Race and Representation in Battleground Counties

An analysis of racial disparities in voter turnout and ballot rejections in the 2020 presidential election

Technical Appendix

HIGHLIGHTS

This study visualizes data from the 2020 presidential election from 11 counties in seven electorally pivotal states. Specifically, this study displays voter turnout rates and ballot rejections in voting precincts in the Atlanta, Charlotte, Cleveland, Detroit, Milwaukee, Phoenix, Philadelphia, Pittsburgh, and Raleigh-Durham metropolitan areas. The demographic makeup of these 11 counties is also included in the visualization. Examination of the data indicates that racial inequality is a large threat, fair representation as voter turnout is generally lower, and ballot rejection rates are generally higher in precincts that are majority people of color. Further, the analysis shows that claims about large-scale illegal voting are false.

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Data Transparency and Democratic Accountability

Who Votes, and Whose Votes Count?

Research on political participation has long established the importance of resources and relationships in cultivating political interest and action. One well-known series of studies encapsulates the logic of political participation as a capacity triad: people participate 1) because they can (using resources like time, information, and skills), 2) because they want to (with interest and engagement), and 3) because someone asks them to (through recruitment and networking) (Verba, Schlozman, and Brady 1995, p.15).

In the absence of social networks that link together voters who share resources, participatory norms, and organizational energy, communities may lack capacity to exercise their political voice (Bond et al. 2012; Carlson, Abrajano, and Bedolla 2019; Rolfe 2012). US democracy is marred by persistent class- and race-based inequalities, in part a consequence of the unequal distribution of these conditions across populations (Schattschneider and Adamany 1975; Schlozman, Brady, and Verba 2018).

This analysis is motivated in part by the recognition that political institutions, especially electoral rules, create selective pressures that shape the development of participatory resources, incentives for engagement, and opportunities for recruitment and mobilization (Burden et al. 2016; Cox 2015; Davidson and Grofman 1994).

Since the Second Reconstruction and adoption of the Voting Rights Act of 1965, a central measure to assess participatory and political equality in the United States has been the difference in voter turnout across people of different races, also known as the racial turnout gap (Morris and Grange 2024; Fraga 2018). Recent scholarship has demonstrated that election laws ranging from redistricting outcomes to registration list management, methods of voting, and identification requirements can have differential impacts on racial groups in terms of propensity to vote, ability to vote, and the probability that votes are counted (Fraga 2016; Fraga and Miller 2022; Morris and Pérez 2018). Changes in voting laws can exacerbate existing inequalities in ways that further distort racial representation, depending on how they are implemented (McDonald et al. 2024; Shino, Suttmann-Lea, and Smith 2022).

Understanding how electoral rules and procedures impact voter turnout, and determining whether or not, or to what degree, electoral operations might have a discriminatory impact on some voters, requires reliable records of who casts ballots, how and where the ballots are cast, how they are counted, detailed information about ballot verification, and the outcome of each ballot counted or rejected. Unfortunately, producing a systemic account of just the end product, election results at the precinct level, is a Herculean task that involves collecting, cleaning, and standardizing data across local jurisdictions with little assurance about data quality (Baltz et al. 2022). On the front end, voter registration and individual turnout records from aggregated voter files differ in coverage and accuracy, which is in part a function of publication requirements, content, and formats that vary across jurisdictions (Igielnik et al. 2018; Willis, Merivaki, and Ziogas 2022). The quality of election data (including ballot

verification, rejections, and related information) is difficult to assess even at the county level, given inconsistencies in data reporting and gaps in data transparency, although state election data transparency has improved (Merivaki and Smith 2020; National League of Cities 2022; Stewart III 2020; Stewart III 2018).

Research Design

This analysis represents the first research phase of the Center for Science and Democracy's Precinct Analysis Project, designed to assess election data transparency at the precinct level in pivotal electoral jurisdictions. The goals of the analysis include:

- Increasing awareness and understanding of inequalities in turnout and ballot rejection rates across communities
- Improving capacity to educate the public about how ballots are verified and the scrutiny involved in counting ballots
- Identifying best practices for data generation and publication, and the development of procedures to reduce voter and administrative errors in ballot processing

To achieve these objectives, the research team identified a select sample of pivotal election jurisdictions: Allegheny (Pittsburgh) and Philadelphia counties in Pennsylvania; Columbus, Durham, and Mecklenburg counties in North Carolina; Cuyahoga (Cleveland) and Lorain counties in Ohio; Fulton County (Atlanta) in Georgia; Maricopa County in Arizona; Milwaukee County in Wisconsin; and Wayne County (Detroit) in Michigan. Quantities of interest included precinct-level data on registered voter turnout; ballots accepted; absentee, supplemental, and provisional ballots cast, counted, and rejected; and reasons for rejection. Racial demographic data on citizen voting age population (CVAP) and geographic precinct shapefile data, or voter tabulation districts (VTDs), allowed for geospatial data presentation.

Analysis was facilitated through the development of an ArcGIS StoryMap. StoryMaps are web-based applications that allow authors to share maps and geo-coded data with narrative text. The statistical analysis below includes general descriptive statistics on 2020 turnout and ballot rejection for Census-defined racial groups, and multivariate analysis on these outcomes to control for county-state fixed effects.

Selection Criteria

The research team selected jurisdictions based on three criteria. First, jurisdictions were selected on the basis of their importance in determining the outcome of presidential elections. These counties are generally the most populous counties in battleground states that have been pivotal in determining the outcome of the Electoral College over the last few presidential elections. We also selected a small number of more rural counties within these states to account for possible rural/urban differences in voting behavior. Second, many of these counties were explicitly targeted in both 2016 and 2020 with voter suppression efforts, and crucially, were the primary targets of the Trump campaign's allegations of widespread voter fraud (the Big Lie) and Republican Party efforts to overturn the 2020 election.

In both 2016 and 2020, the Trump campaign repeatedly alleged that these "inner cities" were sources of Democratic Party "cheating" (Brownstein 2020; Graham 2016). The legal effort to overturn the 2020 election results also focused on the certification of ballots and allegations of fraud in these counties (Broadwater and Eder 2023; Eggers, Garro, and Grimmer 2021). Third,

these same jurisdictions will play a pivotal role in the 2024 election, and are once again the target of efforts to challenge ballots and manipulate the certification of election results (Latner 2022).

County-Level Comparisons

In many ways, election results in these jurisdictions reflect patterns and challenges faced by election administrators all over the country. Table 1 displays county-level election outcomes obtained from the 2016 and 2020 Election Administration and Voting Survey comprehensive reports. Several patterns of ballot verification and rejection are relevant to this analysis.

First, there was a marked increase in the use of mail-in/absentee ballots from 2016 to 2020 as a result of the COVID-19 pandemic. This massive shift in voting methods was accompanied by a reduction in provisional ballots cast in seven of our 11 counties, and an increase in provisional ballots cast in Allegheny, Columbus (minor), Fulton, and Philadelphia counties.

Second, while many voters in these counties voted using a new or different type of ballot, ballot rejection rates decreased in *every* county in our analysis, in many cases by a large factor. This was due to a variety of factors, including increased training and attention to ballot verification processes, as well as public campaigns to educate voters about how to correctly complete their ballots (Frontline 2020; Persily and Stewart 2021).

Third, the number and rate of ballots rejected due to voters not being correctly registered, or having improper identification or unmatched signatures (used to verify eligibility), varied considerably across elections and jurisdictions, and in some counties, thousands of ballots were rejected for these reasons. In both the 2016 and 2020 elections, every ballot cast went through a rigorous verification process, and many ballots were rejected for many reasons, including voters unable to verify their eligibility. These are the recorded observations of the number of people who voted but were not correctly registered or were otherwise ineligible to vote at the time of the election. In every county in the study, the number of ballots rejected for these reasons were at most 1 percent of total ballots cast. The results serve as further proof that there was no widespread voter fraud in the 2016 and 2020 general elections. From the perspective of democratic legitimacy, it is more concerning that most rejected ballots are likely cast by people who meet federal citizenship and age requirements (Street 2024).

Extreme or unusual outliers (0 or 100 percent turnout, provisional ballots rejected, etc.) in the data occur rarely for several reasons. First, most event distributions include extreme but rare (far from average) occurrences, which is why they are called outliers. Among several thousand precincts there are almost certainly a few where no people reside or vote. Second, unusual values can reflect undetected human error in obtaining, recording, and tabulating the original census and election data. Third, errors can result from the imputation process of aggregating individual or lower level (census block) data into VTD boundaries. We did not conduct a systematic comparison of the number of ballots cast in voter files and totals in precincts, but no major discrepancies were identified during the analysis. Manual analysis of the accuracy of data aggregation and imputation (identification of incompatible or missing data from different datasets or very different results from multiple sources of the same data) resulted in the removal of precincts where discrepancies could not be corrected, or where there were extensive missing data. Table 2 provides information on ballot incident data obtained and used in the analysis.

Table 1. County-Level Election and Ballot Outcomes

County	Registered voters	Registered Turnout	Mail-in ballots	Provisional ballots	Mail ballots rejected	Provisional ballots rejected	Rejection rate	Eligibility problems	Signature problems
Allegheny 2016	924,631	654,841	31,762	2,220	NA	1,081	NA	1,315	NA
Allegheny 2020	937,910	729,838	344,841	17,668	2,482	3,127	1.5%	1,501	801
Columbus 2016	36,626	23,446	485	283	12	128	18.2%	105	12
Columbus 2020	37,056	26,519	2,086	294	54	126	7.6%	121	35
Cuyahoga 2016	890,626	617,350	191,566	19,396	1,351	3,237	2.2%	2,700	558
Cuyahoga 2020	888,556	631,199	314,898	18,051	1,291	2,307	1.1%	1,908	832
Durham 2016	232,725	151,376	4,826	1,926	153	1,037	17.6%	920	91
Durham 2020	245,199	180,568	46,390	1,246	396	839	2.6%	691	368
Fulton 2016	741,634	433,036	21,625	2,528	926	1,300	9.2%	NA	NA
Fulton 2020	836,563	527,532	146,029	4,047	69	449	0.3%	436	18
Lorain 2016	206,401	143,296	33,230	4,001	150	517	1.8%	469	28
Lorain 2020	218,501	158,732	61,846	3,877	171	496	1.0%	472	128
Maricopa 2016	2,438,481	1,649,961	1,249,932	52,173	4,137	15,250	1.5%	11,961	3,660
Maricopa 2020	2,863,040	2,089,563	1,905,091	18,310	2,976	12,112	0.8%	8,127	2,042
Mecklenburg 2016	711,165	470,066	25,229	3,778	527	2,057	8.9%	1,707	303
Mecklenburg 2020	793,709	569,108	132,793	2,507	218	1,574	1.3%	1,057	214
Milwaukee 2016	352,808	247,536	9,111	131	47	115	1.8%	115	35
Milwaukee 2020	330,031	247,681	107,591	81	457	63	0.5%	63	74
Philadelphia 2016	1,102,560	724,380	13,306	13,412	461	3,998	16.7%	1,025	460
Philadelphia 2020	1,123,908	749,349	370,207	19,140	2,281	4,179	1.7%	3,398	927
Wayne 2016	1,339,831	788,459	205,062	1,141	1,337	1,062	1.2%	724	593
Wayne 2020	1,405,903	878,102	447,792	499	4,491	444	1.1%	399	911

Note: Rejection rates are out of absentee and provisional ballots cast.
Source: EAC 2017; EAC 2021.

Table 2. 2020 Data Availability

County	Absentee ballot data	Provisional/other ballot data	Sources	VTDs with complete data	Notes
Allegheny	NA	precinct provisional cast	records request	1,321 of 1,337	
Columbus	voter files ballot status and reason	voter files ballot status and reason	public	24 of 26	complete, regular pre-post-election release
Cuyahoga	NA	precinct cast, counted, reason	records request	973 of 975	Extensive ballot status codes
Durham	voter files ballot status and reason	voter files ballot status and reason	public	57 of 57	complete, regular pre-post-election release
Fulton	voter files ballot status and reason	voter files ballot status and reason	public	388 of 400	
Lorain	NA	precinct cast, counted	records request	181 of 194	
Maricopa	precinct rejection counts and reason	precinct rejection counts and reason	public	743 of 743	unable to format completely
Mecklenburg	voter files ballot status and reason	voter files ballot status and reason	public	186 of 195	complete, regular pre-post-election release
Milwaukee	NA	NA		570 of 570	
Philadelphia	NA	precinct provisional cast, partial count, rejected	records request	1,673 of 1,692	
Wayne	NA	precinct provisional/affidavit ballots cast, counted		981 of 999	voters without proper ID must sign affidavit

Inequalities in 2020 Turnout

How We Measure Voter Turnout

Data used to analyze voter turnout come from several sources. First, the Voting and Election Science Team, directed by Michael McDonald at the University of Florida and Brian Amos at Wichita State University, compiled and joined election and Census-related geographic data widely used in the 2021 redistricting cycle (VEST 2020). Supplemental data compiled by staff at Dave's Redistricting App were also joined to 2020 VTD shapefiles, https://github.com/dra2020/vtd_data. The VTD-level shapefiles (used to project data into digitalized geographic boundaries) and the L2 voter file data (from which registered turnout was estimated) were downloaded from the Redistricting Data Hub (RDH, n.d.).

The RDH describes the L2 files as follows: The RDH obtained voter files from the *L2 database*, a file that has each individual linked to their corresponding 2020 Census Block. The RDH joined the L2 voter file to this 2020 Census Block assignment file and then aggregated the individual level voter file to the Census Block level.

CSD research used the R package Geomander to aggregate these data to the VTD level. This enabled the team to estimate VTD-level registered voter and CVAP turnout. For the StoryMap projections, we rely on the L2 registered voter turnout estimates.

CVAP data, which is compiled from the 2020 Census and American Community Survey, were then used to estimate the percent of the VTD population by Census-defined racial identity: non-Hispanic White, non-Hispanic Black or African American, non-Hispanic Asian or Pacific Islander (API), mixed (more than one) race, Hispanic, and, for Arizona and Milwaukee jurisdictions, Native populations. As a check on the registered turnout rates we also estimated voter turnout as the percent of CVAP in VTDs using a combination of methods. There were a small number of VTDs for which we could not match with the demographic data.

Table 3 summarizes turnout data by jurisdiction. As a point of comparison with the mean precinct-level turnout, the last column on the right lists county-level 2020 turnout taken from county websites. The only significant deviation appears to be in the Milwaukee County results, where the L2 estimates are significantly lower than reported overall county turnout. There are a number of possible sources for this discrepancy, depending on what numbers are used in the denominator. For one, Wisconsin provides Election Day registration, which can result in incomplete registration baselines (one of the reasons that the Wisconsin Elections Commission bases turnout on voting age population). Even then, our estimates of CVAP turnout are lower than what those officials report. Removing census blocks with zero reported turnout from the L2 data (typically unpopulated or low-population blocks) did not substantively change the precinct-level mean, nor did several other checks on the L2 data. Given the relatively high correlation between the L2 registered turnout and CVAP turnout estimates (Pearson's R = 0.76), we continued with the L2 data, in part to have the same data across jurisdictions.

Table 3. 2020 Precinct-Level Registered Turnout

County	Precincts	Median (%)	Mean (%)	NA	County-reported turnout (%)
Allegheny, PA	1,321	82	78.3	2	77.1
Columbus, NC	24	78	77.5	2	72
Cuyahoga, OH	973	75	71.1	1	71
Durham, NC	57	83	82.5	1	74
Fulton, GA	388	65	61.5	12	65.5
Lorain, OH	181	79	74.4	0	72.6
Maricopa, AZ	743	82	79	0	80.5
Mecklenburg, NC	186	80	78.9	0	72
Milwaukee, WI	570	50	53.7	2	83.6
Philadelphia, PA	1,673	72	71.3	0	68
Wayne, MI	981	58	60.5	2	62.4
Totals	**7,097**	**74**	**70.3**	**22**	

The Racial Turnout Gap

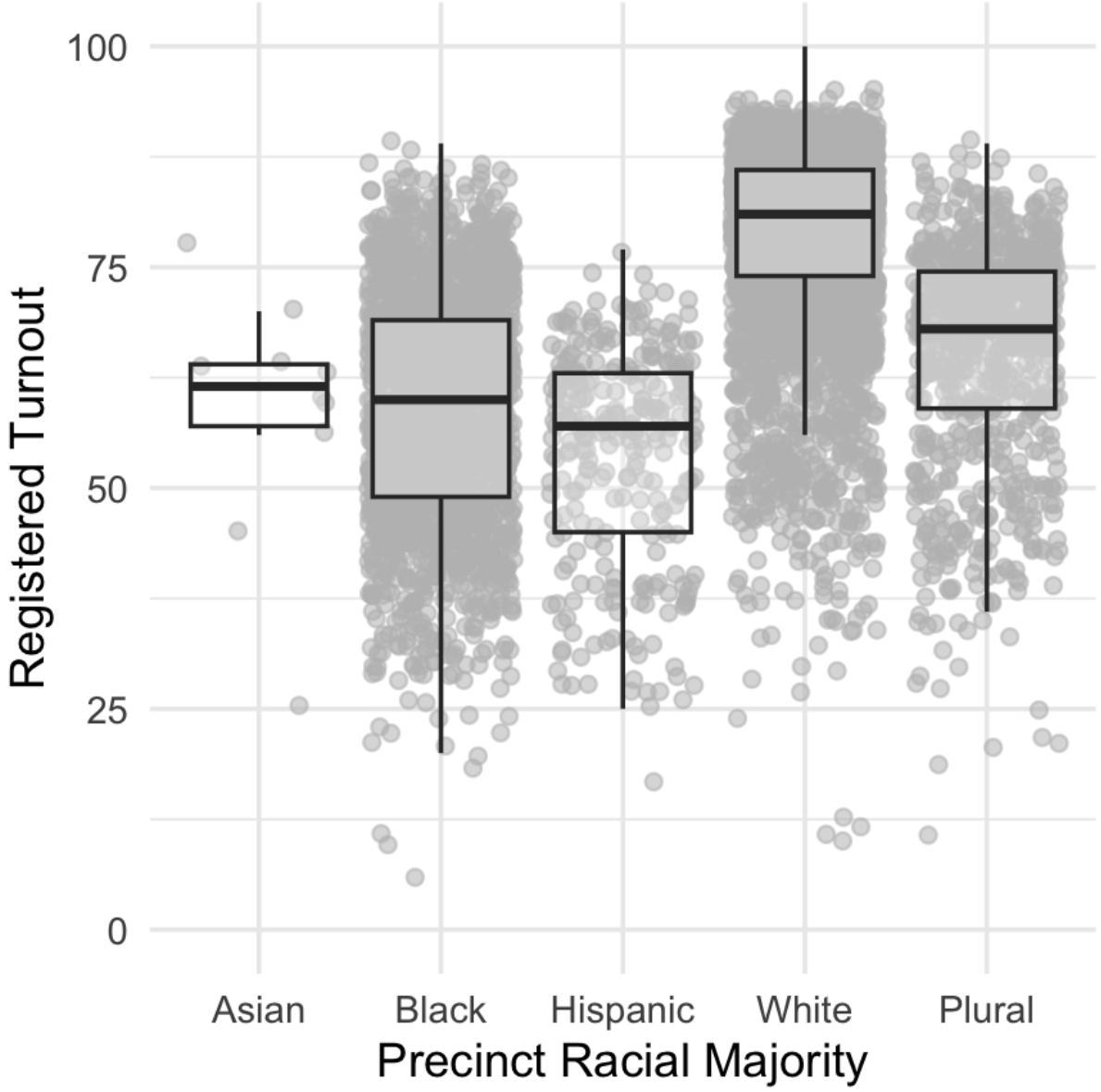
2020 voter turnout varied substantially across jurisdictions, as Table 1 illustrated. Average registered voter turnout rates (tabulated from L2 voter data) were above 75 percent in North Carolina (Columbus, Durham, and Mecklenburg) counties and in Allegheny County, Pennsylvania. Jurisdictions like Cuyahoga (Cleveland), Philadelphia, and Wayne (Detroit) counties contain larger numbers of low-turnout precincts, and thus lower turnout averages. These results are not surprising, as previous research has illustrated the impact of state- and jurisdiction-level political context and election procedures on voter turnout (Burden and Stewart III 2014; Schraufnagel, Pomante II, and Li 2020).

The continuing relevance of race is reflected in systemic turnout inequalities observed across communities of color. In Figure 1, precincts are categorized according to the racial identities, based on Census categories, of the majority of the CVAP. 2020 turnout was highest in majority-White precincts and lowest in majority-Black and majority-Hispanic precincts, with majority-API and Plural (no racial majority) precincts in between. Controlling for state- and county-level effects does not erase the observed turnout gap between majority-White and majority-minority precincts (see Table 4). In other words, even if inequalities in voting access, differences in electoral competition, and other political factors cause inequalities in turnout, the differences observed in Figure 1 are not just a function of which county or state a person lives in.

Rather, these observed inequalities are a function of the types of *communities* that people live in, and their prevalence. As Figure 1 displays, while the average turnout differences across racial communities is stark, there are high- and low-turnout precincts within each group as well. Many majority-Black precincts turned out at rates higher than the average majority-White precinct in 2020. Similarly, turnout rates in some majority-Hispanic precincts were close to the average turnout in majority-White precincts.

But turnout inequalities across racial groups are intensified by the greater proportion of low-turnout precincts that are majority-Black or majority-Hispanic, relative to majority-White precincts. In more than 450 majority-Black precincts (about one quarter) in these pivotal counties, fewer than half of registered voters cast a ballot in 2020. Similarly, while the total number of majority-White precincts where fewer than half of those registered voted (107) was larger than the number of majority-Hispanic precincts (86) with turnout less than 50 percent, that is nearly one third of all majority-Hispanic precincts, compared with just 3 percent of majority-White precincts.

Figure 1. 2020 Precinct Turnout of Registered Voters by Census-Defined Racial Group



In communities where a majority of eligible voters (citizen voting age population) are Asian, Black, or Hispanic, average voter turnout in 2020 was less than 60 percent, compared with 78 percent in majority-White communities, and 65 percent in the most diverse communities. Nevertheless, we find a range of high and low turnout neighborhoods across communities of all racial compositions. Generally speaking, more affluent, older, and stable neighborhoods exhibit higher turnout.
Notes: Groups that constitute a majority of CVAP within a precinct, as defined by the Census: Asian (Asian + Pacific Islander), Black/African-American, Hispanic/Latino, White/Caucasian, Plural (no group constitutes a majority). Black lines inside boxes represent mean turnout within group, boxes represent one standard deviation from the mean. Each dot represents an individual precinct.

Table 4. 2020 Multivariate Analysis of Association of Turnout with Precinct Racial Majorities

	Model 1	Model 2
Majority-Asian Pacific Islander (std. err)	**-19.7** (3.8)	**-18.9** (3.0)
Majority-Black (std. err)	**-19.1** (0.3)	**-17.5** (0.3)
Majority-Hispanic (std. err)	**-24.4** (0.7)	**-25.7** (0.6)
Plural (std. err)	**-12.8** (0.5)	**-15.4** (0.4)
Fixed Effects		x
Intercept (std. err)	78.2 (0.2)	80.8 (0.3)
RSE	11.9	9.6
df	6,733	6,723
R2	37.3%	59.3%

Cumulative Inequalities in Voting

Why Do Problems Arise During Voting?

The US Constitution places two restrictions on voting in federal elections: voters must be at least 18 years of age, and they must be US citizens. However, many states place additional restrictions on voting, ranging from registration deadlines, voter identification, and (redundant) "proof of citizenship" requirements to restrictions on how people vote and qualifications for voting by mail. Election jurisdictions also use a variety of compliance and verification procedures during voting and ballot processing that result in ballots being rejected. This makes comparing ballot certification and rejection rates across jurisdictions difficult, as access to voting methods (mail-in vs. in-person), what counts as "spoiled" or uncounted ballots, and opportunities to correct ballot errors all vary across jurisdictions.

For example, one of the most common reasons that ballots are rejected are missing signatures or signature-matching failures for ballots cast by mail (McDonald 2022). In 2020, while the nationwide mail-in ballot rejection rate was lower than 1 percent (0.08%) and an improvement over 2016, a massive increase in the use of mail-in ballots resulted in over 550,000 rejected ballots.[1] While some states provide an extended "curing" process where voters are notified and allowed to correct certain errors (this too varies across states), other states reject ballots without any opportunity for correction. Finally, since the passage of the Help America Vote Act in 2002,

[1] *Ballot rejections declined from 0.96 percent in 2016 to 0.79 percent in 2020 (EAC 2017; EAC 2021).*

states (except those that provide same-day registration) are required to provide provisional ballots to voters who are not listed on registration lists, but claim to be eligible registered voters. Those ballots are verified separately from regular ballots, and are also prone to higher rejection rates as a result of both voter ineligibility and clerical error (DeSilver 2020).

How Ballot Problems and Ballot Rejection Were Measured

We considered provisional or absentee ballots to be rejected if they were cast, but not counted, as a result of clerical error (incomplete information, including notary or witness information), or voter errors, including rejections pending a "cure" (notifying and allowing a voter to correct a ballot error), ballots returned after election deadline (often prior to Election Day), ballots with unmatched or invalid signatures, failure to provide proof of citizenship, and ballots recorded as "spoiled" or "other" (often the largest categories). For all other jurisdictions except Maricopa County, Arizona, and Milwaukee County, Wisconsin, we were able to generate usable data on provisional ballots cast and rejected.

We then used available data for each county to rank the frequency of provisional voting events (supplemental, provisional ballots cast or "no ID" affidavits signed) and total ballot rejections recorded as a percent of ballots cast, into lower, middle, and upper thirds, making it possible to compare "high-incident" (those in the upper third) precincts to other precincts, and analyze the properties of high-incident precincts across jurisdictions, while keeping in mind all of the legal, administrative, and behavioral differences that generate variability in ballot rejections across precincts. For this analysis we focus on ballot rejections wherever data were available, supplemented with additional data on the frequency that problems were experienced with ID or related eligibility requirements.

Table 5. 2020 Ballot Problems

County	Precincts	Median (%)	Mean (%)	NA
Allegheny	1,321	1	1.68	0
Columbus	24	3	3.18	0
Cuyahoga	973	11	12.3	2
Durham	57	9	9.28	0
Fulton	388	5	6.86	24
Lorain	181	11	12.1	13
Mecklenburg	186	8	8.12	8
Philadelphia	1,673	2	2.37	0
Wayne	981	3	4.25	10
Total	5,784	2	5.1	57

Cumulative Voting Inequalities

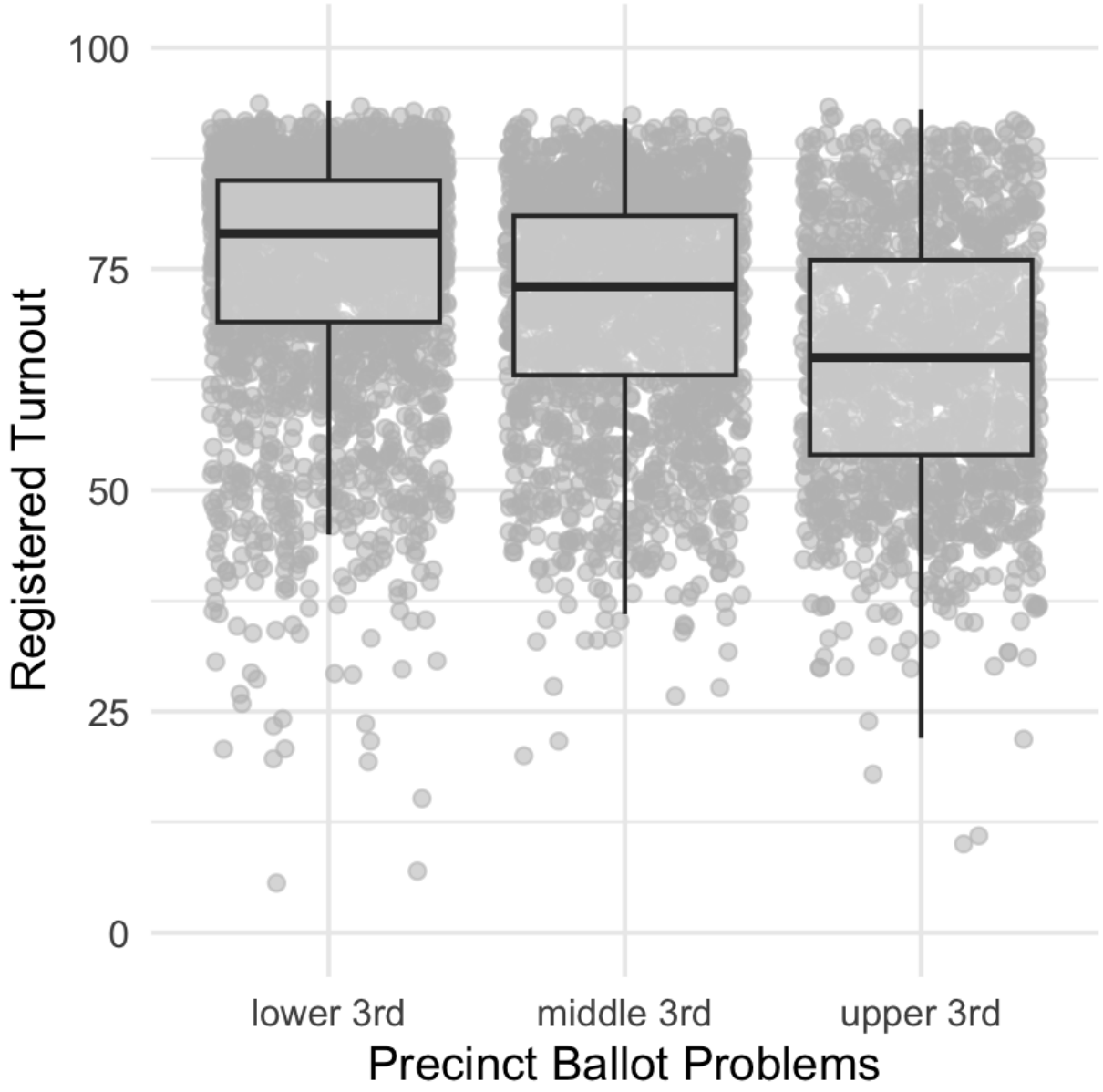
People living in low-turnout precincts in pivotal jurisdictions were also more likely to have their ballots rejected in the 2020 general election. As Figure 2 demonstrates, average turnout is highest in the third of precincts with the lowest ballot incident rates, and lowest in the upper third. That is, the frequency of ballots not cast, as well as ballots cast but not counted, are correlated and concentrated within specific precincts. This correlation, while not strong, remains statistically significant after controlling for both regional effects (differences across state and county) and the racial composition of precincts (see Table 6 below). That is, both within and across these jurisdictions, people living in communities that suffer from lower turnout are also subject to higher rates of ballot rejection and related incidents, including having to use a supplemental or provisional ballot (which is one cause of higher rejection rates). Political representation is weaker in these communities, relative to communities with high turnout and low rejection rates.

Incomplete data and cross-jurisdictional differences in both the types of ballots that get rejected and the ability to cure ballots required a rough classification into these three categories. Within each county, precincts were divided into these categories based on the range of within-county problems, so that roughly one third of all precincts fall into each category in each county.

Looking again through the lens of which Census-defined racial groups make up CVAP majorities in precincts, we compare the percentage of precincts that are in the upper third or "high-incident" precincts across racial groups. As Figure 3 illustrates, we find substantial inequalities in rejection rates across communities of different racial composition. The intuition behind Figure 3 is that if race were not a factor in the location of rejection rates, we would expect each of these bars to top out at 33 percent, or one third of all the precincts in each jurisdiction. Instead, we observe that around 40 percent of majority-Black and -Hispanic precincts are in the high-incident category, compared with less than 20 percent of majority-White precincts. The percentage of high-incident API precincts is also below equality expectations, while plurality precincts are quite close to the expected 33 percent mark.

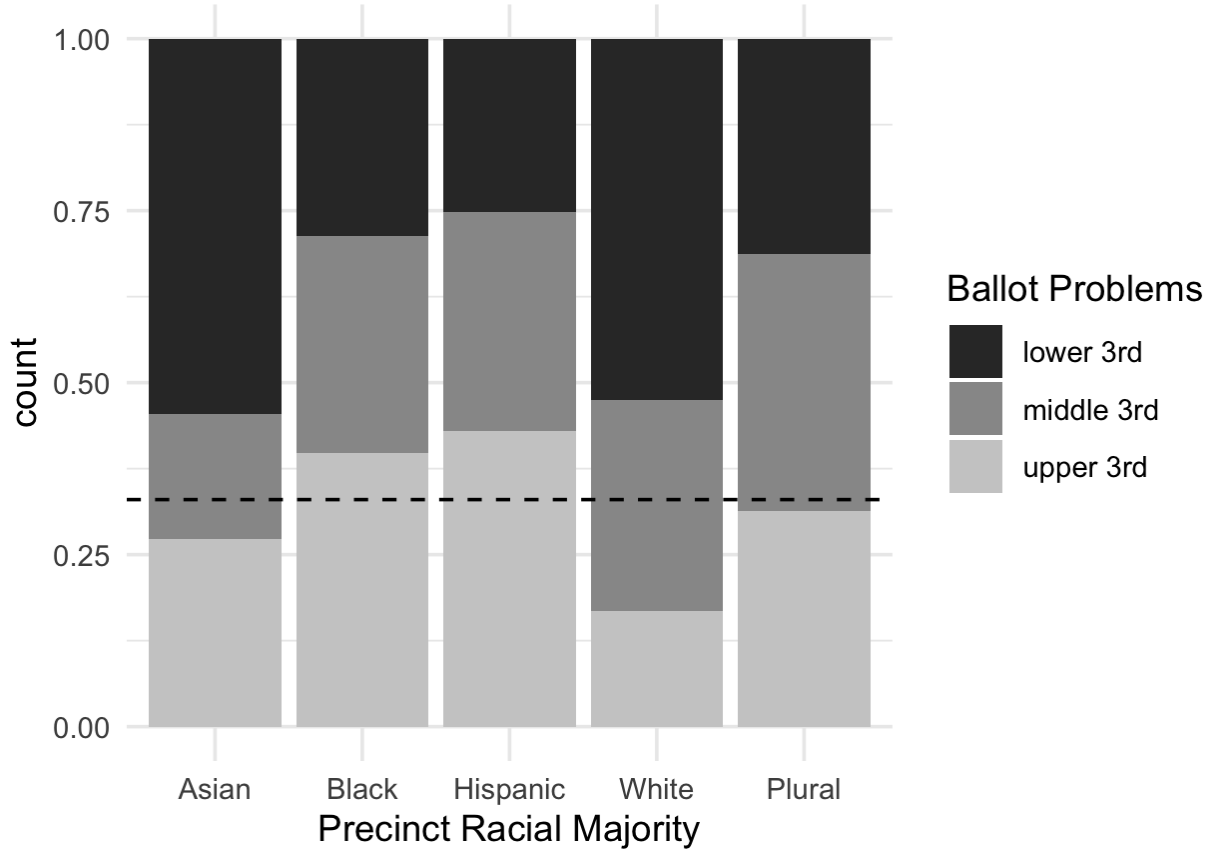
Multivariate analysis suggests that these disparities are largely a function of geographic region and the interconnectedness of race, place, and political participation. The negative association with ballot rejection and 2020 turnout remains significant after accounting for differences in the racial composition of precincts, as well as state- and county-fixed effects (see Table 4). Model 2 in Table 4, which adds which racial groups make up the majority of eligible voters in a precinct, actually shows a negative coefficient for majority-Hispanic precincts, but this is largely a function of the fact that most majority-Hispanic precincts in the sample are in Philadelphia, a low-rejection jurisdiction with incomplete absentee data. Once state- and county-level fixed effects are controlled for in Model 3, results show that living in a majority-Black or plurality precinct was associated with about a 1 percent increase in ballot rejection, compared with majority-White precincts, while the impact of living in a majority-Hispanic precinct was not distinct from zero. Nevertheless, the fact that so many majority-Hispanic communities fall into high-incident categories in their own counties underscores the impact of cumulative disparities on racial representation.

Figure 2. 2020 Registered Turnout



Average voter turnout in 2020 was highest the precincts with a lower frequency of ballot rejections, and lowest in precincts with the highest rates of ballot rejections. In each county, data collected on ballot rejections and problems with voting, including having to cast a provisional ballot or not having appropriate identification for voting, were used to identify the lower, middle, and upper thirds of precincts in terms of frequency of rejections and related ballot problems.
Notes: Black lines inside boxes represent mean turnout within group, boxes represent one standard deviation from the mean. Each dot represents an individual precinct.

Figure 3. Proportion of Precincts in Each Ballot Rejection Category



Majority-Black and majority-Hispanic precincts are much more likely to be in the "upper third" of high ballot rejection precincts in their counties. Only 20 percent of majority-White precincts are high rejection precincts.

Notes: Proportion of precincts in each ballot rejection category, by which Census-defined racial group constitutes a majority in the precinct. Dotted line indicates 33% mark, which would be mark for percent of precincts in the upper third for ballot rejection, in the absence of racial disparities. Results demonstrate that majority-White precincts are roughly half as likely as majority-Black and majority-Hispanic precincts to be in the upper third of ballot rejection in their counties.

Table 6. Multivariate Analysis of Ballot Rejections as a Function of Precinct Turnout and Racial Majority

	Model 1	Model 2	Model 3
Turnout (std. err)	**-0.09** (0.01)	**-0.09** (0.01)	**-0.06** (0.01)
Majority-API (std. err)		-3.12 (1.98)	-1.44 (1.57)
Majority-Black (std. err)		0.21 (0.24)	1.33 (0.21)
Majority-Hispanic (std. err)		**-2.65** (0.61)	0.78 (0.51)
Plural (std. err)		0.43 (0.30)	**1.18** (0.25)
Fixed Effects			x
Intercept (std. err)	11.5 (0.6)	11.5 (0.6)	6.5 (0.6)
RSE	6.5	6.5	5.2
df	5717	5713	5705
R2	3.7%	4.2%	39.5%

Note: statistically significant difference in bold.

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References

Allegheny County Elections Board. n.d. "Allegheny County Elections Board." Accessed August 5, 2024. https://www.alleghenycounty.us/Government/Elections

Baltz, Samuel, Alexander Agadjanian, Declan Chin, John Curiel, Kevin DeLuca, James Dunham, Jennifer Miranda, et al. 2022. "American Election Results at the Precinct Level." *Scientific Data* 9(1): 651. https://doi.org/10.1038/s41597-022-01745-0

Bond, Robert M., Christopher J. Fariss, Jason J. Jones, Adam D. I. Kramer, Cameron Marlow, Jaime E. Settle, and James H. Fowler. 2012. "A 61-Million-Person Experiment in Social Influence and Political Mobilization." *Nature* 489 (7415): 295–98. https://doi.org/10.1038/nature11421

Broadwater, Luke, and Steve Eder. 2023. "Speaker Mike Johnson Helped Efforts to Overturn The 2020 Election." *The New York Times.* October 25. Accessed July 15, 2024. https://www.nytimes.com/2023/10/25/us/politics/mike-johnson-2020-election-overturn.html

Brownstein, Ronald. 2020. "Voter Fraud: The 'Urban Myth' behind GOP Claims." *CNN Politics*. December 15. Accessed July 15, 2024. https://www.cnn.com/2020/12/15/politics/voter-fraud-urban-myth/index.html

Burden, Barry C., and Charles Stewart III, eds. 2014. *The Measure of American Elections*. New York: Cambridge University Press

Burden, Barry C., Logan Vidal, Henry E. Brady, Kay Lehman Schlozman, and Sidney Verba. 2016. "How Resources, Engagement, and Recruitment Are Shaped by Election Rules." In *New Advances in the Study of Civic Voluntarism*, edited by Casey A. Klofstad, 77–94. Resources, Engagement, and Recruitment. Temple University Press. https://doi.org/10.2307/j.ctvrdf2vq.9

Carlson, Taylor N., Marisa Abrajano, and Lisa García Bedolla. 2019. "Political Discussion Networks and Political Engagement among Voters of Color." *Political Research Quarterly* 73(1): 79-95. https://doi.org/10.1177/1065912919873729

Cox, Gary W. 2015. "Electoral Rules, Mobilization, and Turnout." *Annual Review of Political Science* 18: 49–68. https://doi.org/10.1146/annurev-polisci-060414-035915

Cuyahoga County Elections. n.d. "Cuyahoga Public Records Request." Accessed August 5, 2024. https://boe.cuyahogacounty.gov/about-us/public-records-policy

Davidson, Chandler, and Bernard Grofman. 1994. *Quiet Revolution in the South: The Impact of the Voting Rights Act, 1965-1990*. Princeton University Press.

DeSilver, Drew. 2020. "Most Mail and Provisional Ballots Got Counted in Past U.S. Elections – but Many Did Not." *Pew Research Center* (blog). November 10. Accessed July 16, 2024. https://www.pewresearch.org/short-reads/2020/11/10/most-mail-and-provisional-ballots-got-counted-in-past-u-s-elections-but-many-did-not/

EAC (US Election Assistance Commission). 2017. "The Election Administration and Voting Survey, 2016 Comprehensive Report." https://www.eac.gov/sites/default/files/eac_assets/1/6/2016_EAVS_Comprehensive_Report.pdf

EAC (US Election Assistance Commission). 2021. "Election Administration and Voting Survey 2020 Comprehensive Report." https://www.eac.gov/sites/default/files/document_library/files/2020_EAVS_Report_Final_508c.pdf

Eggers, Andrew C., Haritz Garro, and Justin Grimmer. 2021. "No Evidence for Systematic Voter Fraud: A Guide to Statistical Claims about the 2020 Election." *Proceedings of the National Academy of Sciences* 118 (45): e2103619118. https://doi.org/10.1073/pnas.2103619118

Fraga, Bernard L. 2016. "Redistricting and the Causal Impact of Race on Voter Turnout." *The Journal of Politics* 78(1): 19–34. https://doi.org/10.1086/683601

Fraga, Bernard L. 2018. *The Turnout Gap: Race, Ethnicity, and Political Inequality in a Diversifying America*. Cambridge University Press.

Fraga, Bernard L., and Michael G. Miller. 2022. "Who Do Voter ID Laws Keep from Voting?" *The Journal of Politics* 84(2): 1091–1105. https://doi.org/10.1086/716282

Frontline (PBS), December 28, 2020. "Fewer Rejected Ballots Seemed to Be a Win for Voter Access. Trump and Others Disagree." https://www.pbs.org/wgbh/frontline/article/fewer-rejected-ballots-seemed-to-be-a-win-for-voter-access-trump-and-others-disagree/

Graham, David A. 2016. "Trump's 'Voter Suppression Operation' Targets Black Voters." *The Atlantic* (blog). October 27. Accessed July 15, 2024. https://www.theatlantic.com/politics/archive/2016/10/trumps-black-voter-dilemma/505586/

Igielnik, Ruth, Scott Keeter, Courtney Kennedy, and Bradley Spahn. 2018. "Commercial Voter Files and the Study of U.S. Politics." *Pew Research Center* (blog). February 15. Accessed July 17, 2024. https://www.pewresearch.org/methods/2018/02/15/commercial-voter-files-and-the-study-of-u-s-politics/

Latner, Michael S. 2022. "How the Science Community Can Secure Our Democracy." The Equation. July 1. Accessed July 15, 2024. https://blog.ucsusa.org/michael-latner/how-the-science-community-can-secure-our-democracy/

Lorain County Board of Elections. n.d. "Lorain County Board of Elections." Lorain-Co-Elections. Accessed August 5, 2024. https://www.voteloraincountyohio.gov

McDonald, Michael. 2022. "Requested Mail Ballots Are Not Always Returned or Accepted." Substack newsletter. *Michael's Newsletter* (blog). October 9. Accessed July 16, 2024. https://michaelmcdonald.substack.com/p/requested-mail-ballots-are-not-always

McDonald, Michael P., Juliana K. Mucci, Enrijeta Shino, and Daniel A. Smith. 2024. "Mail Voting and Voter Turnout." Election Law Journal: Rules, Politics, and Policy 23(1). https://doi.org/10.1089/elj.2022.0078

Merivaki, Thessalia, and Daniel A. Smith. 2020. "Challenges in Voter Registration." In *The Future of Election Administration*, edited by Mitchell Brown, Kathleen Hale, and Bridgett A. King, 59–82. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-14947-5_5

Morris, Kevin, and Coryn Grange. 2024. "Growing Racial Disparities in Voter Turnout, 2008–2022 | Brennan Center for Justice." May 17. https://www.brennancenter.org/our-work/research-reports/growing-racial-disparities-voter-turnout-2008-2022

Morris, Kevin, and Myrna Pérez. 2018. "Purges: A Growing Threat to the Right to Vote." *Brennan Center for Justice.* https://www.brennancenter.org/our-work/research-reports/purges-growing-threat-right-vote

National League of Cities. 2022. "Data Gaps in National Voter Registration and Voter Participation Reporting." National League of Cities. January 25. https://www.nlc.org/resource/data-gaps-in-national-voter-registration-and-voter-participation-reporting/

Persily, Nathaniel, and Charles Stewart III. 2021. "The Miracle and Tragedy of the 2020 U.S. Election" Journal of Democracy. https://www.journalofdemocracy.org/articles/the-miracle-and-tragedy-of-the-2020-u-s-election/

RDH (Redistricting Data Hub). n.d. Redistricting Data Hub. Accessed August 5, 2024. https://redistrictingdatahub.org/

Rolfe, Meredith. 2012. *Voter Turnout: A Social Theory of Political Participation*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139058513

Schattschneider, Elmer E., and David Adamany. 1975. *The Semisovereign People: A Realist's View of Democracy in America*. Revised edition. Hinsdale, Ill: Cengage Learning.

Schlozman, Kay Lehman, Henry E. Brady, and Sidney Verba. 2018. *Unequal and Unrepresented: Political Inequality and the People's Voice in the New Gilded Age*. Princeton University Press.

Schraufnagel, Scot, Michael J. Pomante II, and Quan Li. 2020. "Cost of Voting in the American States: 2020." *Election Law Journal: Rules, Politics, and Policy* 19(4): 503–9. https://doi.org/10.1089/elj.2020.0666

Shino, Enrijeta, Mara Suttmann-Lea, and Daniel A. Smith. 2022. "Determinants of Rejected Mail Ballots in Georgia's 2018 General Election." *Political Research Quarterly* 75(1): 231–43. https://doi.org/10.1177/1065912921993537

Stewart III, Charles. 2020. "The Elections Performance Index: Past, Present, and Future." In *The Future of Election Administration*, edited by Mitchell Brown, Kathleen Hale, and Bridgett A. King, 119–53. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-14947-5_8

Stewart III, Charles. 2018. "Is the EAVS a Reliable Guide to Voter List Maintenance?" MIT Political Science Department Research Paper No. 2018-20. https://doi.org/10.2139/ssrn.3238927

Street, Alex. 2024 "Errors and Calibration in Mail Ballot Signature Rejections." *American Politics Research.* https://doi.org/10.1177/1532673X241254383

Verba, Sidney, Kay Lehman Schlozman, and Henry Brady. 1995. *Voice and Equality: Civic Voluntarism in American Politics*. Harvard University Press.

VEST (Voting and Election Science Team). 2020. "2020 Precinct-Level Election Results." Harvard Dataverse, V43. https://doi.org/10.7910/DVN/K7760H

Willis, Derek, Thessalia Merivaki, and Ioannis Ziogas. 2022. "Election Data Transparency: Obtaining Precinct-Level Election Returns." *Public Integrity* 24(2): 162–78. https://doi.org/10.1080/10999922.2021.1883854

https://doi.org/10.47923/2024.*15576*