Race, Gender, and Juries: Evidence from North Carolina*

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Abstract

This paper uses data from felony jury trials in North Carolina to show that (i) the race and gender composition of the randomly selected jury pool has a significant effect on the probability of conviction, (ii) attorneys adjust peremptory challenge strategies in accordance, and (iii) State peremptory challenges have a significant positive impact on the conviction rate when the defendant is a black male. Jury pools with higher proportions white men are more likely to convict black male defendants relative to white male defendants. Jury pools with a higher proportion of black men are more likely to acquit all defendants, especially black men. Attorneys use peremptory challenges strategically in accordance with these results, which are robust to a wide set of controls, including county and judge fixed effects. Each State peremptory challenge is correlated with a 2.4%-2.8% increase in the conviction rate when the defendant is black.

JEL classification: K40, K14

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1 Introduction

The Sixth Amendment of the United States Constitution establishes a criminal defendant's right to a trial by an impartial jury, drawn from the local population. Criminal courts at all levels and jurisdictions have developed similar procedures to guarantee this right, including the use of peremptory challenges, which are vetoes that attorneys may use, without explanation, to "strike" prospective jurors. The only federal limits on the use of peremptory challenges are that they cannot be used to strike a prospective juror based on race or gender.[1]

The history of peremptory challenges is long, as is the controversy over their roll in the criminal justice system. Advocates assert that peremptory challenges are "almost essential for the purpose of securing perfect fairness and impartiality in a trial,"[2] while critics claim that they are used to discriminate against protected classes, and that eliminating this discrimination "can be accomplished only by eliminating peremptory challenges entirely."[3] Using data from felony jury trials in North Carolina, the goal of the present paper is to examine the validity of these opposing views, first by asking if there is evidence of discrimination, and then by asking if this would have any effect on the outcomes of trials. The answer, to both, is yes.

By exploiting the random variation in the composition of the jury pool, rather than the non-random variation in the seated jury, it is possible to show the causal impact of the demographic composition of the jury pool on the probability of conviction, and then to compare these findings with attorney strike patterns.[4] Using this research design, this paper shows clear evidence that the race of a prospective juror is highly correlated with attorneys' peremptory strike patterns, and also that this is highly strategic: attorneys successfully target prospective jurors that are more likely to favor the opposing side.

Another contribution of the present paper is that it examines felony trials across a large number of jurisdictions, all in North Carolina, over a relatively short time period. Although this makes comparing the variation in jury pool composition more difficult, since different jurisdictions draw jurors from different populations, it also presents a clearer picture of the behavior of attorneys and courts across the umbrella jurisdiction of the State of North Carolina, which establishes, via the state's General Statutes, the uniform trial and jury selection procedure followed by each local jurisdiction. Most of the existing empirical literature on peremp-

[1] The prohibition against race was decided in the landmark case *Batson v. Kentucky* (1986), and was extended to gender in *J.E.B. v. Alabama* (1994).

[2] W. Forsyth, History of Trial by Jury 175 (1852), quoted by Chief Justice Burger in dissent, *Batson*.

[3] Justice Marshall in concurrence, *Batson*.

[4] This research design was first used by Anwar et al. (2012, 2014).

tory challenges either focuses on a single or a few jurisdictions (Noye (2015), Anwar et al. (2012, 2014), Diamond et al. (2009)), or exclusively examines capital punishment cases (Grosso and O'Brien (2012)), or both (Baldus et al. (2001)). Since jury trials are fairly rare events in the criminal justice system, all of these studies use data spanning several years to several decades, and they find mixed evidence in regards to the effect of peremptory challenges on jury composition and trial outcomes.[5]

The results of the present paper come from a unique data set of felony trials in North Carolina over a roughly two year span from 2010-2012.[6] During this time period there were over 1,200 jury trials in the state, with over 28,000 potential jurors. For this study I restrict the sample to include only non-capital trials that end in a verdict, have a single defendant who is male and either white or black, and have complete information about how prospective jurors were disposed. This leaves a sample of 737 trials, with just over 16,800 potential jurors.[7] To construct the data set the names of the potential jurors were matched with demographic information from the public voting registry, which includes the race, gender, age, address, and political affiliation of each voter. Although this unavoidably leads to some missing data points, this matching process benefits from the fact that the voting registry in a county is one of only two sources used to construct the master jury list.[8]

Despite any noise in the data, the pattern in attorney strikes is, indeed, striking: the ratio of black to white potential jurors in the data is 0.24, while the ratio of prosecutor strikes against black potential jurors to prosecutor strikes against white potential jurors is over double that, at 0.56; the analogous ratio for the defense is less than half of the population ratio, at 0.096. The peremptory challenge strategies also change depending on the race of the defendant: the prosecution is much less likely to strike a white male potential juror if the defendant is black relative to when the defendant is white, and this is reversed for the defense.[9]

[5]Other notable studies that use smaller samples include Rose (1999), which looks at 13 non-capital trials ion a single North Carolina county, and finds similar results to the present paper: black potential jurors are more likely to be challenged by the State, and white potential jurors are more likely to be challenged by the defense. Turner et al. (1986) looks at 121 pre-*Batson* trials in Calcasieu Parish, Louisiana (the trials are from 1976-1981), and also find that prosecutors are more likely to strike black potential jurors, while the defense is much less likely.

[6]Due to lags in scheduling and some randomness in identifying jury trials, there are a few trials that fall outside of this range in the data set, from 2009 and 2013. The results do not change in any meaningful way when they are dropped, and year fixed effects are controlled for when appropriate.

[7]See Table 1 and Section 3.1 for a review of the summary statistics. The majority of the unused data contains trials in which either the defendant is female, there are multiple defendants, or no verdict was reached, which can occur due to a plea or a mistrial. There is also one relatively large county, and a few individual trials, for which the courts failed to record the reason that jurors were excused.

[8]The other source is the list of licensed drivers in a county. The race of the potential juror is identified for just over 80% of the sample, and gender, using the juror's name as a proxy when gender cannot be identified by the voting registry, is identified in over 97% of the sample. Grosso and O'Brien (2012) also uses the North Carolina voting registry, among other sources, to match juror demographics in capital cases.

[9]All of the main results in the paper are robust to a broad set of controls that include the type of crime, and year, county, and

Thus there is strong evidence that attorneys on both sides of a trial use race and gender to decide which potential jurors to strike, and also that the two sides agree on which potential jurors are more likely to convict.[10]

In this vein, one argument in favor of peremptory challenges, even if there is discrimination, is that the opposing strategies of the attorneys will "cancel out," leaving a jury which is representative of the population from which it is drawn, but with biased jurors removed (Babcock (1974)). However, Flanagan (2015) provides a theoretical model which shows that opposing strategies may actually increase the probability of juries containing a higher proportion of jurors favoring one side of the trial. The data show that the "cancel out" argument is true in some respects, but not others: the overall racial composition of juries is remarkably close to the expected composition from a random selection of juries from the jury pool, but black men are underrepresented across all juries, and black women are overrepresented, especially when the defendant is a black man. It seems likely that attorneys are aware of appearing discriminatory, and therefore do not strike all potential jurors of a certain race, but opposing strategies still shift the gender distribution within the population of black jurors. The effect is that black male defendants are less likely to have a jury containing multiple black male jurors.

Thus black male defendants are less likely to be tried by a "jury of their peers," but if the composition of the jury has no effect on the outcome of a trial then this shift may be of little interest; this is not what the data show. An increase in the proportion of the jury pool that is black results in a decrease in the conviction rate for both black and white defendants, although the results are strongest and largest for black defendants. However, an increase in the proportion of white males in the jury pool results in a significant increase in the conviction rate for black defendants, and a neutral to negative affect for white defendants. When white men make up less than 22% of the jury pool, which corresponds to the first quartile of this statistic, the conviction rate for black defendants is 70% and for white defendants is 76%. When the percentage of white men in the jury pool is in the fourth quartile, above 39%, the conviction rate for black defendants increases to 82%, and for white defendants it falls to 71%.[11] Instrumental variable regressions using the demographic

judge fixed effects.

[10] Of the previous studies mentioned, Noye (2015), Diamond et al. (2009), Grosso and O'Brien (2012)), and Baldus et al. (2001) find similar strike patterns for the prosecution. Interestingly, Anwar et al. (2012, 2014) find no evidence of discriminatory strike patterns based on race or gender. Anwar et al. suggest that this may be because there is a very small population of black potential jurors in the counties examined, and that both sides of the trial want to avoid the appearance of discrimination.

[11] The difference in conviction rate between black defendants in the lower and upper quartile is significant at the 5% level. The difference for white defendants is not significant at the 10% level. These results are similar to the results of Anwar et al. (2012), which shows that the presence of just one black potential juror in the jury pool can have a large and significant impact on the probability of conviction relative to when there are no black potential jurors.

composition of the randomly selected jury pool as an instrument for the composition of the jury similarly show that juries comprised of more black men are more likely to acquit any defendant, especially black defendants, and juries comprised of more white men are more likely to convict black defendants.[12]

The evidence of prosecution and defense discrimination in strike patterns matches these results: attorneys appear to be using challenges to strike prospective jurors at least partially based on race and gender, but the data also show that these may be the optimal strategies.[13] The prosecution's challenges have a large and significant impact on the conviction rate when the defendant is black: regression results show that each State challenge is associated with a 2.4-2.8% increase in the conviction rate for black men; the raw data show that the conviction rate for black defendants rises from 62.5% when the State uses no peremptory challenges during jury selection to 78.3% when the State uses 5 or more challenges. Challenges by the defense when the defendant is black, or by either side when the defendant is white, do not show as much correlation with the conviction rate. This is possibly due to the strong relationship between the proportion of black males on the jury and the conviction rate for black defendants, and the fact that black males comprise a much smaller percentage of the overall jury pool than white males, 7.6% versus 34.8% respectively, therefore a peremptory challenge used to strike a black male potential juror means it is unlikely that a similar juror will replace him.

The remainder of the paper is organized as follows: Section 2 describes the jury selection procedure generally and specifically in North Carolina. Section 3 describes the data set. Section 4 contains results. Section 5 discusses some possible explanations for the large effect of State peremptory challenges on the conviction rate, and Section 6 concludes. All tables are in the Appendix.

[12] Other studies which examine the role of the racial composition of juries in trial verdicts include Sommers (2006), which shows experimental evidence that the presence of black jurors can significantly shift the attitudes of white jurors, especially if the defendant is black: more diverse juries exchange more information, are more likely and willing to discuss racism, and white jurors on diverse juries are more lenient toward black defendants even before any juror deliberation. Bowers et al. (2001) looks at the racial composition of juries and verdicts in death penalty cases, and Lee (2010) shows that after states adopt a more race-neutral way of constructing the master jury list the proportion of non-white prisoners falls. Daudistel et al. (1999) shows that the ethnic composition of the jury has little effect on the verdict, but significant effect on the sentence, in non-capital felony trials in El Paso, Texas, where there is a large population of Hispanic potential jurors. See Sommers and Marotta (2014), Sommers (2007), and Sommers and Ellsworth (2003) for reviews of the literature on the effect of race and jury decisions.

[13] It is possible that race is correlated, or at least is perceived to be correlated, with unobserved characteristics that are reasonable grounds for the use of peremptory challenge, such as views towards police or the criminal justice system generally. Devine and Caughlin (2014) and Farrell et al. (2013) find evidence supporting this claim. The unequal application of criminal justice in the United States, and North Carolina specifically, has been widely publicized in recent years (see for example Alexander (2012) and "The Disproportionate Risks of Driving while Black," *The New York Times*, October 25, 2015). However, as Section 2 discusses, there are competing rules for evaluating when a challenge based partially on race is unconstitutional; depending on the rule it is possible that even mixed-motive challenges that are based "mostly" on non-race or non-gender criteria are illegally discriminatory.

2 Jury Selection Procedure

2.1 Federal Standards and General Practice

Although there is no standard definition, an impartial jury is usually defined as a jury that satisfies the following two criteria: a jury must represent a "cross-section" of society,[14] and individual jurors must be unbiased. The cross-section criterion is satisfied by drawing prospective jurors randomly from public rolls, usually a combination of licensed drivers and registered voters in the relevant jurisdiction. Once prospective jurors are called, the court is then tasked with removing biased members of the jury pool. Typically there are two ways to do this. The first is removal for cause, in which the court decides a juror should be excused due to apparent bias or hardship. Removals for cause are unlimited in number, but by design are left to the discretion of the judge. The second channel is the peremptory challenge. These challenges are executed by the prosecution and the defense, they are limited in number, and no explanation is required for their use. Across the United States, in some jurisdictions the number of challenges is equal for the prosecution and the defense, and in others the defense is given more challenges. In general the number of challenges also weakly increases with the severity of the charge.[15]

As noted, the only federal restriction on the use of peremptory challenges is that they cannot be used to strike a potential juror based on race or gender.[16] Despite this, the courts have not determined a clear legal standard for what implies a constitutional violation. Currently there are three competing legal rules to determine whether a challenge unconstitutionally uses race as a motivation: (i) a per se standard, in which any influence of race constitutes a violation,[17] (ii) a standard in which there is a violation if a "substantial part" of the challenge is motivated by race,[18] and (iii) a "but-for" standard, in which there is a violation only if the challenge would not have been made if it were not for the juror's race.[19,20]

If either side believes that the opposing side has illegally used race or gender as a motivation for a strike it may object via a so-called "Batson challenge." The Batson challenge is described as a "three-prong"

[14] *Taylor v. Louisiana* (1975).

[15] Depending on the jurisdiction, the number of challenges allowed for a non-capital felony charge is typically 3-8 per side, while each side may receive more than 20 challenges in a capital case.

[16] In *SmithKline Beecham Corp. v. Abbott Laboratories* (2014), the Ninth Circuit ruled that this protection also extends to sexual orientation. However the Supreme Court has not yet heard such a case. States may also apply stricter rules to their own courts.

[17] *State v. Shuler*, South Carolina Supreme Court (2001).

[18] *Cook v. LaMarque*, Ninth Circuit (2010).

[19] *Howard v. Senkowski*, Second Circuit (1993).

[20] North Carolina does not fall in any of these jurisdictions, so North Carolina Superior Court judges are not bound by any one of these rulings.

test: first, the objecting side must make a prima facie claim of discrimination; next, if the court recognizes the claim, the opposing side must offer a race-neutral and gender-neutral explanation for the use of the peremptory challenge; finally, the judge must decide if there is a violation, based on the relevant legal test.

Successful Batson challenges are extremely rare both in North Carolina and nationally. The University of North Carolina School of Government, in its "Indigent Defense Manual Series," finds just two successful Batson challenges in North Carolina since the *Batson* decision, both in favor of State prosecutors objecting to the exclusion of white potential jurors. In *Foster v. Chapman* (2015) the Supreme Court ruled in favor of the defendant, Timothy Foster, in his claim that Georgia prosecutors excluded prospective jurors because they were black. During oral arguments Justice Elena Kagan mused "Isn't this as clear a Batson violation as this court is likely to see?" The fact that this case was heard at the highest judicial level is evidence of difficulty in successfully claiming a Batson violation.[21]

The next section explains the specifics of felony jury trials and jury selection in North Carolina.

2.2 Jury Selection in North Carolina

Prior to 2015, all felony cases in North Carolina in which a defendant plead "not-guilty" were heard by a twelve member jury, with unanimity required for conviction or acquittal, in Superior Court.[22] North Carolina is comprised of one hundred counties, and each county contains one Superior Court in the county seat.[23] Neighboring counties, and smaller parts of the larger counties, are then organized into fifty "districts," which correspond to the prosecutorial districts or strict subsets of the prosecutorial districts, and these are further collected into eight "divisions." Each Superior Court judge presides over one district, which may cover several counties or just part of a larger county, and every six months judges rotate districts within their division.[24]

Every two years the jury commission in each county creates a new master jury list by randomly drawing names from the lists of registered voters and licensed drivers in the county.[25] Jury panels are then created by

[21] See Sommers and Norton (2007) for a study showing the ease of offering race-neutral explanations even when race is a determining factor in a challenge.

[22] In 2014 North Carolina voters approved a constitutional amendment to allow criminal defendants not facing the death penalty to waive their right to a trial by jury in favor of a bench trial heard by a Superior Court judge. All of the trials in the present study occurred before this change was made.

[23] There are a small number of counties in which the Superior Court occasionally meets in cities besides the county seat. For example, the Guilford County court meets in Greensboro, the county seat, and High Point, due to a law requiring the Superior Court to meet regularly in any city that had a population of at least 35,000 in 1960 (High Point was the only non-county seat in the state to satisfy that criterion in 1960).

[24] North Carolina General Statues §7.

[25] NC General Statutes § 9-2.

randomly drawing names from the master list. Once the jury panel has been called to court, there is a further random selection from the panel to fill the twelve seat jury box, plus any alternates.[26] In non-capital trials, both the defendant and the State are allowed six peremptory challenges, plus one for each alternate juror. During jury selection (voir dire) the prosecution questions the potential jurors in the box first, and requests any challenges for cause and then makes any peremptory challenges. At this stage, if a juror is removed a new juror is randomly selected from the panel and immediately replaces the old one. When the prosecutor is satisfied with the sitting jury, or has run out of peremptory challenges, the defense may question the jury. If the defense removes anyone via peremptory challenge, or successfully challenges for cause, then the seat of the removed juror remains empty until the defense is satisfied with the remaining jurors. Once this occurs, the empty seats are filled randomly from the panel, and the process repeats with the replacement jurors. After this only replacement jurors can be questioned and challenged. This procedure is repeated until all parties have accepted twelve jurors, and possibly any alternates, or all challenges have been exhausted.[27]

3 Data

The data consist of felony trials in North Carolina from a roughly two year period ranging from 2010-2012.[28] The full data set has 1,256 trials, with 28,548 prospective jurors. However all of the main results of the present paper limit the sample to non-capital trials in which there is a single defendant who is male and either white or black, and for which there is complete information about challenges used. This leaves 737 trials, with 16, 834 prospective jurors across 66 counties.[29]

A team of researchers, denoted the North Carolina Jury Sunshine Project (NCJSP), gathered this data in the years immediately following the trials. First, the NCJSP identified the set of jury trials during this time period.[30] With this list, researchers were sent to each of the counties which had jury trials to access the physical case files of each trial. Each case file contains the list of the potential jurors who were called

[26] NC General Statutes § 15A-1214, 1217. The use of one or more alternates is left to the discretion of the judge. Typically there is one alternate juror, but sometimes zero or two. The average jury size in the data, including alternates, is 12.9.

[27] NC General Statutes § 15A-1214, 1217.

[28] There are ten trials in the data set from either 2009 or 2013, due to various delays in the court system and lags between jury selection and the conclusion of trials.

[29] As mentioned, the removed part of the sample consists mostly of trials in which either the defendant is female, there are multiple defendants, or no verdict was reached, as well as one relatively large county for which the courts failed to record the reason that jurors were excused.

[30] North Carolina does not label jury trials in a searchable way for the public. This list was created with the help of state workers with access to court records software, as well as by identifying potential jury trials based on case characteristics that were known to correlate with jury trials. Therefore it is possible that this is not an exhaustive list, but there is also no reason to believe that there are a significant number of missing trials or any serious bias in which trials were identified.

to the jury box, and denotes whether a juror was challenged for cause or struck by the State or the defense. The case file also contains the names of the judge who presided over the case, the names of the State and defense attorneys, the list of charges, the verdict, the sentence, and the defendant's name, date of birth, race, and gender, among other information. The case file does not however contain any demographic information on prospective jurors.

To collect demographic information on prospective jurors the NCJSP used the public voting registry to match the names of prospective jurors with registered voters. The North Carolina Board of Elections provides public voting registries that list the name, age, address, political affiliation, gender, and race of registered voters by county. Political affiliation categories are: Democrat, Republican, Libertarian, Unaffiliated, or Unknown; race categories are: Black, White, Other, Native American/Indigenous, Hispanic, Asian, or Unknown; gender categories are: Female, Male, or Unknown. All of these data are self-reported. By matching names within counties the NCJSP was able to identify the race of roughly 80% of the prospective jurors. Each demographic datum is recorded as a known value if there is a unique match between the juror's name and the voting registry, or if all names on the voting registry which matched the prospective juror have the same value for the given category.[31] The gender category was further completed using the name of the prospective juror as a proxy. Using the "gender" package for R (Mullen (2015)),[32] for each potential juror whose gender cannot be determined using the voting registry, the gender is recorded if there is at least a 95% chance that someone with a given name born between 1940 and 1994 has that gender. So, for example, "Michael Smith" is labeled "Male," while "Leslie Smith" is labeled "Unknown." The gender of prospective jurors is identified for over 97% of the sample. This matching process clearly creates some noise in the data. However, since both the jury and the voting information are recorded at the county level, there is reason to believe that errors are more highly correlated within counties than across counties. Because of this all regression results report standard errors clustered at the county level. As expected, these standard errors tend to be slightly larger but consistent with OLS standard errors and less general heteroskedasticity-robust standard errors. However, due to the possibility of over-rejection when clusters are unbalanced (see Cameron et al. (2008), Carter et al. (2015), Cameron and Miller (2015)), as a robustness check I also report p-values derived from a wild cluster bootstrap (Wu (1986)) with Rademacher weights and 100,000 replications. Cameron and Miller (2015) and MacKinnon and Webb (2016) show that the wild bootstrap performs

[31] So, for example, if there are two Michael Smiths registered to vote in a county, and both are white, then "White" is recorded as the race of the juror. If, however, one is white and one is black, the race is recorded as "Unknown."

[32] See Blevins and Mullen (2015) for an explanation and examples of the package.

well even when clusters are few or unbalanced.

3.1 Summary Statistics

Table 1 contains the summary statistics for the trials studied, as well as the summary statistics for black defendants and white defendants separately. From the full sample of 737 trials with black male or white male defendants, 475 (64.5%) have black defendants. Since these data come from across the state there are some noticeable differences in the case and jury characteristics based on the race of the defendant. White defendants, on average, face a jury pool which is comprised of a higher percentage of white men relative to a black defendant, 34.5% versus 28% respectively, and a lower percentage of black potential jurors, 10.6% versus 19% respectively. White defendants are also more likely to be charged in counties which are rural and have an older population, which leads to the jury pool for white defendants on average containing more prospective jurors over the age of fifty relative to when the defendant is black, 36.1% and 32.6% of the pool respectively.

Something else to note is the difference between the proportion of the jury pool that is either white male or black male, and the analogous proportion of the sitting jury. The average jury pool for a black defendant is 7.6% black male, but the average jury is only 7.3% black male. The corresponding percentages for white men in the pool and white men seated for a black defendant are 28% and 27.9%.

There are 66 counties in the sample, but some counties only contain defendants of one race. Therefore the number of counties with any black defendants, 51, and any white defendants, 56, are not equal. Counties are also unbalanced in the number of trials. The largest county, Mecklenburg, which contains Charlotte, accounts for 17% of the sample; the next largest, Guilford County, is just 5.5% of the sample. However dropping Mecklenburg from regression results does not significantly change any of the results, and, as mentioned, all relevant regression results also report a p-value derived from a wild bootstrap on the coefficients of interest.[33] After removing Mecklenburg, the remaining counties average 9.4 trials and 242 prospective jurors each.

Besides differences in the jury pool, there are also some significant differences in the distribution of charges for white and black defendants. Following Anwar et al. (2012, 2014) charges are sorted into one of

[33] MacKinnon and Webb (2016), Cameron and Miller (2015), and others show that with unbalanced clusters there is a tendency for cluster-robust standard errors to over-reject the null hypothesis. This is a concern in the regressions looking at the effect of jury characteristics on probability of conviction, since some counties have few observations. As expected, the reported bootstrap p-values tend show slightly less statistical significance than the regression t-statistics, but for the most part are fairly consistent.

eight categories: murder, robbery, other violent crimes, property crimes, drug crimes, sex crimes, weapons crimes, and other crimes. Although black defendants and white defendants have similar levels of being charged with murder and property crimes, black defendants are more likely to have a drug crime charge, 24.2% versus 12.%, and less likely to have a sex crime charge, 7.2% versus 14.5%. These findings are similar to those in Anwar et al. (2012, 2014).

3.2 Research Design

To identify the effect of race and gender on trial outcomes I use a research design based on Anwar et al. (2012, 2014). In both of these papers the authors use the random variation of the jury pool to identify the effect of various jury pool demographics on the verdict. However, while Anwar et al. (2012, 2014) use data spanning several years across two counties in Florida, I use data spanning roughly two years over sixty-six relevant counties in North Carolina. This makes it more difficult to exploit the day-to-day random variation in jury selection, since each county has its own master jury list, and the number of observations for each county is relatively small. Similarly, due to the structure of the Superior Court system, judges do not hear trials across a large number of counties. To account for this, all regression results in the present paper include controls for county and judge fixed effects.

Despite this limitation, once county fixed effects are controlled for, each jury pool appears to be randomly selected. Table 2 shows results of regressing certain jury pool characteristics against observable case and defendant characteristics. If the jury pool is randomly selected then there should be low correlation between these characteristics. Each regression controls for county and year fixed effects, and all results are clustered at the county level. p-values are derived from a wild bootstrap jointly testing whether the case and defendant characteristic coefficients are all zero. The low and insignificant values of the coefficients and the high p-values for the joint tests suggest that, after controlling for county fixed effects, jury pools are indeed drawn randomly from the population.

4 Results

4.1 Challenge Pattern and Discrimination

The first question I examine is whether either side of a felony trial, the State prosecutors or the defense, systematically uses challenges to strike potential jurors based on observable characteristics. Of particular

interest is whether prospective jurors of a certain race or gender are targeted, since these are the protected classes established by *Batson v. Kentucky* and *J.E.B v. Alabama*. Tables 3 and 4 show the strike patterns by race and gender in regression form. From Table 3 it is clear that the State is much more likely to strike a potential juror who is black relative to one who is white, and that this discrepancy is multiplied when the defendant is black relative to when the defendant is white. Column (2) shows that when the defendant is white a black prospective juror is about 3.7% more likely to be challenged by the State than seated on the jury, and 14% more likely when the defendant is black; the defense has nearly the exact opposite strategy in both sign and magnitude, with analogous probabilities 3.7% and 12.6% *less* likely.

Table 4 shows that this same pattern is present when looking specifically at black male prospective jurors: a black male juror is much more likely to be struck by the State than to be kept on the jury, and this is amplified when the defendant is black relative to when he is white; the opposite is true for strikes by the defense. However, white male prospective jurors are just as likely to be kept on the jury as they are to be peremptorily challenged by either side when the defendant is white, but 6.6% less likely to be struck by the State than seated when the defendant is black, and 8.2% more likely to be struck by the defense than seated when the defendant is black.[34]

These results are unambiguous, and they are a significant contribution to our understanding of the role of race in jury selection: Anwar et al. (2012, 2014), looking at two counties in Florida with small populations of black potential jurors during the 2000s, do not find evidence of racial or gender discrimination in jury selection. However, both Baldus et al. (2001) and Grosso and O'Brien (2012) find evidence of racial discrimination in death penalty trials in Philadelphia and North Carolina, respectively. Noye (2015) shows evidence of similar discrimination in felony trials in a single Louisiana parish, and Stevenson (2010), a report created by The Equal Justice Initiative, a non-profit organization which provides legal representation to indigent defendants, contains empirical and anecdotal evidence of racial discrimination in jury selection in certain counties across the southern United States.[35] Together these studies suggest that racial discrimination in jury selection was prevalent before *Batson* and may remain prevalent today. However it is unclear how the history, culture, population, and institutions of various jurisdictions affect this.[36]

[34] Section 4.2 shows that the change in strike pattern due to the race of the defendant exactly follows the correlation between jury composition and verdicts: juries with a higher proportion of black men are more likely to acquit any defendant, especially black defendants, and juries with a higher proportion of white men are more likely to convict a black defendant.

[35] North Carolina is not one of the states examined in Stevenson (2010).

[36] For example, Alesina and La Ferrara (2014) find evidence of discrimination in death penalty sentences in the form of different reversal rates for defendants of different races. However, this disparity is only for minority defendants with white victims, and only in Southern states.

Given that it is apparent that the State and the defense use opposing strategies, the next question is whether or not these challenges actually affect the composition of the jury. There is a common argument that opposing challenge strategies should "cancel out," leaving a relatively unbiased, yet representative jury. Flanagan (2015) shows that it possible that opposing strategies could actually increase the probability of juries which are composed of more extreme jurors in favor of one side or the other. At first glance the data seem to support the "cancel out" theory: the distribution of juries with x number of black or white potential jurors, x ranging from 0 to 13, is not significantly different than the expected distribution if juries were randomly selected after removals for cause. For example, the expected number of juries with zero black potential jurors is 174, and the actual number is 173, while there are about 7 fewer juries with just one black juror than expected (162 versus 169.5). However, looking at the distribution of black male jurors and black female jurors shows a different picture. Figure 1 shows the difference between the actual number of juries and the expected number of juries with x number of black jurors, broken down by gender. So, for example, the figure shows that there are roughly 8 fewer juries with zero black men than expected, but 1 more with zero black women.[37] Figure 2 shows the same distribution measured by the difference in jurors, rather than juries. In isolation any one of these differences is not significant, but a view of the full distribution shows a clear shift of juries with zero or multiple black male jurors towards juries with just one black male juror, and the opposite for juries with black female jurors. A simulation of 10,000 random selections of each of the 737 juries, drawn after removing jurors who were excused for cause, results in a distribution of black male jurors at least as extreme as the actual distribution just 0.48% of the time, and zero of the 10,000 simulations contained a result as extreme as the actual data for both black male and black female jurors.[38] Therefore, although the total number of black potential jurors is close to and even slightly above the expected number, there are fewer black men than expected on juries, and significantly fewer juries with multiple black men when the defendant is black.

Although any discrimination in peremptory challenge use based on race or gender may be unconstitutional, the following section shows that it is also highly strategic.

[37] These expectations are taken after jurors are removed for cause, thus any difference in the actual and expected distributions is attributable to peremptory challenges.

[38] The actual number of juries with with zero, one, and two black male members is 354, 251, and 89, respectively. Just 48 of the 10,000 simulations had fewer than 355 juries with zero black male members, more than 250 juries with one black male member, and fewer than 90 juries with two black male members. Zero of those 48 also had a distribution similar to the actual distribution of juries with zero, one, or two black female jurors.

4.2 Jury Composition and Verdicts

The final question then is whether the observable jury pool demographics or peremptory challenge strategies have any effect on the verdict. Tables 5 and 6 show OLS results regressing an indicator for any guilty conviction[39] against various jury pool characteristics. Specifically, in Table 5, Columns (1) and (2) show that the proportion of white men in the jury pool does not have a significant impact on the probability of conviction in the overall sample. However, Columns (3) and (4) show that an increase in the proportion of white men in the jury pool has a significant and large effect on the conviction rate for black defendants: the coefficient in Column (4) suggests that increasing the jury pool by one white male, which corresponds to approximately a $1/23.3 \approx .042$ increase in the proportion of white men, increases the conviction rate by $4.2 \times .533 \approx 2.2\%$. When the defendant is white, Columns (5) and (6), there does not appear to be a significant impact of the proportion of white men in the jury pool on the conviction rate, however this may be partially due to the smaller sample size. All regressions in this section include controls for the type of charge (any murder, robbery, violent crime, property crime, drug crime, sex crime, weapons crime, or other crime), total charges, the defendant's race (when relevant), an indicator for whether the defendant is older than 33, the proportion of the jury pool that is over 50 years old, and county, judge, and year fixed effects.

Table 6 shows that jury pools with higher percentages of black males are less likely to convict black defendants. Specifically, Column (4) in Table 6 implies that increasing the jury pool by one black male member decreases the conviction rate for black defendants by 3.8%. But, interestingly, Columns (1) and (2) show that increasing the proportion of black males in the jury pool decreases the conviction rate for both black and white defendants, although the results are not significant when isolating the white defendants (Columns (5) and (6)).

These results correspond exactly with the observed strike patterns seen in Tables 3 and 4 and discussed in the previous section. Remarkably, Column (4) in Table 5 and Column (4) in Table 6 both show a significant positive correlation between State peremptory challenges and the conviction rate for black defendants. Together they suggest that each State challenge is associated with a 2.2%-2.8% increase in the conviction rate for black defendants. There does not appear to be a similar relationship for white defendants or challenges by the defense. Table 7 shows the raw data relationship between the number of State and defense

[39] All of the results relating to the verdict equate any guilty conviction as a guilty verdict. Since many defendants are charged with multiple felonies, mixed verdicts are possible, but the distinction between any guilty conviction and full acquittal is the cleanest, least-subjective way of defining the conviction rate.

challenges and the conviction rate by the race of the defendant. As the regression results suggests, there is a clear relationship between the number of State challenges and the conviction rate for black defendants. The conviction rate increases steadily from below 65% when there are zero or one State challenges, up to around 80% when there are four or more challenges. Although the conviction rate tends to rise with the total number of challenges for the other categories as well, none show such a consistent pattern. As mentioned, in every trial in the sample the State and the defense each receive six peremptory challenges, plus one for each alternate juror. Thus, although the number of challenges used is not random, these results suggest some relationship between the conviction rate for black male defendants and State challenges. The following section proposes some explanations for these results.

Lastly, to examine the effect of that the composition of the actual seated jury has on the conviction rate, Tables 9 and 10 show IV analysis of this effect using the composition of the jury pool as an instrument.[40] The IV results generally mirror the OLS results: the proportion of the jury that is white male appears to have a significant positive impact on the conviction rate for black defendants, and a neutral to negative effect for white defendants. Column (4) in Table 9 suggests that an increasing the jury by one white male member would increase the conviction rate for a black defendant by $(1/12.9) \times 49.4 \approx 3.8\%$. Meanwhile, Column (4) in Table 10 suggests that increasing the jury by one black male member would decrease the probability of conviction of a black defendant by approximately 7.3%. What is particularity interesting in this analysis is the relationship between the OLS results and the IV results in the two tables. The OLS and IV coefficients of the proportion of the seated jury that is white male in Table 9 are relatively close in magnitude compared to the coefficients of the proportion of the seated jury that is black male in Table 10. The discrepancy between the OLS and the IV results for the proportion of black males seated is likely due to the fact that black men are seated on the jury below the expected rate based on their proportions in the jury pool, thus the OLS results underestimate the effect of increasing the proportion of black males on the jury. White males however are seated on the jury closer to their population proportions, thus the consistency across the OLS and IV results.

[40]These results require the additional assumption that the proportion of the jury pool that is either white or black affects the conviction rate only through the affect on the proportion of the seated jury that is white or black. Table 8 shows strong first stage correlations for each instrument.

5 Discussion of the Effect of Peremptory Challenges on the Conviction Rate

One of the most remarkable results of this analysis is the consistent and large effect that State peremptory challenges have on the conviction rate of black defendants. Given the adversarial nature of the trial system, and the possibly high variability in the individual ability of attorneys,[41] it is not immediately obvious how peremptory challenges should affect the probability of conviction. For example, under the "cancel out" theory we may expect no significant relationship between the number of challenges used and the probability of conviction. An alternative argument is that attorneys put more effort into optimally using peremptory challenges when the expected punishment is higher. If this is true then the number of peremptory challenges used by either side might be positively correlated with the conviction rate regardless of their actual effect on the verdict. The correlation coefficient between State strikes and defense strikes is 0.319. The fact that it is positive might support the "cancel out" theory or the effort theory. However the relationship is not remarkably strong. In support of the effort theory, regressions of the number of State or defense challenges on the type of crime show that the only crime with a significant difference in the number of State challenges is murder charges, and for defense challenges are murder and robbery charges. The State uses on average 1.3 more challenges for murder cases than other cases, and the defense uses on average 1.2 more challenges for murder cases and 0.6 more challenges for robbery cases, relative to the average case. Alternatively, it is possible that an increase in the number of challenges used implies that the jury pool is skewed towards favoring the opposing side, and thus even after challenges the resulting jury would be skewed also.[42] Or, perhaps attorneys have limited ability to determine which jurors are less favorable to their arguments, and peremptory challenges do nothing to affect the outcome of a trial. All of these ideas may help explain the apparent mixed effect of peremptory challenges by either side when the defendant is white, and by the defense when the defendant is black.

These explanations may also be true for State challenges when the defendant is black, but the data present a simple story for the large positive effect of State challenges in this scenario: black men represent a significantly smaller proportion of the jury pool than white men.[43] When the State challenges a black male potential juror when the defendant is black, a black male replaces that juror just 7% of the time, and

[41] See Zeisel and Diamond (1978) for a study on the ability of attorneys to optimally use challenges.

[42] This explanation is offered by both Anwar et al. (2012) and Flanagan (2015).

[43] This is exacerbated by the fact that black men appear to be underrepresented in the population of registered voters, which consistent with the results of Fukurai et al. (1991) and Sommers (2008).

a white male replaces that juror 26% of the time. Similarly, when the defense challenges a white male prospective juror, a black male replaces that juror 5.6% of the time, and a white male replaces the juror 29% of the time. If the dominant strategies when the defendant is black is for the State to challenge black male prospective jurors, and for the defense to challenge white male prospective jurors, then Flanagan (2015) shows that this would likely increase the probability of juries with very few black male prospective jurors, but also increase the probability of juries with several black male prospective jurors; however, since the latter probability is so low given the low population of black male prospective jurors, the overall effect is to decrease the number of juries with multiple black male jurors. As mentioned in Section 4.1, both the difference in the actual and expected distribution of black male jurors (represented in Figures 1 and 2), as well as a simulation of randomly selected juries, show that black men are significantly underrepresented on juries, especially when the defendant is black. Also as mentioned, IV results in Table 10 show a significant negative impact on the conviction rate of black defendants for each extra black male juror seated. Therefore a possible explanation for the large effect of State challenges on the conviction rate for black defendants is that the State is successfully limiting the number of black men seated on juries.

6 Conclusion

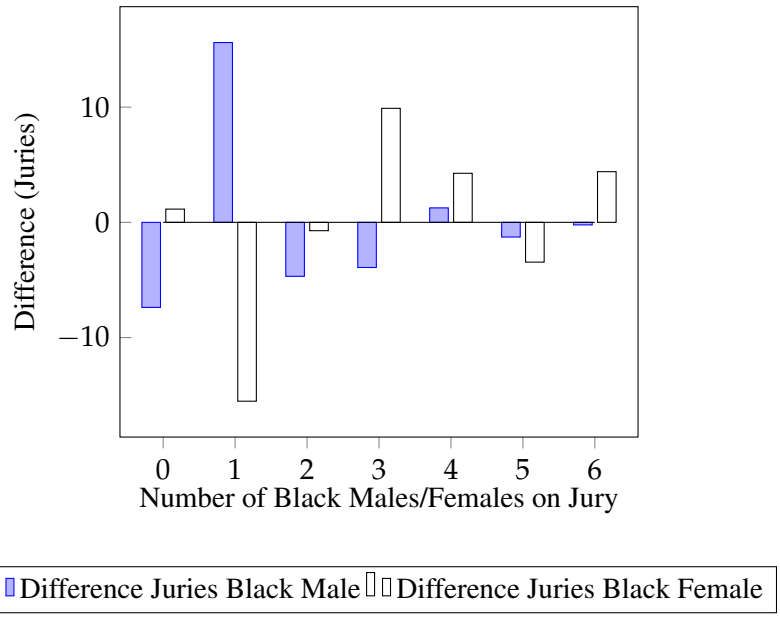
The present study leads to several conclusions about jury selection and the criminal justice system: (1) despite the *Batson* and *J.E.B.* rulings, both State prosecutors and defense attorneys may be discriminating against potential jurors based on race and gender; (2) attorneys broadly agree on which jurors are more likely to convict, and this changes depending on the race of the defendant; (3) the attorneys' strategies agree with the empirical results which show how race and gender composition of the jury pool and sitting jury affect the conviction rate, and (4) because of the demographics of the North Carolina jury pool, when the defendant is black, challenges by State prosecutors have an especially large positive impact on the conviction rate. Together these results show that the application of criminal justice can be highly volatile.

These results support Justice Marshall's claim that the elimination of discrimination in jury selection will only occur with the elimination of peremptory challenges. However, although eliminating peremptory challenges would reduce the ability of either side of the trial to discriminate based on race or gender, the data suggest that there would still be high volatility in conviction rates depending on the random selection of the sitting jury. Another solution, proposed by Flanagan (2015), would be to construct a panel of full

juries drawn randomly from the pool of jurors and to allow attorneys to strike a limited number of these.[44] Regardless of future policy, this study shows that it is important to reexamine the roles of race, gender, and peremptory challenges in the jury system.

7 Appendix: Tables and Figures

Figure 1: Difference in Actual and Expected Number of Juries with Black Male/Female Jurors



[44] For example, voir dire could consist of an initial round to construct a pool of 20 jurors who survive challenges for cause. From this pool several juries of 12 or 13 members could be randomly drawn, and then attorneys could use peremptory challenges to strike all but one of these full juries. For a pool of 20 prospective jurors there are 125,970 possible 12 member juries. However, randomly selecting just a few of these would cause the expected jury to be the "median" jury if attorneys are given an equal number of challenges. Flanagan (2015) shows that even in expectation the jury can be skewed away from the median under the current challenge system.

Figure 2: Difference in Actual and Expected Number of Black Male/Female Jurors

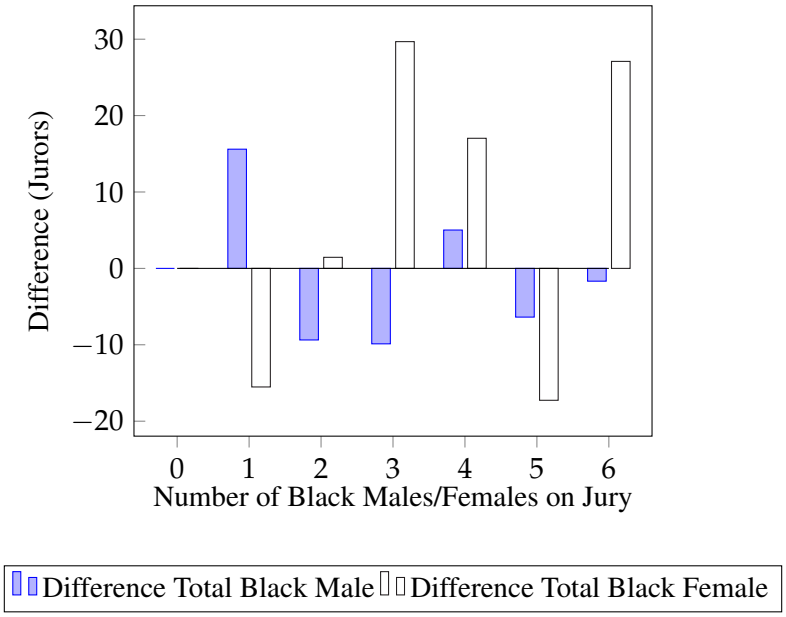


Table 1: Summary Statistics

			Def. Black		Def. White	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Jury Characteristics						
Total jury pool	22.85	6.28	23.34	6.57	21.97	5.59
Total jury pool after removal for cause	19.59	3.18	19.90	3.14	19.03	3.16
Kept	12.90	0.599	12.93	0.555	12.84	0.668
State strikes	2.80	1.72	2.92	1.759	2.60	1.62
Defense strikes	3.89	1.99	4.06	1.98	3.59	1.98
Excused for cause	3.07	4.31	3.26	4.74	2.71	3.40
Prop. pool black	0.160	0.130	0.190	0.128	0.106	0.114
Prop. pool white male	0.303	0.123	0.280	0.115	0.345	0.125
Prop. pool black male	0.064	0.065	0.076	0.664	0.043	0.0563
Prop. pool race unknown	0.193	0.107	0.201	0.109	0.179	0.102
Prop. pool male	0.457	0.110	0.455	0.111	0.461	0.109
Prop. pool gender unknown	0.020	0.032	0.022	0.034	0.017	0.030
Prop. pool democrat	0.308	0.142	0.325	0.143	0.278	0.136
Prop. pool over 50	0.338	0.128	0.326	0.127	0.361	0.127
Prop. pool under 50	0.339	0.124	0.350	0.126	0.320	0.118
Prop. pool age unknown	0.323	0.132	0.325	0.134	0.319	0.128
Prop. Pool ZIP income above co. med.	0.382	0.150	0.379	0.143	0.388	0.161
Prop. jury black	0.161	0.148	0.193	0.152	0.104	0.122
Prop. jury white male	0.304	0.148	0.279	0.115	0.349	0.146
Prop. jury black male	0.061	0.075	0.073	0.664	0.040	0.066
Defendant Characteristics						
Defendant Black	0.645	0.479				
Defendant Age	35.44	11.75	34.34	11.21	37.43	12.47
Trial Characteristics						
Judge Black	0.159	0.366	0.181	0.385	0.118	0.324
Judge Male	0.902	0.297	0.897	0.304	0.912	0.284
Judge Democrat	0.640	0.480	0.644	0.479	0.634	0.483
Any murder charge	0.064	0.245	0.065	0.247	0.061	0.240
Any robbery charge	0.111	0.315	0.147	0.355	0.046	0.209
Any other violent crime charge	0.209	0.407	0.192	0.394	0.240	0.428
Any property crime	0.262	0.44	0.263	0.441	0.260	0.439
Any drug charge	0.201	0.401	0.242	0.429	0.126	0.332
Any sex charge	0.098	0.297	0.072	0.258	0.145	0.353
Any weapons charge	0.066	0.249	0.063	0.244	0.073	0.260
Any other charge	0.235	0.424	0.244	0.430	0.218	0.413
Total charges	1.729	0.794	1.773	0.803	1.649	0.772
Guilty of any charges	0.754	0.431	0.745	0.436	0.771	0.421
County Characteristics						
Rural	0.381	0.486	0.349	0.477	0.439	0.497
Average age	49.22	4.98	48.43	5.24	50.65	4.12
Prop. male	0.450	0.012	0.447	0.011	0.456	0.011
N	737		475		262	

Notes: All means listed in the table are derived by first calculating the relevant statistic for each case, then averaging over all cases.

Table 2: Relationship Between Jury Pool Demographics and Trial Characteristics

	Proportion of the Jury Pool Black Male	Proportion of the Jury Pool White Male	Proportion of the Jury Pool Over 50
Defendant Black	0.00572	-0.00530	0.00867
	(0.00370)	(0.00769)	(0.0105)
Defendant Older 33	0.00312	-0.00219	0.0129
	(0.00469)	(0.0103)	(0.00926)
Any Murder Charge	-0.00737	0.00865	-0.0212
	(0.00628)	(0.0138)	(0.0229)
Any Robbery Charge	-0.00748	-0.00808	-0.00608
	(0.00621)	(0.0182)	(0.0199)
Any Other Violent Crime Charge	0.00156	0.0103	0.0131
	(0.00625)	(0.0116)	(0.0162)
Any Property Crime Charge	0.00135	0.000238	-0.00761
	(0.00632)	(0.0127)	(0.0143)
Any Drug Charge	-0.00147	0.0226	-0.0227
	(0.00942)	(0.0139)	(0.0183)
Any Sex Charge	-0.00703	-0.0182	-0.0277
	(0.0102)	(0.0158)	(0.0183)
Any Weapons Charge	0.00378	-0.0204	-0.0207
	(0.00889)	(0.0203)	(0.0171)
Any Other Charge	-0.00273	0.0177	-0.0108
	(0.00530)	(0.0108)	(0.0134)
Total Charges	0.000320	0.00225	0.00443
	(0.00268)	(0.00585)	(0.00579)
const	0.0653***	0.309***	0.352***
	(0.000197)	(0.000453)	(0.000943)
Joint p-value	0.496	0.135	0.590
R-squared	0.436	0.465	0.387

Notes: Regressions are OLS with standard errors clustered at the county level (66). Controls include county and year fixed effects. There are 737 observations. All regressors are demeaned. The reported p-statistic is derived from a quasi-F ratio from a wild bootstrap with Rademacher weights, 100,000 replications, testing the joint null hypothesis excluding the county and year controls. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 3: Relationship between Juror Race and Juror Disposition

	(1)	(2)	(3)	(4)
	Black	Black	White	White
State Challenge	0.106***	0.0373**	-0.151***	-0.129***
	(0.0186)	(0.0155)	(0.0144)	(0.0244)
Defense Challenge	-0.0945***	-0.0372***	0.0992***	0.0287**
	(0.0140)	(0.0106)	(0.0142)	(0.0140)
Def. Black × State Chall.		0.107***		-0.0341
		(0.0162)		(0.0240)
Def. Black × Def. Chall.		-0.0893***		0.110***
		(0.0170)		(0.0244)
Defendant Black		0.0157		-0.0246**
		(0.0104)		(0.0119)
Constant	0.169***	0.160***	0.606***	0.626***
	(0.0240)	(0.0139)	(0.0286)	(0.0284)
R-squared	0.101	0.105	0.112	0.115
Bootstrap *p*-values				
State Challenge	0.000***	0.0161**	0.000***	0.000***
Defense Challenge	0.000***	0.000***	0.000***	0.0733*
Def. Black × State Chall.		0.000***		0.196
Def. Black × Def. Chall.		0.000***		0.0004***

Notes: Regressions are OLS with standard errors clustered at the county level (66). The omitted variable is whether a prospective juror was seated on the jury, and other controls are whether a prospective juror was struck for cause or removed for an unknown reason, and dummies for county, judge, and year. In regressions (2) and (4) these are fully interacted with the defendant black dummy. N=16,839. The bootstrap p-values are derived separately from a wild bootstrap with the null imposed, Rademacher weights, 100,000 replications. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4: Relationship between Juror Gender/Race on Juror Disposition

	(1)	(2)	(3)	(4)
	Black Male	White Male	Black Female	White Female
State Challenge	0.0205**	-0.000315	0.0168*	-0.128***
	(0.0107)	(0.0185)	(0.00949)	(0.0253)
Defense Challenge	-0.0139***	0.00454	-0.0234**	0.0249*
	(0.00474)	(0.0141)	(0.00913)	(0.0134)
Def. Black × State Chall.	0.0567***	-0.0661***	0.0500***	0.0310
	(0.0131)	(0.0215)	(0.00983)	(0.0276)
Def. Black × Def. Chall.	-0.0329***	0.0821***	-0.0556***	0.0265
	(0.00675)	(0.0221)	(0.0135)	(0.0170)
Defendant Black	0.00576	-0.00330	0.00924	-0.0211**
	(0.00576)	(0.00923)	(0.00754)	(0.00994)
Constant	0.0421*	0.290***	0.126***	0.336***
	(0.0231)	(0.0246)	(0.0237)	(0.0416)
R-squared	0.046	0.044	0.064	0.039
Bootstrap p-values				
State Challenge	0.0657*	0.986	0.0879*	0.000***
Defense Challenge	0.0044***	0.750	0.0082***	0.0833*
Def. Black × State Chall.	0.0004***	0.0083***	0.0005***	0.303
Def. Black × Def. Chall.	0.0006***	0.0039***	0.0003***	0.144

Notes: Regressions are OLS with standard errors clustered at the county level (66). The omitted variable is whether a prospective juror was seated on the jury, and other controls are whether a prospective juror was struck for cause or removed for an unknown reason, and dummies for county, judge, and year. All of these are fully interacted with the defendant black dummy. N=16,839. The bootstrap p-values are derived separately from a wild bootstrap with the null imposed, Rademacher weights, 100,000 replications. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5: Relationship between Verdict and the Proportion of the Jury Pool White Male

			Def. Black		Def. White	
	(1)	(2)	(3)	(4)	(5)	(6)
	Any Guilty	Any Guilty	Any Guilty	Any Guilty	Any Guilty	Any Guilty
Proportion of Pool White Male	0.0145	0.0233	0.502**	0.533***	-0.362	-0.364
	(0.170)	(0.170)	(0.204)	(0.193)	(0.567)	(0.605)
State Challenges		0.0158		0.0241*		-0.000875
		(0.0111)		(0.0138)		(0.0441)
Defense Challenges		-0.00222		-0.00251		0.00173
		(0.0104)		(0.0167)		(0.0276)
Constant	0.726***	0.719***	0.702***	0.686***	0.823***	0.823***
	(0.0142)	(0.0170)	(0.0341)	(0.0423)	(0.0721)	(0.0740)
N	737	737	475	475	262	262
R-squared	0.310	0.312	0.417	0.422	0.424	0.603
Bootstrap p-values						
Proportion of Pool White Male	0.926	0.878	0.0189**	0.0150**	0.430	0.465
State Challenges		0.0997*		0.0938*		0.981
Defense Challenges		0.829		0.906		0.936

Notes: Regressions are OLS with standard errors clustered at the county level: 66 for (1) and (2), 51 for (3) and (4), and 56 for (5) and (6). The full set of controls is: dummies for defendant characteristics (older than 33, black), case characteristics (any murder, robbery, other violent crime, property crime, drug crime, sex, weapon, or other charge, and total charges), and judge, county, and year fixed effects. This is the reference set of controls used in all subsequent regressions. All regressors are demeaned. The bootstrap p-values are derived separately from a wild bootstrap with the null imposed, Rademacher weights, 100,000 replications. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Relationship between Verdict and the Proportion of the Jury Pool Black Male

			Def. Black		Def. White	
	(1)	(2)	(3)	(4)	(5)	(6)
	Any Guilty	Any Guilty	Any Guilty	Any Guilty	Any Guilty	Any Guilty
Proportion of Pool Black Male	-0.680**	-0.739**	-0.726	-0.886**	-0.378	-0.370
	(0.326)	(0.341)	(0.444)	(0.433)	(0.896)	(0.908)
State Challenges		0.0183		0.0286**		-0.00345
		(0.0111)		(0.0124)		(0.0438)
Defense Challenges		-0.00314		-0.00421		-0.000118
		(0.0108)		(0.0174)		(0.0258)
Constant	0.726***	0.717***	0.691***	0.627***	0.803***	0.805***
	(0.0140)	(0.0171)	(0.0346)	(0.0436)	(0.0671)	(0.0759)
N	737	737	475	475	262	262
R-squared	0.314	0.419	0.416	0.423	0.600	0.600
Bootstrap *p*-values						
Proportion of Pool Black Male	0.0455**	0.0424**	0.0790*	0.0549*	0.545	0.562
State Challenges		0.0622*		0.0288**		0.918
Defense Challenges		0.7894		0.8834		0.995

Notes: Regressions are OLS with standard errors clustered at the county level: 66 for (1) and (2), 51 for (3) and (4), and 56 for (5) and (6). The full set of controls are described in Table 5. All regressors are demeaned. The bootstrap *p*-values are derived separately from a wild bootstrap with the null imposed, Rademacher weights, 100,000 replications. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7: Comparison of Conviction Rate by Number of Challenges

	State Strikes	Obs.	Conviction Rate (%)	Def. Strikes	Obs.	Conviction Rate (%)
Def. Black Male	0	40	62.5	0	32	62.5
	1	71	64.8	1	23	56.5
	2	86	74.4	2	46	78.3
	3	113	77.9	3	67	71.6
	4	73	80.8	4	91	81.3
	$\geq$5	92	78.3	$\geq$ 5	216	75.5
Def. White Male	0	25	68	0	20	70
	1	51	82.4	1	21	85.7
	2	51	74.5	2	34	70.6
	3	60	80	3	47	72.3
	4	39	84.6	4	54	81.5
	$\geq$5	36	66.7	$\geq$ 5	86	79.1

Table 8: First Stage Relationships

	Proportion Jury White Male			Proportion Jury Black Male		
		Def. Black	Def. White		Def. Black	Def. White
	(1)	(2)	(3)	(4)	(5)	(6)
Proportion of Pool White Male	0.990***	1.0781***	0.947***			
	(0.0443)	(0.0527)	(0.124)			
Proportion of Pool Black Male				0.958***	0.939***	0.987***
				(0.0430)	(0.0455)	(0.142)
Constant	0.111*	0.220***	0.000697	-0.0567**	-0.0381	0.00633
	(0.0584)	(0.0507)	(0.105)	(0.0218)	(0.0250)	(0.0627)
N	737	475	262	737	475	262
R-squared	0.769	0.815	0.833	0.772	0.770	0.897

Notes: Standard errors are clustered at the county level: (66) for (1) and (4), (51) for (2) and (5), and (56) for (3) and (6). The full set of controls are those described in Table 5 and the number of state and defense challenges. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively. *F*-statistics are reported in the IV results (Tables 9 and 10).

Table 9: OLS and IV Relationship between Proportion of White Males Seated and Conviction Rates

			Def. Black		Def. White	
	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)
Proportion of Jury White Male	0.0553	0.0238	0.367**	0.494***	-0.509	-0.385
	(0.129)	(0.146)	(0.168)	(0.138)	(0.503)	(0.404)
Constant	0.489**	0.497***	0.674**	0.603***	0.180	0.183
	(0.221)	(0.180)	(0.275)	(0.194)	(0.742)	(0.454)
N	737	737	475	475	262	262
R-squared	0.312		0.421		0.611	
Instrument First Stage *F*-Statistic		488.97		419.24		58.70

Notes: The dependent variable is an indicator for any guilty verdict. Standard errors are clustered at the county level (66) for (1) and (2), (51) for (3) and (4), and (56) for (5) and (6). The full set of controls are those described in Table 5 and the number of state and defense challenges. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 10: OLS and IV Relationship between Proportion of Black Males Seated and Conviction Rates

			Def. Black		Def. White	
	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)
Proportion of Jury Black Male	-0.206	-0.771**	-0.366	-0.943***	-0.139	-0.375
	(0.360)	(0.299)	(0.389)	(0.344)	(0.833)	(0.561)
Constant	0.501**	0.494***	0.885***	0.896***	0.198	0.206
	(0.209)	(0.170)	(0.245)	(0.189)	(0.719)	(0.438)
N	737	737	475	475	262	262
R-squared	0.313		0.417		0.430	
Instrument First Stage *F*-Statistic		496.77		425.73		48.51

Notes: The dependent variable is an indicator for any guilty verdict. Standard errors are clustered at the county level (66) for (1) and (2), (51) for (3) and (4), and (56) for (5) and (6). The full set of controls are those described in Table 5 and the number of state and defense challenges. *, **, and *** correspond to statistical significance at the 10%, 5%, and 1% levels, respectively.

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