur	30431	7	7
Oregon	Marion	335553	3	6
Oregon	Morrow	11215	4	7
Oregon	Multnomah	798647	2	4
Oregon	Polk	81427	2	5
Oregon	Tillamook	26076	1	5
Oregon	Umatilla	76898	5	6
Oregon	Union	26028	3	4
Oregon	Wallowa	6924	1	5
Oregon	Wasco	25866	2	6
Oregon	Washington	581821	2	4

Oregon	Wheeler	1426	1	7
Oregon	Yamhill	103820	1	4
Pennsylvania	Adams	102023	1	2
Pennsylvania	Allegheny	1225561	3	5
Pennsylvania	Armstrong	66331	3	3
Pennsylvania	Beaver	166896	2	3
Pennsylvania	Bedford	48611	4	2
Pennsylvania	Berks	416642	2	4
Pennsylvania	Blair	123842	4	2
Pennsylvania	Bradford	61304	3	3
Pennsylvania	Bucks	626370	2	3
Pennsylvania	Butler	186566	2	1
Pennsylvania	Cambria	134550	7	5
Pennsylvania	Cameron	4686	1	1
Pennsylvania	Carbon	63931	1	2
Pennsylvania	Centre	161443	2	2
Pennsylvania	Chester	517156	1	4
Pennsylvania	Clarion	38827	3	1
Pennsylvania	Clearfield	80216	4	3
Pennsylvania	Clinton	39074	1	1
Pennsylvania	Columbia	66220	1	2
Pennsylvania	Crawford	86164	4	3
Pennsylvania	Cumberland	247433	2	3
Pennsylvania	Dauphin	274515	3	6
Pennsylvania	Delaware	563527	4	6
Pennsylvania	Elk	30608	1	1
Pennsylvania	Erie	275972	2	2
Pennsylvania	Fayette	132289	2	4
Pennsylvania	Forest	7351	9	9
Pennsylvania	Franklin	153751	3	3
Pennsylvania	Fulton	14506	2	2
Pennsylvania	Greene	37144	5	6
Pennsylvania	Huntingdon	45421	6	6
Pennsylvania	Indiana	85755	3	2
Pennsylvania	Jefferson	44084	2	3
Pennsylvania	Juniata	24562	6	5
Pennsylvania	Lackawanna	211454	1	4
Pennsylvania	Lancaster	538347	3	4
Pennsylvania	Lawrence	87382	4	4
Pennsylvania	Lebanon	138674	4	4

Pennsylvania	Lehigh	362613	4	5
Pennsylvania	Luzerne	317884	3	4
Pennsylvania	Lycoming	114859	1	2
Pennsylvania	McKean	41806	1	1
Pennsylvania	Mercer	112630	3	3
Pennsylvania	Mifflin	46362	7	3
Pennsylvania	Monroe	167586	2	6
Pennsylvania	Montgomery	821301	2	4
Pennsylvania	Montour	18294	2	2
Pennsylvania	Northampton	301778	3	4
Pennsylvania	Northumberland	92325	2	3
Pennsylvania	Perry	45924	1	1
Pennsylvania	Philadelphia	1575522	10	10
Pennsylvania	Pike	55498	1	6
Pennsylvania	Potter	16937	2	3
Pennsylvania	Schuylkill	143555	3	3
Pennsylvania	Snyder	40466	2	2
Pennsylvania	Somerset	74949	5	3
Pennsylvania	Sullivan	6177	2	5
Pennsylvania	Susquehanna	41340	1	4
Pennsylvania	Tioga	41226	4	3
Pennsylvania	Union	45114	5	3
Pennsylvania	Venango	52376	2	3
Pennsylvania	Warren	40035	1	2
Pennsylvania	Washington	207547	2	3
Pennsylvania	Wayne	51536	1	5
Pennsylvania	Westmoreland	354751	2	3
Pennsylvania	Wyoming	27588	1	2
Pennsylvania	York	444014	2	2
Rhode Island	Bristol	48900	2	2
Rhode Island	Kent	163861	4	3
Rhode Island	Newport	83075	2	4
Rhode Island	Providence	634533	8	6
Rhode Island	Washington	126242	1	2
South Carolina	Abbeville	24657	4	8
South Carolina	Aiken	166926	4	8
South Carolina	Allendale	9214	8	10
South Carolina	Anderson	195995	4	6
South Carolina	Bamberg	14600	8	10
South Carolina	Barnwell	21577	4	9

South Carolina	Beaufort	182658	3	8
South Carolina	Berkeley	209065	1	7
South Carolina	Calhoun	14713	3	9
South Carolina	Charleston	394708	2	7
South Carolina	Cherokee	56711	3	6
South Carolina	Chester	32326	7	8
South Carolina	Chesterfield	46024	3	8
South Carolina	Clarendon	34017	8	10
South Carolina	Colleton	37568	5	9
South Carolina	Darlington	67253	6	9
South Carolina	Dillon	30871	7	10
South Carolina	Dorchester	155474	2	6
South Carolina	Edgefield	26769	8	9
South Carolina	Fairfield	22712	9	10
South Carolina	Florence	138561	6	9
South Carolina	Georgetown	61605	6	9
South Carolina	Greenville	498402	4	6
South Carolina	Greenwood	70264	3	8
South Carolina	Hampton	19807	6	10
South Carolina	Horry	320915	5	8
South Carolina	Jasper	27900	7	10
South Carolina	Kershaw	64361	3	8
South Carolina	Lancaster	89546	7	8
South Carolina	Laurens	66710	4	7
South Carolina	Lee	17606	8	10
South Carolina	Lexington	286316	2	5
South Carolina	McCormick	9606	8	10
South Carolina	Marion	31562	8	10
South Carolina	Marlboro	27131	9	10
South Carolina	Newberry	38068	7	8
South Carolina	Oconee	76696	6	7
South Carolina	Orangeburg	88454	8	10
South Carolina	Pickens	122746	4	4
South Carolina	Richland	408263	5	8
South Carolina	Saluda	20299	2	9
South Carolina	Spartanburg	302195	3	6
South Carolina	Sumter	106995	5	9
South Carolina	Union	27644	6	8
South Carolina	Williamsburg	31794	9	10
South Carolina	York	258641	3	5

South Dakota	Aurora	2759	10	6
South Dakota	Beadle	18374	8	2
South Dakota	Bennett	3437	10	10
South Dakota	Bon Homme	6969	9	4
South Dakota	Brookings	34239	2	1
South Dakota	Brown	38840	7	2
South Dakota	Brule	5256	8	3
South Dakota	Buffalo	2053	10	10
South Dakota	Butte	10177	7	4
South Dakota	Campbell	1435	2	2
South Dakota	Charles Mix	9344	10	9
South Dakota	Clark	3673	7	3
South Dakota	Clay	13925	6	2
South Dakota	Codington	27993	5	1
South Dakota	Corson	4168	10	10
South Dakota	Custer	8573	9	7
South Dakota	Davison	19901	9	1
South Dakota	Day	5506	9	6
South Dakota	Deuel	4306	6	3
South Dakota	Dewey	5779	10	10
South Dakota	Douglas	2930	9	6
South Dakota	Edmunds	3940	4	2
South Dakota	Fall River	6774	6	4
South Dakota	Faulk	2322	6	4
South Dakota	Grant	7217	8	2
South Dakota	Gregory	4201	9	5
South Dakota	Haakon	2082	6	4
South Dakota	Hamlin	6000	6	1
South Dakota	Hand	3301	8	4
South Dakota	Hanson	3397	4	4
South Dakota	Harding	1311	2	2
South Dakota	Hughes	17617	9	5
South Dakota	Hutchinson	7315	9	3
South Dakota	Hyde	1331	10	5
South Dakota	Jackson	3287	10	10
South Dakota	Jerauld	2029	8	4
South Dakota	Jones	735	9	5
South Dakota	Kingsbury	4967	8	2
South Dakota	Lake	12574	4	1
South Dakota	Lawrence	25234	8	3

South Dakota	Lincoln	54914	6	1
South Dakota	Lyman	3869	10	9
South Dakota	McCook	5511	9	3
South Dakota	McPherson	2364	9	6
South Dakota	Marshall	4895	8	5
South Dakota	Meade	27424	5	2
South Dakota	Mellette	2055	10	10
South Dakota	Miner	2229	3	2
South Dakota	Minnehaha	186749	7	1
South Dakota	Moody	6506	8	6
South Dakota	Oglala Lakota	14335	10	10
South Dakota	Pennington	109294	9	4
South Dakota	Perkins	2907	9	4
South Dakota	Potter	2326	9	3
South Dakota	Roberts	10285	10	10
South Dakota	Sanborn	2388	9	3
South Dakota	Spink	6543	7	2
South Dakota	Stanley	2997	9	3
South Dakota	Sully	1331	9	6
South Dakota	Todd	10146	10	10
South Dakota	Tripp	5468	10	7
South Dakota	Turner	8264	6	2
South Dakota	Union	15177	5	1
South Dakota	Walworth	5510	9	6
South Dakota	Yankton	22717	7	2
South Dakota	Ziebach	2814	10	10
Tennessee	Anderson	75775	7	6
Tennessee	Bedford	47558	5	3
Tennessee	Benton	16112	8	5
Tennessee	Bledsoe	14602	3	6
Tennessee	Blount	128443	5	4
Tennessee	Bradley	104557	5	5
Tennessee	Campbell	39687	4	6
Tennessee	Cannon	13976	6	3
Tennessee	Carroll	28018	7	6
Tennessee	Carter	56391	8	7
Tennessee	Cheatham	39929	2	2
Tennessee	Chester	17150	7	7
Tennessee	Claiborne	31613	4	5
Tennessee	Clay	7686	7	6

Tennessee	Cocke	35336	6	6
Tennessee	Coffee	54531	4	4
Tennessee	Crockett	14499	8	8
Tennessee	Cumberland	58634	7	7
Tennessee	Davidson	684017	8	7
Tennessee	Decatur	11683	8	6
Tennessee	DeKalb	19601	9	7
Tennessee	Dickson	51988	6	4
Tennessee	Dyer	37576	7	5
Tennessee	Fayette	39692	8	8
Tennessee	Fentress	17994	5	5
Tennessee	Franklin	41512	6	4
Tennessee	Gibson	49175	9	8
Tennessee	Giles	29167	4	4
Tennessee	Grainger	23013	5	4
Tennessee	Greene	68669	7	6
Tennessee	Grundy	13331	8	8
Tennessee	Hamblen	63740	6	6
Tennessee	Hamilton	357546	7	7
Tennessee	Hancock	6585	2	5
Tennessee	Hardeman	25562	10	10
Tennessee	Hardin	25771	6	6
Tennessee	Hawkins	56402	4	5
Tennessee	Haywood	17779	10	9
Tennessee	Henderson	27859	6	6
Tennessee	Henry	32279	9	7
Tennessee	Hickman	24678	3	4
Tennessee	Houston	8176	5	4
Tennessee	Humphreys	18318	4	5
Tennessee	Jackson	11615	8	6
Tennessee	Jefferson	53247	4	5
Tennessee	Johnson	17789	6	7
Tennessee	Knox	456185	3	4
Tennessee	Lake	7526	9	8
Tennessee	Lauderdale	26297	10	9
Tennessee	Lawrence	42937	7	4
Tennessee	Lewis	11956	8	6
Tennessee	Lincoln	33711	6	4
Tennessee	Loudon	51610	7	7
Tennessee	McMinn	52773	5	4

Tennessee	McNairy	25903	5	7
Tennessee	Macon	23487	5	3
Tennessee	Madison	97682	9	8
Tennessee	Marion	28417	3	5
Tennessee	Marshall	32269	3	3
Tennessee	Maury	89776	8	5
Tennessee	Meigs	11962	5	5
Tennessee	Monroe	45876	5	5
Tennessee	Montgomery	196387	6	7
Tennessee	Moore	6322	5	4
Tennessee	Morgan	21596	7	7
Tennessee	Obion	30520	9	7
Tennessee	Overton	22004	2	3
Tennessee	Perry	7912	8	7
Tennessee	Pickett	5088	6	5
Tennessee	Polk	16782	2	5
Tennessee	Putnam	76440	4	3
Tennessee	Rhea	32628	7	6
Tennessee	Roane	52897	7	6
Tennessee	Robertson	69344	3	2
Tennessee	Rutherford	307128	5	4
Tennessee	Scott	21954	8	4
Tennessee	Sequatchie	14730	3	4
Tennessee	Sevier	96287	7	7
Tennessee	Shelby	937005	9	9
Tennessee	Smith	19458	4	2
Tennessee	Stewart	13301	6	5
Tennessee	Sullivan	156734	6	6
Tennessee	Sumner	179473	4	3
Tennessee	Tipton	61446	8	6
Tennessee	Trousdale	9573	3	5
Tennessee	Unicoi	17780	9	7
Tennessee	Union	19293	2	4
Tennessee	Van Buren	5704	8	5
Tennessee	Warren	40454	8	5
Tennessee	Washington	127055	6	5
Tennessee	Wayne	16649	8	7
Tennessee	Weakley	33626	6	5
Tennessee	White	26580	8	6
Tennessee	Williamson	218648	3	2

Tennessee	Wilson	132663	5	3
Texas	Anderson	57863	2	8
Texas	Andrews	17818	10	9
Texas	Angelina	87607	7	9
Texas	Aransas	24763	3	9
Texas	Archer	8789	4	5
Texas	Armstrong	1916	4	5
Texas	Atascosa	48828	9	10
Texas	Austin	29565	1	8
Texas	Bailey	7092	10	10
Texas	Bandera	21763	3	9
Texas	Bastrop	82577	3	9
Texas	Baylor	3591	1	7
Texas	Bee	32691	8	10
Texas	Bell	342236	5	9
Texas	Bexar	1925865	9	10
Texas	Blanco	11279	1	8
Texas	Borden	665	1	6
Texas	Bosque	18122	4	8
Texas	Bowie	93858	3	8
Texas	Brazoria	353999	3	8
Texas	Brazos	219193	6	8
Texas	Brewster	9216	10	10
Texas	Briscoe	1546	10	10
Texas	Brooks	7180	10	10
Texas	Brown	37834	9	8
Texas	Burleson	17863	8	9
Texas	Burnet	45750	6	9
Texas	Caldwell	41401	4	10
Texas	Calhoun	21807	3	9
Texas	Callahan	13770	5	8
Texas	Cameron	421750	10	10
Texas	Camp	12813	2	8
Texas	Carson	6032	1	4
Texas	Cass	30087	4	8
Texas	Castro	7787	10	10
Texas	Chambers	40292	4	5
Texas	Cherokee	51903	1	9
Texas	Childress	7226	10	8
Texas	Clay	10387	8	7

Texas	Cochran	2904	10	10
Texas	Coke	3275	9	8
Texas	Coleman	8391	9	9
Texas	Collin	944350	4	7
Texas	Collingsworth	2996	6	9
Texas	Colorado	21022	7	9
Texas	Comal	135097	2	7
Texas	Comanche	13495	8	9
Texas	Concho	4233	10	10
Texas	Cooke	39571	6	7
Texas	Coryell	75389	3	7
Texas	Cottle	1623	9	10
Texas	Crane	4839	10	9
Texas	Crockett	3633	10	9
Texas	Crosby	5861	9	10
Texas	Culberson	2241	10	10
Texas	Dallam	7243	2	7
Texas	Dallas	2586552	10	10
Texas	Dawson	12964	10	10
Texas	Deaf Smith	18899	10	10
Texas	Delta	5215	1	6
Texas	Denton	807047	3	6
Texas	DeWitt	20435	6	9
Texas	Dickens	2216	3	9
Texas	Dimmit	10663	10	10
Texas	Donley	3387	5	8
Texas	Duval	11355	10	10
Texas	Eastland	18270	3	8
Texas	Ector	158342	10	9
Texas	Edwards	2055	10	10
Texas	Ellis	168838	7	7
Texas	El Paso	837654	10	10
Texas	Erath	41482	4	7
Texas	Falls	17299	5	8
Texas	Fannin	34175	2	7
Texas	Fayette	25066	1	8
Texas	Fisher	3883	7	8
Texas	Floyd	5872	9	10
Texas	Foard	1408	5	7
Texas	Fort Bend	739342	5	9

Texas	Franklin	10679	1	8
Texas	Freestone	19709	1	8
Texas	Frio	19394	9	10
Texas	Gaines	20321	10	9
Texas	Galveston	327089	4	8
Texas	Garza	6288	3	9
Texas	Gillespie	26208	8	8
Texas	Glasscock	1430	8	6
Texas	Goliad	7531	1	9
Texas	Gonzales	20667	8	10
Texas	Gray	22685	10	9
Texas	Grayson	128560	6	7
Texas	Gregg	123494	7	8
Texas	Grimes	27630	5	9
Texas	Guadalupe	155137	1	8
Texas	Hale	34113	10	10
Texas	Hall	3074	10	10
Texas	Hamilton	8269	6	7
Texas	Hansford	5547	5	9
Texas	Hardeman	3952	6	8
Texas	Hardin	56379	1	4
Texas	Harris	4602523	8	10
Texas	Harrison	66645	6	8
Texas	Hartley	5767	1	8
Texas	Haskell	5809	1	9
Texas	Hays	204150	3	7
Texas	Hemphill	4061	10	9
Texas	Henderson	80460	8	9
Texas	Hidalgo	849389	10	10
Texas	Hill	35399	6	8
Texas	Hockley	23162	10	9
Texas	Hood	56901	4	8
Texas	Hopkins	36240	1	7
Texas	Houston	22955	7	9
Texas	Howard	36667	9	8
Texas	Hudspeth	4098	10	10
Texas	Hunt	92152	4	8
Texas	Hutchinson	21571	6	6
Texas	Irion	1524	6	7
Texas	Jack	8842	6	7

Texas	Jackson	14820	7	8
Texas	Jasper	35504	1	8
Texas	Jeff Davis	2234	10	9
Texas	Jefferson	255210	9	10
Texas	Jim Hogg	5282	10	10
Texas	Jim Wells	41192	10	10
Texas	Johnson	163475	4	5
Texas	Jones	19891	10	9
Texas	Karnes	15387	3	9
Texas	Kaufman	118910	7	7
Texas	Kendall	41982	2	7
Texas	Kenedy	595	10	10
Texas	Kent	749	8	7
Texas	Kerr	51365	7	9
Texas	Kimble	4408	10	9
Texas	King	228	1	4
Texas	Kinney	3675	8	10
Texas	Kleberg	31425	8	10
Texas	Knox	3733	1	9
Texas	Lamar	49532	9	8
Texas	Lamb	13262	10	10
Texas	Lampasas	20640	2	8
Texas	La Salle	7409	8	10
Texas	Lavaca	19941	8	8
Texas	Lee	16952	1	8
Texas	Leon	17098	3	9
Texas	Liberty	81862	2	9
Texas	Limestone	23515	4	9
Texas	Lipscomb	3469	7	7
Texas	Live Oak	12123	5	9
Texas	Llano	20640	3	8
Texas	Lubbock	301454	10	7
Texas	Lynn	5808	10	10
Texas	McCulloch	8098	9	9
Texas	McLennan	248429	8	8
Texas	McMullen	662	8	10
Texas	Madison	14128	6	9
Texas	Marion	10083	1	10
Texas	Martin	5614	9	7
Texas	Mason	4161	8	9

Texas	Matagorda	36743	5	9
Texas	Maverick	57970	10	10
Texas	Medina	49334	5	9
Texas	Menard	2123	10	10
Texas	Midland	164194	8	8
Texas	Milam	24664	5	9
Texas	Mills	4902	8	8
Texas	Mitchell	8558	10	10
Texas	Montague	19409	9	8
Texas	Montgomery	554445	3	7
Texas	Moore	21801	8	9
Texas	Morris	12424	2	8
Texas	Motley	1156	4	9
Texas	Nacogdoches	65558	1	8
Texas	Navarro	48583	9	9
Texas	Newton	14057	1	8
Texas	Nolan	14966	10	9
Texas	Nueces	360486	9	10
Texas	Ochiltree	10348	10	9
Texas	Oldham	2090	3	6
Texas	Orange	84047	1	6
Texas	Palo Pinto	28317	7	8
Texas	Panola	23440	1	8
Texas	Parker	129802	3	4
Texas	Parmer	9852	9	9
Texas	Pecos	15797	10	10
Texas	Polk	47837	6	9
Texas	Potter	120899	10	9
Texas	Presidio	7123	10	10
Texas	Rains	11473	8	7
Texas	Randall	132475	9	4
Texas	Reagan	3752	10	10
Texas	Real	3389	4	9
Texas	Red River	12275	1	9
Texas	Reeves	15125	10	10
Texas	Refugio	7236	8	10
Texas	Roberts	885	7	7
Texas	Robertson	16890	4	9
Texas	Rockwall	93642	6	7
Texas	Runnels	10310	6	8

Texas	Rusk	53595	2	9
Texas	Sabine	10458	1	8
Texas	San Augustine	8327	10	10
Texas	San Jacinto	27819	1	9
Texas	San Patricio	67046	4	9
Texas	San Saba	5962	9	9
Texas	Schleicher	3061	10	9
Texas	Scurry	17239	10	8
Texas	Shackelford	3311	1	6
Texas	Shelby	25478	1	9
Texas	Sherman	3058	1	7
Texas	Smith	225015	8	8
Texas	Somervell	8743	5	6
Texas	Starr	63894	10	10
Texas	Stephens	9372	9	9
Texas	Sterling	1141	7	7
Texas	Stonewall	1385	1	8
Texas	Sutton	3865	10	10
Texas	Swisher	7484	10	10
Texas	Tarrant	2019977	9	9
Texas	Taylor	136348	9	7
Texas	Terrell	862	10	10
Texas	Terry	12615	10	10
Texas	Throckmorton	1567	1	8
Texas	Titus	32730	3	8
Texas	Tom Green	117466	10	9
Texas	Travis	1203166	3	8
Texas	Trinity	14569	1	10
Texas	Tyler	21496	1	8
Texas	Upshur	40769	1	7
Texas	Upton	3634	9	9
Texas	Uvalde	27009	10	10
Texas	Val Verde	49027	10	10
Texas	Van Zandt	54368	8	8
Texas	Victoria	91970	7	9
Texas	Walker	71539	5	8
Texas	Waller	49987	5	10
Texas	Ward	11586	10	10
Texas	Washington	34796	6	9
Texas	Webb	272053	10	10

Texas	Wharton	41551	7	10
Texas	Wheeler	5482	10	8
Texas	Wichita	131818	10	8
Texas	Wilbarger	12906	10	9
Texas	Willacy	21754	10	10
Texas	Williamson	527057	4	7
Texas	Wilson	48198	2	8
Texas	Winkler	7802	10	9
Texas	Wise	64639	7	7
Texas	Wood	43815	5	9
Texas	Yoakum	8571	10	10
Texas	Young	18114	8	8
Texas	Zapata	14369	10	10
Texas	Zavala	12131	10	10
Utah	Beaver	6443	2	2
Utah	Box Elder	53001	2	1
Utah	Cache	122336	3	1
Utah	Carbon	20356	6	4
Utah	Daggett	612	1	1
Utah	Davis	340621	3	1
Utah	Duchesne	20219	3	2
Utah	Emery	10248	4	3
Utah	Garfield	5017	8	5
Utah	Grand	9616	3	3
Utah	Iron	49691	4	3
Utah	Juab	10948	2	1
Utah	Kane	7350	4	6
Utah	Millard	12733	3	4
Utah	Morgan	11391	2	1
Utah	Piute	1904	4	7
Utah	Rich	2350	3	5
Utah	Salt Lake	1120805	7	3
Utah	San Juan	15281	10	10
Utah	Sanpete	29366	6	2
Utah	Sevier	21118	5	2
Utah	Summit	40511	2	1
Utah	Tooele	65185	4	2
Utah	Uintah	36323	3	4
Utah	Utah	590440	5	1
Utah	Wasatch	30523	5	1

Utah	Washington	160537	8	5
Utah	Wayne	2694	1	4
Utah	Weber	247731	4	2
Vermont	Addison	36939	1	1
Vermont	Bennington	35920	1	3
Vermont	Caledonia	30425	1	2
Vermont	Chittenden	162052	1	1
Vermont	Essex	6208	1	3
Vermont	Franklin	49025	1	1
Vermont	Grand Isle	6965	1	2
Vermont	Lamoille	25268	1	1
Vermont	Orange	28937	1	2
Vermont	Orleans	26911	1	3
Vermont	Rutland	59273	1	2
Vermont	Washington	58477	1	1
Vermont	Windham	43150	1	3
Vermont	Windsor	55427	3	3
Virginia	Accomack	32742	4	9
Virginia	Albemarle	106355	1	5
Virginia	Alleghany	15286	3	5
Virginia	Amelia	12854	3	7
Virginia	Amherst	31882	3	7
Virginia	Appomattox	15577	3	8
Virginia	Arlington	231803	2	7
Virginia	Augusta	74701	2	6
Virginia	Bath	4393	2	4
Virginia	Bedford	77908	2	5
Virginia	Bland	6447	5	4
Virginia	Botetourt	33222	1	2
Virginia	Brunswick	16665	3	10
Virginia	Buchanan	22138	2	6
Virginia	Buckingham	17004	6	9
Virginia	Campbell	55170	2	6
Virginia	Caroline	30184	3	7
Virginia	Carroll	29738	3	5
Virginia	Charles	6995	7	10
Virginia	Charlotte	12095	4	9
Virginia	Chesterfield	339447	2	6
Virginia	Clarke	14365	2	7
Virginia	Craig	5113	1	1

Virginia	Culpeper	50450	7	6
Virginia	Cumberland	9786	3	9
Virginia	Dickenson	14960	2	4
Virginia	Dinwiddie	28308	2	7
Virginia	Essex	11036	4	9
Virginia	Fairfax	1143529	3	7
Virginia	Fauquier	69115	1	4
Virginia	Floyd	15666	1	3
Virginia	Fluvanna	26282	1	8
Virginia	Franklin	56233	5	7
Virginia	Frederick	85153	2	4
Virginia	Giles	16814	1	3
Virginia	Gloucester	37161	1	4
Virginia	Goochland	22482	1	6
Virginia	Grayson	15811	2	4
Virginia	Greene	19410	1	5
Virginia	Greensville	11659	3	10
Virginia	Halifax	34779	7	9
Virginia	Hanover	104449	1	4
Virginia	Henrico	325642	3	8
Virginia	Henry	51588	8	9
Virginia	Highland	2214	1	4
Virginia	Isle of Wight	36372	1	7
Virginia	James	74153	1	7
Virginia	King and Queen	7052	2	9
Virginia	King George	25890	1	5
Virginia	King William	16497	1	7
Virginia	Lancaster	10804	3	9
Virginia	Lee	24134	7	7
Virginia	Loudoun	385143	2	6
Virginia	Louisa	35380	1	7
Virginia	Lunenburg	12278	1	9
Virginia	Madison	13139	1	7
Virginia	Mathews	8796	1	7
Virginia	Mecklenburg	30847	3	9
Virginia	Middlesex	10700	1	8
Virginia	Montgomery	97997	1	3
Virginia	Nelson	14812	1	7
Virginia	New Kent	21103	1	5
Virginia	Northampton	11957	4	10

Virginia	Northumberland	12223	4	9
Virginia	Nottoway	15500	9	10
Virginia	Orange	35612	1	6
Virginia	Page	23749	1	6
Virginia	Patrick	17859	2	6
Virginia	Pittsylvania	61676	2	7
Virginia	Powhatan	28574	1	5
Virginia	Prince Edward	22956	2	8
Virginia	Prince George	37894	5	8
Virginia	Prince William	456749	6	9
Virginia	Pulaski	34234	3	4
Virginia	Rappahannock	7332	1	7
Virginia	Richmond	8878	8	9
Virginia	Roanoke	93583	5	5
Virginia	Rockbridge	22509	1	6
Virginia	Rockingham	79444	1	3
Virginia	Russell	27408	4	6
Virginia	Scott	22009	5	6
Virginia	Shenandoah	43045	2	5
Virginia	Smyth	31059	4	6
Virginia	Southampton	17939	1	8
Virginia	Spotsylvania	131412	1	5
Virginia	Stafford	144012	2	6
Virginia	Surry	6600	6	10
Virginia	Sussex	11486	2	9
Virginia	Tazewell	42080	5	6
Virginia	Warren	39449	1	5
Virginia	Washington	54406	4	5
Virginia	Westmoreland	17638	6	9
Virginia	Wise	39025	6	7
Virginia	Wythe	28940	2	3
Virginia	York	67587	1	6
Virginia	Alexandria city	156505	3	8
Virginia	Bristol city	16843	8	8
Virginia	Buena Vista city	6399	4	2
Virginia	Charlottesville city	47042	1	7
Virginia	Chesapeake city	237820	3	7
Virginia	Colonial Heights city	17593	2	7
Virginia	Covington city	5582	7	6
Virginia	Danville city	41512	9	10

Virginia	Emporia city	5381	9	10
Virginia	Fairfax city	23865	1	8
Virginia	Falls Church city	14067	1	4
Virginia	Franklin city	8211	6	10
Virginia	Fredericksburg city	28469	1	7
Virginia	Galax city	6638	7	6
Virginia	Hampton city	135583	5	9
Virginia	Harrisonburg city	53391	1	5
Virginia	Hopewell city	22408	3	9
Virginia	Lexington city	7110	4	5
Virginia	Lynchburg city	80131	3	6
Virginia	Manassas city	41457	5	9
Virginia	Manassas Park city	16423	6	10
Virginia	Martinsville city	13101	10	10
Virginia	Newport News city	180145	4	9
Virginia	Norfolk city	245592	4	9
Virginia	Norton city	3990	2	5
Virginia	Petersburg city	31827	9	10
Virginia	Poquoson city	12039	1	3
Virginia	Portsmouth city	95311	4	9
Virginia	Radford city	17630	2	2
Virginia	Richmond city	223787	6	9
Virginia	Roanoke city	99621	6	8
Virginia	Salem city	25519	3	6
Virginia	Staunton city	24452	8	6
Virginia	Suffolk city	89160	2	8
Virginia	Virginia Beach city	450135	2	7
Virginia	Waynesboro city	21926	7	8
Virginia	Williamsburg city	14788	2	8
Virginia	Winchester city	27789	7	7
Washington	Adams	19452	10	9
Washington	Asotin	22337	6	5
Washington	Benton	194168	4	4
Washington	Chelan	75757	6	6
Washington	Clallam	74487	1	7
Washington	Clark	465384	1	3
Washington	Columbia	4001	2	6
Washington	Cowlitz	105112	1	4
Washington	Douglas	41371	6	6
Washington	Ferry	7576	4	8

Washington	Franklin	90660	9	9
Washington	Garfield	2224	3	5
Washington	Grant	94860	8	8
Washington	Grays Harbor	71967	1	7
Washington	Island	81636	1	6
Washington	Jefferson	30856	1	5
Washington	King	2163257	2	5
Washington	Kitsap	262475	1	4
Washington	Kittitas	44825	1	2
Washington	Klickitat	21396	1	7
Washington	Lewis	76947	1	5
Washington	Lincoln	10435	2	6
Washington	Mason	62627	1	7
Washington	Okanogan	41638	2	9
Washington	Pacific	21281	3	7
Washington	Pend Oreille	13219	2	6
Washington	Pierce	859840	2	5
Washington	San Juan	16473	1	4
Washington	Skagit	123907	2	6
Washington	Skamania	11620	1	3
Washington	Snohomish	786620	1	3
Washington	Spokane	497875	2	2
Washington	Stevens	44214	3	5
Washington	Thurston	274684	1	5
Washington	Wahkiakum	4189	2	7
Washington	Walla Walla	60236	7	7
Washington	Whatcom	216812	1	3
Washington	Whitman	48593	2	2
Washington	Yakima	249325	7	9
West Virginia	Barbour	16730	4	4
West Virginia	Berkeley	113495	3	3
West Virginia	Boone	22817	4	6
West Virginia	Braxton	14282	1	4
West Virginia	Brooke	22772	6	5
West Virginia	Cabell	95318	5	5
West Virginia	Calhoun	7396	2	6
West Virginia	Clay	8785	1	5
West Virginia	Doddridge	8536	1	4
West Virginia	Fayette	44126	4	7
West Virginia	Gilmer	8205	9	8

West Virginia	Grant	11641	5	5
West Virginia	Greenbrier	35347	3	6
West Virginia	Hampshire	23363	2	5
West Virginia	Hancock	29680	5	4
West Virginia	Hardy	13842	3	4
West Virginia	Harrison	68209	3	5
West Virginia	Jackson	29018	2	5
West Virginia	Jefferson	56179	3	4
West Virginia	Kanawha	185710	4	7
West Virginia	Lewis	16276	1	4
West Virginia	Lincoln	21078	2	5
West Virginia	Logan	33801	4	7
West Virginia	McDowell	19217	10	8
West Virginia	Marion	56497	3	6
West Virginia	Marshall	31645	8	5
West Virginia	Mason	26939	4	5
West Virginia	Mercer	60486	4	7
West Virginia	Mineral	27278	9	4
West Virginia	Mingo	24741	5	7
West Virginia	Monongalia	105252	1	2
West Virginia	Monroe	13467	3	7
West Virginia	Morgan	17624	2	5
West Virginia	Nicholas	25324	2	5
West Virginia	Ohio	42547	6	4
West Virginia	Pendleton	7056	1	5
West Virginia	Pleasants	7507	1	3
West Virginia	Pocahontas	8531	7	6
West Virginia	Preston	33837	5	6
West Virginia	Putnam	56652	4	3
West Virginia	Raleigh	76232	5	8
West Virginia	Randolph	29065	2	5
West Virginia	Ritchie	9932	4	5
West Virginia	Roane	14205	1	5
West Virginia	Summers	13018	4	6
West Virginia	Taylor	16951	2	3
West Virginia	Tucker	7027	4	6
West Virginia	Tyler	8909	2	5
West Virginia	Upshur	24605	2	5
West Virginia	Wayne	40708	4	6
West Virginia	Webster	8518	1	6

West Virginia	Wetzel	15614	4	6
West Virginia	Wirt	5797	2	4
West Virginia	Wood	85556	8	6
West Virginia	Wyoming	21711	8	7
Wisconsin	Adams	20073	8	6
Wisconsin	Ashland	15712	5	3
Wisconsin	Barron	45252	8	2
Wisconsin	Bayfield	14992	8	5
Wisconsin	Brown	259786	4	2
Wisconsin	Buffalo	13167	6	2
Wisconsin	Burnett	15258	8	5
Wisconsin	Calumet	49807	2	1
Wisconsin	Chippewa	63635	5	1
Wisconsin	Clark	34491	8	3
Wisconsin	Columbia	56954	3	1
Wisconsin	Crawford	16288	9	2
Wisconsin	Dane	529843	3	1
Wisconsin	Dodge	87776	5	1
Wisconsin	Door	27439	6	3
Wisconsin	Douglas	43402	4	1
Wisconsin	Dunn	44498	3	1
Wisconsin	Eau Claire	102991	5	1
Wisconsin	Florence	4337	5	2
Wisconsin	Fond du Lac	102315	4	1
Wisconsin	Forest	9018	9	7
Wisconsin	Grant	51828	4	1
Wisconsin	Green	36864	2	1
Wisconsin	Green Lake	18757	5	2
Wisconsin	Iowa	23620	5	1
Wisconsin	Iron	5715	6	3
Wisconsin	Jackson	20506	9	3
Wisconsin	Jefferson	84652	3	1
Wisconsin	Juneau	26419	7	1
Wisconsin	Kenosha	168330	5	2
Wisconsin	Kewaunee	20360	2	1
Wisconsin	La Crosse	117850	3	1
Wisconsin	Lafayette	16735	5	1
Wisconsin	Langlade	19164	6	3
Wisconsin	Lincoln	27848	5	1
Wisconsin	Manitowoc	79407	3	1

Wisconsin	Marathon	135264	5	1
Wisconsin	Marinette	40537	4	1
Wisconsin	Marquette	15207	5	3
Wisconsin	Menominee	4579	10	10
Wisconsin	Milwaukee	954209	9	7
Wisconsin	Monroe	45502	5	1
Wisconsin	Oconto	37556	5	3
Wisconsin	Oneida	35345	5	2
Wisconsin	Outagamie	184754	2	1
Wisconsin	Ozaukee	88284	5	1
Wisconsin	Pepin	7262	7	1
Wisconsin	Pierce	41603	3	1
Wisconsin	Polk	43349	6	2
Wisconsin	Portage	70599	2	1
Wisconsin	Price	13490	4	1
Wisconsin	Racine	195398	7	3
Wisconsin	Richland	17539	3	1
Wisconsin	Rock	161769	4	2
Wisconsin	Rusk	14183	8	2
Wisconsin	St. Croix	87917	2	1
Wisconsin	Sauk	63596	3	1
Wisconsin	Sawyer	16370	10	7
Wisconsin	Shawano	41009	7	4
Wisconsin	Sheboygan	115205	3	1
Wisconsin	Taylor	20356	4	1
Wisconsin	Trempealeau	29438	6	1
Wisconsin	Vernon	30516	5	4
Wisconsin	Vilas	21593	9	7
Wisconsin	Walworth	103013	5	1
Wisconsin	Washburn	15689	7	4
Wisconsin	Washington	134535	4	1
Wisconsin	Waukesha	398879	6	2
Wisconsin	Waupaca	51444	2	1
Wisconsin	Waushara	24116	6	4
Wisconsin	Winnebago	169926	3	1
Wisconsin	Wood	73274	5	1
Wyoming	Albany	38102	7	2
Wyoming	Big Horn	11901	8	7
Wyoming	Campbell	47708	6	1
Wyoming	Carbon	15477	6	3

Wyoming	Converse	13997	4	3
Wyoming	Crook	7410	5	2
Wyoming	Fremont	40076	10	8
Wyoming	Goshen	13438	9	5
Wyoming	Hot Springs	4680	8	6
Wyoming	Johnson	8515	6	3
Wyoming	Laramie	97692	8	4
Wyoming	Lincoln	19011	3	3
Wyoming	Natrona	80610	8	2
Wyoming	Niobrara	2448	9	4
Wyoming	Park	29121	6	4
Wyoming	Platte	8673	7	6
Wyoming	Sheridan	30012	9	4
Wyoming	Sublette	9951	6	3
Wyoming	Sweetwater	44117	7	3
Wyoming	Teton	23059	6	1
Wyoming	Uinta	20609	5	2
Wyoming	Washakie	8129	10	7
Wyoming	Weston	7100	8	5