# Report: The Under-Representation of Blacks in the King County Jury Pool 

Katherine Beckett, University of Washington<br>May 11, $2016^{1}$

## Introduction

This report analyzes the degree to which blacks and other people of color are underrepresented in the King County jury pool relative to the adult, citizen population. Many courts have relied upon one particular measure of under-representation in fair cross-section analyses: the absolute disparity test. Until recently, for example, the 9th Circuit Court of Appeals "required courts to evaluate challenges to the fair cross-section requirement using the 'absolute disparity test. ${ }^{\prime \prime \prime}$ ' In the context of jury composition, the absolute disparity is the difference between the proportion of the jury-eligible population and the proportion of the jury pool that belongs to the under-represented category. For example, if 50 percent of a jurisdictions' adult, citizen population is Hispanic, but only 40 percent of its jury pool is Hispanic, the absolute disparity between the population and the jury pool is 10 percent. ${ }^{3}$

Historically, the $9^{\text {th }}$ Circuit Court of Appeals relied heavily on the absolute disparity test and "declined to find under-representation of a distinctive group where the absolute disparity was 7.7 percent or lower." ${ }^{4}$ However, the $9^{\text {th }}$ Circuit recently reversed its position on the absolute disparity test and the use of the 7.7 percent threshold, concluding that "confining a fair crosssection analysis to the absolute disparity test is inappropriate." ${ }^{5}$ Indeed, although the absolute disparity has the virtue of being simple and straightforward, there are several problems with this measure of under-representation. First, absolute disparity does not take into account the relative size of the underrepresented group in the jurisdiction in question and can therefore be misleading. For example, an absolute disparity of 5 percent means something very different if

[^0]the underrepresented group comprises 50 percent of the total population than if it comprises 6 percent of the population. Second, it is simply not possible for the absolute disparity to be large if the underrepresented group's representation in the general population is small. Indeed, as one legal scholar concluded, "use of absolute disparity, or absolute impact, can sanction the total exclusion of a small minority." ${ }^{6}$ For example, if the jury-eligible population is 5 percent Hispanic and the jury pool is zero percent Hispanic, the absolute disparity would be small - only 5 percent - despite the fact that the group in question was entirely excluded from the jury pool.

Defendants have presented a number of alternative measures of under-representation in fair cross-section challenges. These include: the absolute impact test, which measures the numerical impact of a group's under-representation on a particular jury pool; the relative (or comparative) disparity between the proportion of the jury-eligible population and the jury pool that belong to the distinctive group in question; the disparity-of-risk test, which compares the chances that a defendant's jury will not include at least one member of the under-represented group with and without the observed under-representation; and various tests of statistical significance that assess how likely it is that the observed under-representation of the group in question is the result of chance. ${ }^{7}$

In what follows, I describe these alternative measures of under-representation and suggest that two of them - the relative/comparative disparity and the disparity-of-risk test - are the most appropriate measures for assessing the magnitude of the under-representation of blacks and other groups in the King County jury pool. I then describe the data used to calculate these measures and present the results obtained when these two measures of the underrepresentation of blacks from the King County jury pool are utilized.

[^1]
## Alternative Measures of Under-Representation

Absolute Disparity. Absolute disparity is simply the arithmetic difference between the share of the jury-eligible population and the jury pool that belong to the under-represented group. As noted previously, measuring a group's under-representation in terms of absolute disparity can yield very misleading results where the overall representation of the under-represented group is small. As the $9^{\text {th }}$ Circuit recently noted, "Although the Supreme Court has refused to prescribe any specific type of analysis or prohibit the use of the absolute disparity test, it too has noted that the absolute disparity test 'can be misleading' when the distinctive group in question makes up only a small percentage of the population. ${ }^{8}$ For example, in King County, Washington, recent census data indicate that an estimated 5.6 percent of the adult, citizen population is black/African-American. Even if all jury-eligible black people were excluded from the jury pool, the absolute disparity between the proportion of the jury-eligible county population that is black and the proportion of the jury pool that is black would necessarily be small (5.6\% - $0 \%=5.6 \%$ ). Use of the absolute disparity measure would therefore be inappropriate in this context.


#### Abstract

Absolute Impact. The absolute impact test measures the numerical impact of the absolute disparity on the composition of a particular jury pool. The absolute impact is calculated by multiplying by absolute disparity by the number of people in a particular jury panel. For example, if 40 percent of the jury-eligible population in the county in question is black, and 30 percent of the people in the jury pool are black, the absolute disparity is 10 percent, or .1. If a particular jury panel involved 30 people, the absolute impact would be 3 (. $1 \times 30$ ), meaning that the estimated number of jurors affected by the under-representation of blacks in that particular jury pool is three. Although simple to calculate, the absolute impact is derived from the absolute disparity and thus shares many of the same limitations as that measure of underrepresentation (see above). ${ }^{9}$ It therefore will not be utilized here.


[^2]Relative/Comparative Disparity. An alternative measure of under-representation - relative or comparative disparity - calculates the absolute disparity as a percentage of the proportion of the population that belongs to the under-represented group. ${ }^{10}$ For example, if 20 percent of the jury-eligible citizens living in a county are black, but only 10 percent of the people in the jury pool are black, the relative disparity is the absolute disparity (10\%, or .1) divided by the black share of the population ( $20 \%$, or . 2 ), or 50 percent.

Thus, unlike the absolute disparity, the relative disparity takes the composition of the population into account, and can be large or small regardless of the relative size of the group in question. On the other hand, the relative disparity can exaggerate under-representation where the group in question is very small. For example, if a jurisdiction contained one American Indian, and that individual was not included in the jury pool, 100\% of the American Indians living in that community would have been excluded from the jury pool, and the relative disparity would therefore be 100 percent. Clearly, measuring under-representation in terms of the relative disparity would be misleading under such circumstances. However, this situation arises rarely and is not germane in the situation at hand. Although a comparatively small percentage ( 5.6 percent) of King County adult, citizen residents are black, the absolute number of black adult citizens living in King County is quite significant (76,444 in recent years, according to U.S. Census Bureau estimates). Although other under-represented racial groups are numerically smaller than the black population, none are so small as to render the comparative disparity meaningless. Thus, relative disparity is an appropriate measure of underrepresentation in most cases, and in King County specifically.

Disparity-of-Risk. This measure captures the impact of the under-representation of a particular group in the jury pool on a defendant's chances of drawing a jury from which members of that group are entirely excluded. ${ }^{11}$ This question is quite relevant, as a growing body of evidence

[^3]indicates that the presence of even a single black juror can meaningfully affect jury deliberations, for two reasons. First, black jurors tend to make different kinds of contributions and ask different kinds of questions than their white counterparts. ${ }^{12}$ Second, there is evidence that white jurors deliberate differently when serving on heterogeneous juries than when serving on all-white juries. ${ }^{13}$ Thus, although black jurors vary a great deal, and the impact of their presence on jury processes and outcomes is unpredictable in specific cases, research has documented the qualitative importance of racial diversity for the comprehensiveness of jury deliberations. ${ }^{14}$ In light of evidence that the inclusion of even a single black juror meaningfully alters jury deliberations, I calculate the disparity-of-risk measure below.

Tests of Statistical Significance. The measures of under-representation discussed above provide information about the magnitude of the under-representation of a distinctive social group from the relevant jury pool. However, they do not provide a means of assessing the significance of varying degrees of under-representation. Tests of statistical significance (such as the standard deviation and Fischer's Exact Test discussed in U.S. v. Hernandez-Estrada ${ }^{15}$ ) provide a means of doing so. Specifically, tests of statistical significance provide information about whether a difference between two proportions is unlikely to be the result of chance. Conventionally, social scientists consider a difference between two proportions to be statistically significant if there is a 5 percent or smaller probability that the observed difference is the result of chance.

It is tempting to imagine that these tests would be useful for evaluating the significance of observed under-representation in the context of fair cross section analyses. However, this is

[^4]not the case because the results measure the likelihood that a given discrepancy is the product of chance. While the question of how under-representation in jury pools comes to exist, and whether it is the product of chance, may be relevant in some contexts, the immediate question at stake in fair cross-section challenges is whether the magnitude of the observed underrepresentation is Constitutionally permissible, not whether it is likely or unlikely to result from chance. ${ }^{16}$ For this reason, I do not conduct tests of statistical significance below.

## Data

Calculating the comparative disparity ratio and the disparity of risk involve two distinct data sources. These are described below.

Census Data. Because only adult citizens are eligible to serve on juries in King County, census data that allow for the exclusion of children and non-citizens were utilized. The American Community Survey administered by the U.S. Census Bureau generates this kind of detailed information through the administration of long-form questionnaires in jurisdictions across the country. The data utilized here were obtained from the most recent (2009-2013) American Community Survey 5-Year Estimates. ${ }^{17}$ The data reflect population counts of individuals who are U.S. natives or naturalized citizens and are 18 or more years old, and include information about race. In order to separately analyze the population residing in the Northern and Southern Jury Assignment Areas, the census data were aggregated from specified zip code tabulation areas included in the King County data to enable estimation of the racial composition of the populations living in these two districts. Data for several zip codes were unavailable. ${ }^{18}$

[^5]
## Survey of Summonsed Jurors.

In late 2014 and early 2015, Anita Khandelwal, Senior Attorney at the Public Defender Association, worked with several King County Superior Court judges to develop a questionnaire that was then administered to individuals who appeared in Superior Court in response to a jury summons. ${ }^{19}$ The questionnaire asked summonsed jurors to identify their race and ethnicity; the racial categories utilized were based on the categories employed by the U.S. Census Bureau. Jury room staff administered the survey at the King County Superior Courthouses in Kent and Seattle on twenty consecutive dates from January 12 to April 1, 2015. The questionnaires were scanned by jury room staff and sent via email to Ms. Khandelwal, who then provided the scans to attorneys Paul Vernon and Benjamin Goldsmith. I then trained legal interns employed by Messrs. Vernon and Goldsmith regarding data entry and analyzed the results.

Social scientists often rely on survey data to conduct their research. When a survey is administered, it is nearly always the case that some people decline to take the survey. The survey response rate refers to the proportion of those asked to take the survey who agree to do so and actually complete it. Survey response rates are important because if the people who decline to take a survey differ in some important way from those who do complete a survey, the survey results will be biased. The survey response rates for the jury questionnaire administered in this case shown in Table 1 are quite high by social science standards. For example, one recent textbook on survey research suggests that "when cooperation rates (the percentage of people contacted who complete the survey process) in a survey decline below 50 percent, that survey should be regarded with some caution as a basis for precise quantitative statements about the population from which the sample was drawn. When the cooperation rate exceeds 80 percent, even if the non-respondents differ from those who respond, the overall estimates will not be badly biased., ${ }^{20}$

[^6]Although the response rates reported in Table 1 are relatively high, the (perceived) race of those who declined to take a survey was not recorded, so comparison of the racial composition of those who did and did not take a survey is not possible. Still, the fact that the survey response rate in both locales was well over 50 percent, and surpassed 80 percent in Kent, means that the survey results can be considered reasonably reliable.

Table 1. Survey Response Rate among Potential Jurors at the Seattle and Kent Courthouses

|  | Seattle | Kent | All King County |
| :--- | :---: | :---: | :---: |
| Potential Jurors Surveyed | 2,620 | 2,049 | 4,669 |
| Potential Jurors Appearing in Court | 3,831 | 2,509 | 6,340 |
| Survey Response Rate | $68.4 \%$ | $81.7 \%$ | $73.6 \%$ |

## Findings: The Under-Representation of Blacks in the King County Jury Pool

The results of the juror questionnaire indicate that black adult citizens residing in King County are under-represented among those appearing in King County courts in response to a jury summons. Specifically, 2.3 percent of the summonsed potential jurors who responded to a survey in the Seattle Court identified themselves as black, whereas census data indicate that 4.1 percent of the adult citizens living in the Seattle Jury Assignment Area, and 5.6 percent of adult, citizen King County residents, are black. Similarly, 5.3 percent of the summonsed jurors who completed a survey in the Kent courthouse identified as black, but 8.1 percent of the residents of the Kent Jury Assignment Area are black. Overall, 3.6 percent of the summonsed jurors who appeared in either King County Court and completed a survey identified themselves as black, but 5.6 percent of all adult, citizen residents of King County are black. These figures are summarized in Table 2.

| Table 2. Comparison of Survey and Census Data by Race |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |
|  | Potential <br> Jurors- <br> Seattle <br> Survey | Seattle Jury <br> Assignment <br> Area <br> Residents | Potential <br> Jurors- <br> Kent <br> Survey | Kent Jury <br> Assignment <br> Area <br> Residents | All <br> Potential <br> Jurors <br> Surveyed | All King <br> County <br> Residents |  |
| Black | $2.3 \%$ | $4.1 \%$ | $5.3 \%$ | $8.1 \%$ | $3.6 \%$ | $5.6 \%$ |  |
| American Indian/ <br> Alaska Native | $.5 \%$ | $.6 \%$ | $.7 \%$ | $1.1 \%$ | $.5 \%$ | $.8 \%$ |  |
| Asian | $9.8 \%$ | $11 \%$ | $11.6 \%$ | $11.8 \%$ | $10.6 \%$ | $11.3 \%$ |  |
| Hispanic | $2.5 \%$ | $2.1 \%$ | $2.4 \%$ | $4.5 \%$ | $2.4 \%$ | $3.0 \%$ |  |
| Multi-Racial | $2.9 \%$ | $3.6 \%$ | $3.9 \%$ | $4.4 \%$ | $3.3 \%$ | $3.9 \%$ |  |
|  <br> Pacific Islander | $.1 \%$ | $.3 \%$ | $1 \%$ | $1.2 \%$ | $.5 \%$ | $.6 \%$ |  |
| White | $84.2 \%$ | $77.3 \%$ | $77.4 \%$ | $67.4 \%$ | $81.2 \%$ | $73.6 \%$ |  |

Notes: Resident figures include only adult citizens. Survey-takers declined to identify their race in .7\% of the surveys administered; the percentages shown here exclude these "race unknown" cases. Persons identifying as multi-racial are not included in the black category in either the census or the survey data. The Hispanic category includes only white Hispanics.

As shown in Table 2, other groups are also under-represented in the jury pool. Specifically, American Indian/Alaska Natives, Asians, Pacific Islanders, and people who identify as multiracial are also under-represented in the King County jury pool compared to the adult, citizen population. By contrast, whites and Latinos appear to be over-represented relative to their representation in the jury-eligible population.

Relative/Comparative Disparity. In what follows, I calculate the relative/comparative disparity between the black share of the adult, citizen population and of the people who appeared in court in either Seattle or Kent in response to a jury summons. To do so, I first calculate the absolute disparity between these proportions, then divide that number by the percent of King County's adult, citizen population that is black. The results are presented in Table 3. The comparative disparities for other under-represented groups are presented in Appendix A.

Table 3. Absolute and Comparative Disparity between Black Representation in the Jury Pool and the Population

|  | Black Share of <br> Adult Citizen <br> Population (A) | Black Share of <br> Jury Pool <br> (B) | Absolute <br> Disparity <br> (A-B) | Comparative <br> Disparity <br> ((A-B)/A) |
| :--- | :---: | :---: | :---: | :---: |
| Seattle Jury Assignment <br> Area Population/Seattle <br> Survey | $4.14 \%$ | $2.29 \%$ | $1.85 \%$ | $\mathbf{4 4 . 7 \%}$ |
| All King County <br> Population/ <br> Seattle Survey | $5.60 \%$ | $2.29 \%$ | $3.31 \%$ | $\mathbf{5 9 . 1 \%}$ |
| Kent Jury Assignment <br> Area Population/Kent <br> Survey | $8.11 \%$ | $5.33 \%$ | $2.79 \%$ | $\mathbf{3 4 . 4 \%}$ |
| All King County <br> Population/ <br> Kent Survey | $5.60 \%$ | $5.33 \%$ | $.27 \%$ | $\mathbf{4 . 8 \%}$ |
| All King County <br> Population/All Survey <br> Respondents | $5.60 \%$ | $3.61 \%$ | $1.98 \%$ | $\mathbf{3 5 . 5 \%}$ |

With one exception (i.e. the comparison of the black share of the King County population and potential jurors in Kent), the results shown in Table 3 reveal substantial levels of comparative disparity. All but one of the reported relative disparities shown in Table 3 exceeds the 20 percent threshold suggested by the U.S. Commission on Civil Rights. ${ }^{21}$

## Risk Analysis: The Increased Odds of Having an Exclusively Non-Black Jury

Below, I calculate the extent to which the risk that a defendant in King County will have a jury that includes no blacks is increased as a result of the under-representation of blacks in the King Country jury pool. It is important to note that this analysis assumes that the degree of the under-representation of blacks in the jury pool remains constant after potential jurors are summonsed and appear in court. In reality, the under-representation of blacks on juries is likely increased after this point by at least two factors. First, factors that discourage participation of low income people and people of color in juries likely compound the under-

[^7]representation of blacks on juries. ${ }^{22}$ Because jurors receive little compensation, only those who can afford to take time off of work or whose jobs are more flexible tend to serve on juries. These and related social factors discourage jury participation among the poor, among whom blacks are disproportionately represented. Second, social scientific research shows that the jury selection process is not race-neutral and exacerbates the under-representation of blacks in many jurisdictions. ${ }^{23}$

For these reasons, the results shown below provide a conservative estimate of the impact of the under-representation of blacks in the King County jury pool on the risk of drawing a jury that includes no black people. Nonetheless, as shown in Table 4, the under-representation of blacks in the King County jury pool as revealed substantially increases the odds that a defendant will have a jury that includes no black people. Specifically, this under-representation increases the chances that a given defendant will draw a jury that does not include any black jurors from 50.1 percent to 64.3 percent. ${ }^{24}$ When analyzed in relative terms, the risk of drawing a jury that includes no black jurors increases by 28.4 percent as a result of current levels of under-representation.

| Table 4. Risk of a Non-Black Jury with and without Observed Under-Representation |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Percent Non-Black <br> Jurors | Chances of Drawing <br> an Entirely Non- <br> Black Jury <br> $(12$ members) | Relative Increase in <br> Risk of Drawing a <br> Non-Black Jury |  |
| No Under-Representation | $94.40 \%$ | $50.11 \%$ | NA |  |
| Under-Representation | $96.82 \%$ | $64.32 \%$ | $28.36 \%$ |  |

[^8]
## Conclusion

Although all measures of under-representation have potential limitations, relative disparity can be large or small regardless of the relative size of the underrepresented group and is not affected by the numerical size of the population in question wherever the under-represented population group is not exceptionally small. It is, therefore, the most appropriate measure of under-representation generally and in King County specifically. Although the comparative disparity between the black share of potential jurors in the Kent Court and the black share of the King County adult, citizen population is not large (i.e. 4.8 percent), each of the other comparisons reveals notable comparative disparities that range from 34.4 percent to 59.1 percent, all of which exceeds the 20 percent threshold suggested by the U.S. Commission on Civil Rights. Moreover, the risk analysis presented here indicates that the odds that a defendant will draw a jury from which blacks are excluded entirely increase by 28.4 percent as a result of the under-representation of blacks from the King County jury pool.

Appendix A. Comparative/Relative Disparities for American Indian/Alaska Natives, Asians, Pacific Islanders, and Multi-Racial People

| Table A1. Absolute and Comparative Disparity between <br> (AI/AN) Representation in the Jury Pool and the Population |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Al/AN Share of <br> Adult Citizen <br> Population (A) | Al/AN Share of <br> Jury Pool <br> (B) | Absolute <br> Disparity <br> (A-B) | Comparative <br> Disparity <br> ((A-B)/A) |  |
| Seattle Jury Assignment <br> Area Population/Seattle <br> Survey | $.59 \%$ | $.50 \%$ | $.09 \%$ | $\mathbf{1 5 . 2 \%}$ |  |
| All King County <br> Population/ <br> Seattle Survey | $.79 \%$ | $.50 \%$ | $.29 \%$ | $\mathbf{3 6 . 3 \%}$ |  |
| Kent Jury Assignment <br> Area Population/Kent <br> Survey | $1.11 \%$ | $.64 \%$ | $.47 \%$ | $\mathbf{4 2 . 7 \%}$ |  |
| All King County <br> Population/ <br> Kent Survey | $.79 \%$ | $.64 \%$ | $.15 \%$ | $\mathbf{1 8 . 9 \%}$ |  |
| All King County <br> Population/All Survey <br> Respondents | $.79 \%$ | $.55 \%$ | $.25 \%$ | $\mathbf{3 1 . 5 \%}$ |  |

Table A2. Absolute and Comparative Disparity between Asian Representation in the Jury Pool and the Population

|  | Asian Share of <br> Adult Citizen <br> Population (A) | Asian Share of <br> Jury Pool <br> (B) | Absolute <br> Disparity <br> (A-B) | Comparative <br> Disparity <br> ((A-B)/A) |
| :---: | :---: | :---: | :---: | :---: |
| Seattle Jury Assignment <br> Area Population/Seattle <br> Survey | $9.7 \%$ | $9.7 \%$ | $1.30 \%$ | $\mathbf{1 1 . 8 \%}$ |
| All King County <br> Population/ <br> Seattle Survey | $11.4 \%$ | $9.7 \%$ | $1.71 \%$ | $\mathbf{1 4 . 9 \%}$ |
| Kent Jury Assignment <br> Area Population/Kent <br> Survey | $11.3 \%$ | $11.3 \%$ | $.51 \%$ | $\mathbf{4 . 3 \%}$ |
| All King County <br> Population/ <br> Kent Survey | $11.4 \%$ | $11.3 \%$ | $.15 \%$ | $\mathbf{1 . 3 \%}$ |
| All King County <br> Population/All Survey <br> Respondents | $11.4 \%$ | $10.4 \%$ | $1.02 \%$ | $\mathbf{9 . 8 \%}$ |


| Table A3. Absolute and Comparative Disparity between Native Hawaiian and Other Pacific <br> Islanders (NH \& OPI) Representation in the Jury Pool and the Population |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | NH \& OPI Share <br> of <br> Adult Citizen <br> Population (A) | NH \& OPI Share <br> of Jury Pool <br> (B) | Absolute <br> Disparity <br> (A-B) | Comparative <br> Disparity <br> ((A-B)/A) |  |
| Northern District/Seattle <br> Survey | $.32 \%$ | $.08 \%$ | $.24 \%$ | $\mathbf{7 5 . 8 \%}$ |  |
| All King County/ <br> Seattle Survey | $.64 \%$ | $.08 \%$ | $.57 \%$ | $\mathbf{8 8 . 1 \%}$ |  |
| Southern District/Kent <br> Survey | $1.21 \%$ | $.98 \%$ | $.23 \%$ | $\mathbf{1 9 . 1 \%}$ |  |
| All King County/ <br> Kent Survey | $.64 \%$ | $.98 \%$ | $-.34 \%$ | $\mathbf{- 5 2 . 0 \%}$ |  |
| All King County/All <br> Survey Respondents | $.64 \%$ | $.47 \%$ | $.17 \%$ | $\mathbf{2 6 . 6 \%}$ |  |

Table A4. Absolute and Comparative Disparity between the Representation of Multi-Racial Individuals in the Jury Pool and the Population

|  | Multi-Racial <br> Share of <br> Adult Citizen <br> Population (A) | Multi-Racial <br> Share of Jury <br> Pool <br> (B) | Absolute <br> Disparity <br> (A-B) | Comparative <br> Disparity <br> ((A-B)/A) |
| :---: | :---: | :---: | :---: | :---: |
| Northern <br> District/Seattle Survey | $3.57 \%$ | $2.96 \%$ | $.61 \%$ | $\mathbf{1 7 . 2 \%}$ |
| All King County/ <br> Seattle Survey | $3.87 \%$ | $2.96 \%$ | $.91 \%$ | $\mathbf{2 3 . 5 \%}$ |
| Southern District/Kent <br> Survey | $4.36 \%$ | $4.36 \%$ | $.63 \%$ | $\mathbf{1 4 . 5 \%}$ |
| All King County/ <br> Kent Survey | $3.87 \%$ | $4.36 \%$ | $.14 \%$ | $\mathbf{3 . 7 \%}$ |
| All King County/All <br> Survey Respondents | $3.87 \%$ | $3.87 \%$ | $.57 \%$ | $\mathbf{1 4 . 8 \%}$ |


[^0]:    ${ }^{1}$ The original version of this reported was submitted on December 16, 2015. This version is identical other than a correction made to the Hispanic figures in Table 2.
    ${ }^{2}$ U.S. v. Hernandez-Estrada, 749 F.3d 1154 (2014) at 3.
    ${ }^{3} 50 \%-40 \%=10 \%$.
    ${ }^{4}$ U.S. v. Hernandez-Estrada, 749 F.3d 1154 (2014) at 6.
    ${ }^{5}$ U.S. v. Hernandez-Estrada, 749 F.3d 1154 (2014) at 3.

[^1]:    ${ }^{6}$ Detre, Peter A., A Proposal for Measuring Underrepresentation in the Composition of the Jury Wheel, 103 Yale L.J. 1913 (1994).
    ${ }^{7}$ For a discussion of these alternative measures, see ibid; U.S. v. Hernandez-Estrada, 749 F.3d 1154 (2014), 6-8.

[^2]:    ${ }^{8}$ U.S. v. Hernandez-Estrada, 749 F.3d 1154 (2014), 7.
    ${ }^{9}$ Ibid.

[^3]:    ${ }^{10}$ Kairys, David, Joseph B. Kadane, and John P. Lehoczky, Jury Representativeness: A Mandate for Multiple Source Lists. 65 Cal. L. Rev. 776 (1977), 790.
    ${ }^{11}$ Detre, Peter A., A Proposal for Measuring Underrepresentation in the Composition of the Jury Wheel, 103 Yale L.J. 1913.

[^4]:    ${ }^{12}$ See Sommers, Samuel R., On Racial Diversity and Group Decision-Making: Identifying Multiple effects of Racial Composition on Jury Deliberations. 90 Journal of Personality and Social Psychology 597 (2006); Sommers, Samuel R. and Phoebe C. Ellsworth, How Much Do We Really Know about Race and Juries? A Review of Social Science Theory and Research, 2003 Chicago-Kent Law Review 997 (2003); Bowers, William J., Benjamin D. Steiner, \& Marla Sandy, Death Sentencing in Black and White: An Empirical Analysis of the Role of Juror Race and Jury Racial Composition, 3 University of Pennsy/vania Journal of Constitutional Law 171 (2001).
    ${ }^{13} \mathrm{Ibid}$.
    ${ }^{14} \mathrm{Ibid}$.
    ${ }^{15}$ U.S. v. Hernandez-Estrada, 749 F.3d 1154 (2014), 6-7.

[^5]:    ${ }^{16}$ See U.S. v. Hernandez-Estrada, 749 F.3d 1154 (2014) at 7-8 for a discussion of the mismatch between tests of statistical significance (such as the standard deviation test) and the legal question at stake in fair cross-section challenges.
    ${ }^{17}$ These data were is accessed through http://factfinder.census.gov/
    ${ }^{18}$ Excluded zip codes include those that served specific companies or organizations with very high volumes of mail and zip codes dedicated to Post Office (PO) Box and/or general delivery addresses.

[^6]:    ${ }^{19}$ Information about the development and administration of this questionnaire was provided in the Declaration of Anita Khandelwal, dated November 17, 2015.
    ${ }^{20}$ Louis M. Rea and Richard A. Parker, Designing and Conducting Survey Research: A Comprehensive Guide (San Francisco, CA: Jossey-Bass, 2014), p. 196.

[^7]:    ${ }^{21}$ See Kairys, David, Joseph B. Kadane, and John P. Lehoczky, Jury Representativeness: A Mandate for Multiple Source Lists. 65 Cal. L. Rev. 776 (1977), p. 791 and note 88.

[^8]:    ${ }^{22}$ Butler, Edgar W. Hiroshi Fukurai, Richard Krooth, Race and the Jury: Racial Disenfranchisement and the Search for Justice (Springer 1993); Saunders, Kurt M., Race and Representation in Jury Service Selection, 36 Dua. L. Rev 49 (1994).
    ${ }^{23}$ Gau, Jacinta M., A Jury of Whose Peers? The Impact of Selection Procedures on Racial Composition and the Prevalence of Majority-White Juries, 2015 Journal of Crime \& Justice.
    ${ }^{24}$ The increased probability of drawing a jury that includes no blacks is calculated as follows: the proportion of the population that is not black in the adult population and in the jury pool are taken to the $12^{\text {th }}$ power for petit juries (and the $23^{\text {rd }}$ power for grand juries, where relevant).

