1996

Fair Cross — Section Challenges in Maryland: An Analysis and Proposal

Richard Seltzer
Cohen, Weiss and Simon, LLP

John M. Copacino
Georgetown Law

Diana Roberto Donahoe
Georgetown Law

Follow this and additional works at: http://scholarworks.law.ubalt.edu/ublr

Part of the Law Commons

Recommended Citation

FAIR CROSS-SECTION CHALLENGES IN MARYLAND: AN ANALYSIS AND PROPOSAL

Richard Seltzer†
John M. Copacino‡
Diana Roberto Donahoe†‡

I. INTRODUCTION

The jury has played a central role in criminal jurisprudence since the founding of the Republic.[1] The right to a jury trial is the only guarantee included in both the body of the Constitution and in the Bill of Rights;[2] it has also been traced by some historians to the Magna Carta.[3] The United States Supreme Court has viewed the jury as the primary vehicle for protecting citizens from oppression by their government[4] and has concluded that "trial by jury in criminal cases is fundamental to the American scheme of justice."[5]

Given the weighty purposes that the criminal jury serves, the Supreme Court has paid particular attention to the Sixth Amendment

---

1. Albert W. Alshuler & Andrew G. Deiss, *A Brief History of the Criminal Jury in the United States*, 61 U. CHI. L. REV. 867, 867-70 (1994).
2. *Id.* at 870.
3. Duncan v. Louisiana, 391 U.S. 145, 169 n.3 (1967) (citing Murray's Lessee v. Hoboken Land & Improvement Co., 59 U.S. (18 How.) 272, 276 (1855)).
4. In *Duncan*, the Court explained that the jury "gave [an accused] an inestimable safeguard against the corrupt or overzealous prosecutor and against the compliant, biased, or eccentric judge." *Duncan*, 391 U.S. at 156. In *Baldwin v. New York*, the Court elaborated:
   > [T]he primary purpose of the jury is to prevent the possibility of oppression by the Government; the jury interposes between the accused and his accuser the judgment of laymen who are less tutored perhaps than a judge or panel of judges, but who at the same time are less likely to function or appear as but another arm of the Government that has proceeded against him.

   Baldwin v. New York, 399 U.S. 66, 72 (1970).
5. *Duncan*, 391 U.S. at 149.

right to an impartial jury.[6] The Court has held that a defendant has a right to a jury that is "truly representative of the community and not the organ of any special group or class."[7] The Court has also decreed that prospective jurors must be selected "without systematic and intentional exclusion of any of these [distinct] groups"[8] and that they must be selected from a pool that represents a "fair cross-section" of the community.[9]

Defining the contours of the "fair cross-section" requirement, however, has proved more elusive. In *Duren v. Missouri*,[10] the Court established a specific test to evaluate an alleged violation of the Sixth Amendment right to a fair cross-section.[11] The Court, however, has yet to indicate clearly the method by which courts should measure underrepresentation or the degree of underrepresentation sufficient to establish a prima facie case. As a result, lower courts have applied various methods, permitted different degrees of underrepresentation, and produced inconsistent results.[12] This problem is especially apparent in Maryland where the courts have denied fair cross-section challenges despite significant, systematic underrepresentation on the jury panel.[13]

This Article examines the application of the *Duren* test and evaluates compliance with the fair cross-section requirement of the Sixth Amendment by courts in selected counties in Maryland. Part II of this Article explains the historical background of the jury selection system in Maryland. Part III analyzes the *Duren* test, evaluates the various methods for determining disparities between jury pool composition and the population, and proposes a method for adoption. Part IV explains the application of this method to data collected for capital cases raising Sixth Amendment issues in seven Maryland counties. Part IV also describes the data collection, ana-

---

6. *See infra* notes 7-9 and accompanying text. The Sixth Amendment provides in part that "[i]n all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the state and district wherein the crime shall have been committed." U.S. CONST. amend. VI.

7. Glasser v. United States, 315 U.S. 60, 86 (1942).

8. Thiel v. Southern Pac. Co., 328 U.S. 217, 220 (1946).

9. Taylor v. Louisiana, 419 U.S. 522, 537-38 (1975); *Thiel*, 328 U.S. at 220.

10. 439 U.S. 357, 364 (1979). For the state of the law prior to *Duren*, see Martha Craig Daughtrey, *Cross Sectionalism in Jury Selection Procedures After Taylor v. Louisiana*, 43 TENN. L. REV. 1 (1975). *See also* Roger S. Kuhn, *Jury Discrimination: The Next Phase*, 41 S. CAL. L. REV. 235 (1968); S. Ulmer, *Supreme Court Behavior in Racial Exclusion Cases: 1935-1960*, AM. POL. SCI. REV. 325 (1962).

11. For an explanation of the *Duren* test, see *infra* text accompanying notes 38-40.

12. *See infra* notes 50, 52, 55, 65, 70, 75.

13. *See infra* part IV.*D.* and note 39.

lyzes the results, and concludes that the use of voter roles as the only source list for jury pools results in the underrepresentation of African-Americans on those jury lists. Part V discusses the proposition that the use of driver's license lists to supplement voter registration lists is a simple and inexpensive remedy to the underrepresentation caused by the use of voter lists. Finally, Part VI analyzes the Maryland courts' rationale for continuing to uphold the use of voter lists and concludes that the court decisions are inconsistent with the requirements of the Sixth Amendment.

II. THE HISTORICAL BACKGROUND OF THE JURY SELECTION PROCESS IN MARYLAND

A. The Keyman System

Prior to the mid-1960s, most court systems used some variation of the "keyman" system in selecting jurors.[14] Under this system, prospective jurors were chosen by prominent members of the community who formed a jury commission and collectively chose people known to be reputable.[15] Under Maryland's "keyman" system, the clerk of the court and the jury commissioner were responsible for selecting potential jurors.[16] They chose people from sources such as telephone directories, membership lists of clubs and civic organizations, and members of the community such as priests, rabbis, state officials, county court clerks, registers of wills, supervisors of elections, labor leaders, and other people with whom they were acquainted.[17] The clerk then sent jury questionnaires to the selected people and filed the returned questionnaires according to the juror's county of residence.[18] When jurors were needed, the clerk drew questionnaires from the file on a first-in, first-out basis.[19] The clerk would then review the juror's questionnaire to determine whether the juror met the statutory qualifications for jury service.[20] Certain people, such as doctors, lawyers, dentists, nurses, school teachers,

---

14. *See, e.g.,* Rose v. Mitchell, 443 U.S. 545, 548 (1979); Hernandez v. Texas, 347 U.S. 475, 479 (1954); *see also* United States v. Cohen, 275 F. Supp. 724, 729 (D. Md. 1967).
15. For a discussion of the keyman system, see, e.g., United States v. Cohen, 275 F. Supp. 724, 729 (D. Md. 1967), *aff'd*, United States v. DiTommaso, 405 F.2d 358 (4th Cir. 1968), *cert. denied*, DiTommaso v. United States, 394 U.S. 934 (1969), *cert. denied*, Waugaman v. United States, 394 U.S. 934 (1969).
16. *Cohen*, 275 F. Supp. at 729.
17. *Id.*
18. *Id.*
19. *Id.* at 730.
20. *Id.*

and those with medical emergencies, were excused.[21] The jury commissioner approved those people who qualified and deposited a slip of paper with the juror's name, age, address, occupation, and his or her spouse's name and occupation in a box.[22] About 400 to 600 prospective jurors' names were on file at one time.[23] At the beginning of each term, the United States Marshal summoned 40 to 45 prospective grand jurors and 175 to 225 prospective petit jurors for jury duty.[24]

The Maryland keyman system, and systems similar to it that were used in other states, often created jury pools that were not representative of the population.[25] Even in the absence of intentional discrimination by the clerk and jury commissioner, potential jurors from numerous strata of the community never came to the attention of those selecting the jury pool.[26]

B. *The Jury Selection and Service Act*

The biases inherent in the keyman system and in other states' similar systems led to the enactment of the Jury Selection and Service Act of 1968 (the JSSA).[27] In changing the old system, Congress sought to eliminate the influence of race or other impermissible criteria to ensure that the jury lists were drawn from a fair cross-section of the community.[28]

Congress required each district to develop a plan for random jury selection.[29] The Act required the use of voter registration lists or lists of actual voters as the source for the initial selection of names of prospective jurors.[30] Voter lists were chosen for two reasons.

---

21. *Id.*
22. *Id.*
23. *Id.*
24. *Id.*
25. For a critique of the keyman system, see C. Lindquist, *Analysis of Juror Selection Procedure in the United States District Courts*, 41 TEMP. L.Q. 32 (1967). *See also* Jury Selection and Service Act of 1968: Report to House Judiciary Comm., H.R. REP. No. 1076, 90th Cong., 2d Sess. (1968), *reprinted in* 1968 U.S.C.C.A.N. 1792, 1795 (recognizing that keyman system is susceptible to intentional discrimination and that even if intentional discrimination is absent, the underrepresentation of certain groups is still unacceptable).
26. H.R. REP. No. 1076, *reprinted in* 1968 U.S.C.C.A.N. at 1794 n.1.
27. 28 U.S.C. § 1861 *et seq.* (1988).
28. H.R. REP. No. 1076, *reprinted in* 1968 U.S.C.C.A.N. at 1794. The Act states in part: "It is the policy of the United States that all litigants in Federal courts entitled to trial by jury shall have the right to grand and petit juries selected at random from a fair cross-section of the community in the district or division wherein the court convenes." 28 U.S.C. § 1861 (1988).
29. 28 U.S.C. § 1863(a) (1994).
30. *Id.* § 1863(b)(2).

First, they provided "the widest community cross-section of any list readily available."[31] Second, they provided "an initial line of defense against incompetence in the lists of potential jurors."[32] The Act, however, required supplementation of the voter lists with other lists when necessary to correct substantial deviations between the percentage of a group in the community and the percentage of that group in jury pools.[33] The Act did not define "substantial"; this task was left to the courts.[34]

C. Maryland Law

The Maryland legislature enacted a statute very similar to the JSSA in 1973. Like the JSSA, the Maryland statute's policy is to

---

31. H.R. REP. No. 1076, *reprinted in* 1968 U.S.C.C.A.N. at 1794.

32. *Id.* at 1795. Because citizens were required to read, write, and understand English in order to vote, and because these qualifications also apply to jury service, the use of voter lists would automatically screen out many unqualified jurors. *Id.*

33. The Act required that the plan "prescribe some other source or sources of names in addition to voter lists where necessary to foster the policy and protect the rights secured by [this Act]." 28 U.S.C. § 1863(b)(2) (1994). Furthermore, legislative history reveals that, while the voting list need not perfectly mirror the percentage structure of the community, "any substantial percentage deviations must be corrected by the use of supplemental sources." H.R. REP. No. 1076, *reprinted in* 1968 U.S.C.C.A.N. at 1794.

Even before this Act was passed by Congress, some analysts doubted whether the use of voter registration lists would remedy perceived inadequacies in the jury selection situation. As one commentator pointed out:

It becomes doubtful whether voter registration lists are capable of producing juries representative of a cross-section of the community, in view of the fact that the lists exclude over 30 million people, a disproportionate number of whom are members of the lowest socio-economic strata of society. Since congressional intent clearly indicates a desire for federal juries to represent a cross-section of the community, it would be a mistake to regard the pending legislation as a panacea. What is needed are carefully thought out guidelines and suggestions for judicial councils to supplement the registration lists.

Lindquist, *supra* note 25, at 49.

A number of studies have also revealed that jury pools drawn from voter registration lists often underrepresent African-Americans, women, and young people. The remedy most frequently advocated for this underrepresentation is the use of multiple source lists such as driver licenses lists, tax rolls, and welfare rolls. *See, e.g.*, N. Benokratis & J. Griffin-Keene, *Prejudice and Jury Selection*, 12 J. BLACK STUD. 427 (1982); Hayward R. Alker, Jr., et al., *Jury Selection as a Biased Social Process*, 11 LAW & SOC'Y REV. 9 (1976); Hayward R. Alker, Jr. & Joseph J. Barnard, *Procedural and Social Biases in the Jury Selection Process*, 3 JUST. SYS. J. 220 (1977-1978); L. Knowles & K. Hickman, *Selecting a Jury of Peers: How Close Do We Get?*, 12 J. POLICE SCI. & ADMIN. 207 (1984); Mark Michael et al., *Challenges to Jury Composition in North Carolina*, 7 N.C. CENT. L.J. 1 (1975); G. Thomas Munsterman & Janice T. Munsterman, *The Search for Jury Representativeness*, 11 JUST. SYS. J. 59 (1986).

34. H.R. REP. No. 1076, *reprinted in* 1968 U.S.C.C.A.N. at 1794.

ensure that juries "shall be selected at random from a fair cross-section of the citizens of the State who reside in the county where the court convenes."[35] The Maryland law mirrors the JSSA by using voter registration lists as the primary source of the jury pool and by using additional secondary sources if necessary to achieve a fair cross-section of the community.[36]

III. APPLICATION OF THE *DUREN* TEST

The Supreme Court, in *Duren v. Missouri*,[37] held that in order to make out a prima facie case of a fair cross-section violation, a defendant must show:

> (1) that the group alleged to be excluded is a distinctive group in the community;[38]
> (2) that the representation of this group in venires from which juries are selected is not fair and reasonable in relation to the number of such persons in the community;[39] [and]
> (3) [that] this underrepresentation is caused by systematic exclusion of the group in the jury selection process.[40]

Once a defendant has made a prima facie case under these requirements, the burden shifts to the state to show a substantial state interest which justifies the infringement.[41]

---

35. MD. CODE ANN., CTS. & JUD. PROC. § 8-102 (1993).
36. The Maryland counterpart to the JSSA provides: "The jury commissioner or the clerk of the court shall select the names of prospective jurors from among those persons 18 years old or older whose names appear on the voter registration lists, and from such additional sources permitted by a plan adopted under section 8-201." *Id.* § 8-104.
37. 439 U.S. 357 (1979).
38. *Id.* at 364.
39. *Id.* Merely pointing out that no one person of a particular race served upon a particular jury is not sufficient for a defendant to prevail upon a cross-section challenge. Adair v. State, 231 Md. 255, 256, 189 A.2d 618, 619 (1963); Giles v. State, 229 Md. 370, 183 A.2d 359 (1962) (finding that African-Americans have no constitutional right to be tried before a jury including African-Americans). It is not necessary that a jury actually reflect a fair cross-section of the community but only that the list of prospective names of jurors be chosen in a selection process reasonably designed to produce a fair cross-section. Thiel v. Southern Pac. Co., 328 U.S. 217, 220 (1946); Wilkins v. State, 270 Md. 62, 310 A.2d 39 (1973), *cert. denied*, 415 U.S. 992 (1974).
40. *Duren*, 439 U.S. at 364.
41. *Id.* "'The right to a proper jury cannot be overcome on merely rational grounds.' Rather, it requires that a significant state interest be manifestly and primarily advanced by those aspects of the jury-selection process, such as exemption criteria, that result in the disproportionate exclusion of a distinctive group." *Id.* at 367-68 (quoting Taylor v. Louisiana, 419 U.S. 522, 534 (1975)).

A. Prong One of the Duren Test: Cognizable Class

The first prong of the *Duren* test requires that the class under consideration be "distinctive" or "cognizable."[42] The Supreme Court first addressed the issue of cognizability in *Strauder v. West Virginia*.[43] In *Strauder*, the Court held that African-Americans, who had a distinctive heritage, culture and history, were a cognizable group.[44]

Although courts define "cognizable" slightly differently, the term is generally used to focus on a group's distinctive characteristics and the unique nature of prejudice afflicting a group.[45] In Maryland, the courts use a three-prong test to define cognizability.[46] First, there must be some factor that defines and limits the group.[47] Second, the group must have cohesion, a common thread or basic similarity in attitudes, ideas or experience.[48] Third, the group must have a community of interest that cannot be adequately protected by the rest of the populace.[49]

B. Prong Two of the Duren Test: The Various Tests of Disparity

To determine whether the representation of a group in a venire panel is fair and reasonable under the second prong of the *Duren*

---

42. *Id.* at 364.
43. 100 U.S. 303 (1879) (recognizing that African-Americans are a cognizable class and holding that a state law that excluded African-Americans from jury pools violated equal protection).
44. *Id.*
45. *See* Hernandez v. Texas, 347 U.S. 475, 479-80 (1954) (relying on the courthouse bathrooms, one unmarked and the other marked "Colored Men" and "Hombres Aqui," and the unique culture and history of Hispanics as proof that Hispanics could be distinguished from Caucasians); Murchu v. United States, 926 F.2d 50, 54 (1st Cir.) (holding that defendant must show that group is definable and limited by some clearly identifiable factor, such as a common thread of experiences and a community of interests, so that the group's interest cannot be adequately represented if group is excluded from the jury selection process), *cert. denied*, 502 U.S. 828 (1991); United States v. Guzman, 337 F. Supp. 140, 143 (S.D.N.Y. 1972) (holding that a group is distinct when it has a shared attribute that defines or limits its membership and when it shares a community of interest), *cert. denied*, 410 U.S. 937 (1973); Rubio v. Superior Court, 593 P.2d 595, 598 (Ca. 1979) (defining cognizability using a two-prong test, where first prong focused on distinctiveness and second prong focused on discrimination); *cf.* United States v. Bucci, 839 F.2d 825, 833 (1st Cir.) ("The important consideration . . . is not whether a number of people *see themselves* as forming a separate group, but whether others, by treating those people unequally, *put them* in a distinct group."), *cert. denied*, 488 U.S. 844 (1988) (emphasis in original).
46. Wilkins v. State, 270 Md. 62, 67, 310 A.2d 39, 41-42 (1973), *cert. denied*, 415 U.S. 992 (1974). See *infra* notes 47-49 and accompanying text for further discussion.
47. *Wilkins*, 270 Md. at 67, 310 A.2d at 41.
48. *Id.*
49. *Id.* at 67, 310 A.2d at 41-42.

test, statistical evidence must be gathered and analyzed in order to calculate the "disparity," or the amount of unequal representation, of the cognizable group. Neither the Supreme Court nor the JSSA has established clear standards for measuring underrepresentation or for determining the level of underrepresentation required to establish a violation. However, three methods of measuring disparity are most commonly used: absolute disparity, comparative disparity, and a test of statistical significance.

1. Absolute Disparity

Absolute disparity measures the difference between the percentage of a cognizable group in the population and the percentage of that group represented in the jury pool.[50] The formula for determining absolute disparity is therefore extremely simple: Subtract the proportion of the cognizable group in the population from the proportion of that group in the jury pool. For example, in Baltimore County in 1988, 12.2% of the population and 4.9% of the jury pool were African-American.[51] The absolute disparity was 4.9 minus 12.2, or - 7.3.

Absolute disparity is the measure that has gained the widest acceptance and that has been relied upon repeatedly by the federal and the Maryland courts.[52] Although the Supreme Court has never indicated that absolute disparity is the preferred method for measuring disparity, the Court used the method in *Swain v. Alabama*,[53] a 1965 case in which the petitioner alleged that the absolute disparity of African-Americans on the jury was a violation of the Fourteenth

---

50. United States v. Jenkins, 496 F.2d 57, 65 (2d Cir. 1974), *cert. denied*, 420 U.S. 925 (1975); *see also* Duren v. Missouri, 439 U.S. 357, 360 (1979) (holding that prima facie discrimination exists when percentage of women serving on juries is less than 15%); Hernandez v. Texas, 347 U.S. 475, 481-82 (1954) (holding that prima facie discrimination exists when population consists of 14% Mexican-Americans and no one with Spanish surname has served on county grand jury in last 25 years).

51. *See supra* Table 1.

52. Cynthia A. Williams, Note, *Jury Source Representativeness and the Use of Voter Registration Lists*, 65 N.Y.U. L. Rev. 590, 610 (1990); *see, e.g.*, *Duren*, 439 U.S. at 364; Turner v. Fouche, 396 U.S. 346, 360 (1970); United States v. Sanchez-Lopez, 879 F.2d 541, 547 (9th Cir. 1989); United States v. Rosario, 820 F.2d 584, 585 n.1 (2d Cir. 1987) (declining to reevaluate use of absolute disparity test for Sixth Amendment); United States v. Suttiswad, 696 F.2d 645, 648 (9th Cir. 1982); United States v. Maskeny, 609 F.2d 183, 190 (5th Cir.) (finding that use of absolute disparity is proper), *cert. denied*, 447 U.S. 921 (1980); *Jenkins*, 496 F.2d at 65; United States v. Maldonado-Rivera, 922 F.2d 934, 970 (2d Cir. 1990) (declining to reexamine the *Jenkins* test); Bailey v. State, 63 Md. App. 594, 602-04, 493 A.2d 396, 400-01 (1985) (holding absolute disparity is proper test for purposes of fair cross-section analysis).

53. 380 U.S. 202, 208-09 (1965).

Amendment's guarantee of equal-protection. In *Swain,* although the petitioner demonstrated an absolute disparity of 10%, the Court, nevertheless, held that the plaintiff failed to establish a prima facie case of purposeful discrimination.[54] Thus, *Swain* has been interpreted to require at least 10% absolute disparity for fair cross-section cases. As such, courts have generally declined to find a Sixth Amendment violation where absolute disparities are less than 10%.[55]

Absolute disparity, however, can be a misleading measure when the percentage of the excluded group in the population is relatively small because absolute disparity does not adjust for the size of the population.[56] Therefore, the absolute disparity test can produce seemingly low levels of disparity in situations where common sense and statistical analysis indicate significant underrepresentation. For example, in 1990, 8.7% of the population in Montgomery County was

---

54. "We cannot say that purposeful discrimination based on race alone is satisfactorily proved by showing that an identifiable group in a community is underrepresented by as much as 10%." *Id.*

55. *See, e.g.,* United States v. Rodriguez, 776 F.2d 1509, 1511-12 (11th Cir. 1985) (finding absolute disparity of 6.674% for African-Americans and 5.52% for Hispanics not to be fair cross-section violation); United States v. Pepe, 747 F.2d 632, 649 (11th Cir. 1984) (finding 7.6% absolute disparity for African-Americans not to be a fair cross-section violation); United States v. Tuttle, 729 F.2d 1325, 1327 (11th Cir. 1984) (finding absolute disparity of 6.33% for African-Americans insufficient for prima facie showing of fair cross-section violation), *cert. denied,* 469 U.S. 1192 (1985); United States v. Suttiswad, 696 F.2d 645, 648-49 (9th Cir. 1982) (holding absolute disparity of 2.8% for African-Americans and 7.7% for Hispanics to be insubstantial); Newberry v. Willis, 642 F.2d 890, 893 (5th Cir. 1981) (finding 6.5% absolute disparity for African-Americans to be "negligible"); United States v. Clifford, 640 F.2d 150, 155 (8th Cir. 1981) (holding absolute disparity of 7.2% for Indians insufficient to show underrepresentation); United States v. Armstrong, 621 F.2d 951, 955 (9th Cir. 1980) (holding absolute disparity of 2.83% for African-Americans insufficient to show underrepresentation); United States v. Kleifgen, 557 F.2d 1293, 1297 (9th Cir. 1977) (holding absolute disparity of 2.9% for African-Americans and 4.7% for males insubstantial); United States v. Di-Tommaso, 405 F.2d 385, 392 (4th Cir. 1968) (finding no underrepresentation for blue collar workers where absolute disparity equaled 10.7%), *cert. denied,* 394 U.S. 934 (1969); *Bailey,* 63 Md. App. at 604, 493 A.2d at 400 (finding evidence of absolute disparity of 13.5% to be insufficient to show an unfair and unreasonable underrepresentation of African-Americans in the jury pool). *But see* Waller v. Butkovich, 593 F. Supp. 942, 954 (M.D.N.C. 1984) (refusing to adopt 10% absolute disparity rule).

56. *See* J. VAN DYKE, JURY SELECTION PROCEDURES 98 (1977) (suggesting 20% comparative disparity should be demarcation of substantial underrepresentation); Foster v. Sparks, 506 F.2d 805, 818 (5th Cir. 1975) (same); *cf.* David Kairys et al., *Jury Representativeness: A Mandate for Multiple Source Lists,* 65 CAL. L. REV. 776, 799 (1977) (suggesting that 15% comparative disparity as the line of demarcation).

\

African-American.[57] The total exclusion of African-Americans from the jury pool would result in an absolute disparity of only 8.7%, a permissible level under *Swain*, despite the fact that an African-American resident would have *no* chance of serving on a jury. Similarly, if an absolute disparity of 10% occurred in 1990 in Anne Arundel County, which was then 11.4% African-American,[58] the result would be almost total exclusion of African-Americans in that county. This disparity would be much more significant than a 10% disparity in Prince George's County, which was 49.2% African-American in 1990.[59] Accordingly, reliance on absolute disparity as the only measure can produce inconsistent results, which understate the true level of underrepresentation,[60] when the group under consideration comprises substantially less than 50% of the population.

2. Comparative Disparity

Comparative disparity measures the probability that any one person belonging to a particular cognizable group will be chosen to be in a jury pool. Where the jury pool reflects a fair cross-section of the community, a person belonging to a cognizable group would have the same probability of being selected for a jury pool as would the average citizen. In such a case, the comparative disparity would be zero.[61] As the probability of a person's presence in the jury pool decreases, the comparative disparity increases.

The formula for the comparative disparity ratio is:

$$\frac{\text{PROPORTION IN POOL - PROPORTION IN POPULATION}}{\text{PROPORTION IN POPULATION}} \times 100$$

The numerator in the comparative disparity ratio is the absolute disparity. By dividing the absolute disparity by the proportion of the

---

57. 1990 CENSUS OF POPULATION AND HOUSING, MARYLAND, available in CD-ROM v.6 Prepared by the Bureau of the Census, Washington, D.C. 1991, Table P12, P13.
58. *Id.*
59. A 10% disparity in Prince George's County, where the population consists of almost 50% African-Americans, would indicate that an African-American's chances of serving on a jury are reduced by one-fifth, or 20%. In contrast, a 10% disparity in Anne Arundel County, where the population consists of 11.4% African-Americans, would indicate that an African-American's chances of serving on the jury are reduced by almost 88%.
60. For this reason, the Subcommittee of the Committee on the Operation of the Jury System of the Judicial Conference recognized this problem in its 1976 report and concluded that the use of this test could produce distorted results. The Subcommittee recommended using additional measures to avoid distorted results. The Subcommittee report is appended to Foster v. Sparks, 506 F.2d 805, 836 (5th Cir. 1975). *See* Williams, *supra* note 52, at 611-12.
61. *See, e.g.,* Kairys et al., *supra* note 56, at 790.

group in the population, comparative disparity adjusts for the size of the group.

A few examples will demonstrate how comparative disparity operates. For these examples, assume a jurisdiction where African-Americans constitute 25% of the population. If there are no African-American members in the jury pool, the comparative disparity would be -100%.[62] An African-American member of the population would have a 100% lower chance of being a member of the jury pool. If, in the same jurisdiction, the jury pool were 25% African-American, the comparative disparity would be 0%.[63] An African-American member of the population would have no reduced chance, or, in other words, an equal chance, of being a member of the jury pool as compared with the rest of the population. Finally, if African-Americans comprise 12.5% of the jury pool, the comparative disparity would be -50%.[64] An African-American member of the population would have a 50% lower chance of being a member of the jury pool. Because comparative disparity accounts for the size of the population, comparative disparity is a better measure of disparity than absolute disparity when the percentage of the cognizable class is substantially less than 50%.

Some courts have recognized the benefits of the comparative disparity test and have adopted its use.[65] For example, the Supreme

---

62. In this case, the formula yields the following result:

$$\frac{0 - 25}{25} \times 100 = -100\%$$

63. This result is reached by using the comparative disparity formula:

$$\frac{\text{PROPORTION IN POOL - PROPORTION IN POPULATION}}{\text{PROPORTION IN POPULATION}} \times 100$$

In this case, the numbers are as follows:

$$\frac{25 - 25}{25} \times 100 = -0\%$$

64. Again using the appropriate formula:

$$\frac{\text{PROPORTION IN POOL - PROPORTION IN POPULATION}}{\text{PROPORTION IN POPULATION}} \times 100$$

The result is reached by the following calculation:

$$\frac{12.5 - 25}{25} \times 100 = -50\%$$

65. *See, e.g.*, Alexander v. Louisiana, 405 U.S. 625, 630 (1972) (using comparative

Court of California stated that it preferred the comparative disparity method because it produced results that were unaffected by the proportion of the population in the specified category.[66] By using an example which assumed a small percentage of African-Americans in the population, the court demonstrated that absolute disparity could permit a violation of the fair cross-section principle, while comparative disparity could help avoid such an intolerable result.[67]

Social scientists suggest that comparative disparities that are higher than 20% should be considered evidence of significant disparities.[68] For this reason, the Authors recommend that a 20% comparative disparity be adopted as the level that establishes a prima facie case of underrepresentation. Courts have not uniformly adopted this policy,[69] and many have refused to find underrepresentation at even higher levels of comparative disparity.[70]

---

disparity test in upholding equal-protection challenge); Bradley v. Judges of Superior Court, 531 F.2d 413, 416-17 n.8 (9th Cir. 1976); Waller v. Butkovich, 593 F. Supp. 942, 957 (M.D.N.C. 1984) (using, among other tests, comparative disparity test); United States v. McDaniels, 370 F. Supp. 298, 303 (E.D. La. 1973); *cf.* United States v. Butler, 615 F.2d 685, 686 (5th Cir. 1980) (recognizing that absolute disparity method is not the sole method for evaluating fair cross-section claims). *But see* United States v. Jenkins, 496 F.2d 57, 65-66 (2d Cir. 1974) (rejecting comparative disparity analysis because, where small groups are involved, small absolute disparities produce large comparative disparities), *cert. denied*, 420 U.S. 925 (1975); Godfrey v. Francis, 613 F. Supp. 747, 758 (N.D. Ga. 1985) (rejecting defendant's claim where comparative disparity statistics were presented because absolute disparity was proper test).

66. People v. Harris, 679 P.2d 433, 445 (Cal.), *cert. denied*, 469 U.S. 965 (1984).
67. *Id.*
68. *See* VAN DYKE, *supra* note 56; *Foster*, 506 F.2d at 818; *cf.* Kairys et al., *supra* note 56. Absolute disparity does not adjust for the size of the population. However, when the group under examination represents 50% of the population, absolute disparity is not problematic. For example, when the group represents 50% of the population, an absolute disparity of 10% (the point at which courts often recognize that an underrepresentation problem exists) translates into a comparative disparity of 20% ((50-40)/50).
69. *See Waller*, 593 F. Supp. at 957; United States v. Facchiano, 500 F. Supp. 896, 903 (S.D. Fla. 1980) (calling 20% comparative disparity a "helpful guideline").
70. *See* United States v. Clifford, 640 F.2d 150 (8th Cir. 1981) (holding that 46% comparative disparity is not substantial underrepresentation); United States v. Test, 550 F.2d 577 (10th Cir. 1976) (holding that comparative disparity of 46% is not substantial); United States v. Levasseur, 704 F. Supp. 1158, 1163 (D. Mass. 1989) (holding that comparative disparity of 50.3% does not rise to level of substantial underrepresentation although the court did find this comparative disparity "troubling"); Perkins v. Grammer, 664 F. Supp. 1280, 1283 n.4 (D. Neb. 1987) (concluding that comparative disparity was proper approach, but finding no substantial underrepresentation when disparity was 49%); United States v. Armsbury, 408 F. Supp. 1130, 1136 (D. Or. 1976) (holding that comparative disparity of 45.5% for African-Americans and 75% for Mexican-Americans was not substantial).

3. Tests of Significance

a. The Test and Its Deficiencies

Some courts have used a third approach to evaluate claims of disparity, a "statistical significance" test. While statisticians use several tests of significance, the Supreme Court of the United States has used a standard deviation analysis.[71] This test uses a mathematical formula[72] to measure the probability that a disparity between the percentage of a cognizable group in the population and the percentage of that group in the jury pool could have occurred by chance.[73] If the probability of a chance occurrence of underrepresentation is very low, a court may infer that the disparity was caused by the group's underrepresentation on the jury source list. In contrast, if the probability of a chance occurrence of underrepresentation on the jury list is sufficiently high, then a court may conclude that the underrepresentation could have been the result of random choices from a representative source list. Accordingly, a court will likely decide that the statistics fail to make out a prima facie case.

---

71. *See, e.g.,* Castaneda v. Partida, 430 U.S. 482 (1977). For a discussion of the Court's analysis in *Castaneda*, see *infra* note 74.
72. The probability is computed by determining the "Z score," or standard deviation measure. For a sample size over 50, the Z score is determined by the formula:

$$Z = \frac{(Pp - Ps)}{\sqrt{(Pp\,(100 - Pp))/N}}$$

Where:

Pp = proportion in the population
Ps = proportion in the sample
N = sample size

For smaller sample sizes, a test of significance based upon the T distribution table is appropriate.
73. Thus, the term "test of significance" can be misleading. When a non-statistician thinks of "significance," she asks whether the results are "important." In contrast, a statistician uses "significance" to determine whether the results could have occurred by chance. If it is unlikely that the results could have occurred by chance, then the statistician deems the results to be "significant." For example, it is extremely unlikely that if a coin is flipped 25 times it will appear as heads every time. While not impossible, the probability that this will occur is one chance in 33,554,432. If this were to happen, because the probability is so low, one would conclude that it was not a chance occurrence. Instead, one would conclude that the flipping was "fixed" in some way.

The Supreme Court first used a test of significance in *Castaneda v. Partida*,[74] and lower courts have followed the high Court's lead.[75]

---

74. 430 U.S. 482 (1977). The Court in *Castaneda* considered an equal-protection challenge to the jury pool, where the percentage of Mexican-Americans in the county was 79.1%, but the percentage of Mexican-Americans in the jury pool was 39% over an 11 year period. *Id.* at 495. Accordingly, the absolute disparity was 40.1%, and the comparative disparity was 50.7%. The Court used a statistical significance approach and discussed the likelihood that such a substantial departure could occur by chance. By using Z scores (standard deviation analysis as the Court termed it), the Court calculated that the likelihood that such a substantial departure could occur by chance was less than one in 10 to the 140th power (Z = 12). *Id.* at 496 n.17.

The *Castaneda* Court noted that for large samples, a standard deviation of "two or three" would cause a social scientist to question the randomness of the jury selection. *Id.*; *see also* Hazelwood School District v. United States, 433 U.S. 299, 312 n.17 (1977) (applying *Castaneda* standard deviation analysis in an employment discrimination suit); Alexander v. Louisiana, 405 U.S. 625, 630 n.9 (1972) (noting that chances were one in 20,000 that the disparity between the percentage of African-Americans on grand juries occurred by chance).

75. In Moultrie v. Martin, 690 F.2d 1078 (4th Cir. 1982), the Fourth Circuit seized upon the statistical analysis in *Castaneda* and *Hazelwood* and rejected the use of absolute disparity in all racial discrimination cases. The court stated:

> We now hold that, in all cases involving racial discrimination, the courts of this circuit must apply a standard deviation analysis such as that approved by the Supreme Court in *Hazelwood* before drawing conclusions from statistical comparisons. . . . We reject the . . . method of evaluating discrimination through the comparison of straight racial percentages. Such methodology is mathematically incorrect, and we are of the opinion that it has been rejected by the Supreme Court.

Id. at 1082.

Because absolute disparity misapprehends what a test of significance actually measures, the *Moultrie* court's reliance on the test of significance alone is misplaced. *See infra* part III.*B.3.b.*; *see also* Jefferson v. Morgan, 962 F.2d 1185, 1187 (6th Cir. 1992) (establishing a prima facie case of discrimination where 5.9% of grand jurors were African-American while 18.5% of the population of the county was composed of African-Americans and the number of African-Americans was six standard deviations less than would be expected, and the chance that the county would have randomly chosen only twenty African-Americans to serve on jury panels was one billion to one); Alston v. Manso, 791 F.2d 255 (2d Cir. 1986) (finding standard deviation test appropriate for analyzing whether minority underrepresentation was substantial and granting petition for habeas corpus where odds of exclusion of African-Americans from jury panel were three in one billion), *cert. denied*, 479 U.S. 1084 (1987); Waller v. Butkovich, 593 F. Supp. 942, 955 (M.D.N.C. 1984) (finding no substantial underrepresentation where standard deviation ranged from 92.49 to 7.45, despite the *Moultrie* finding that a standard deviation of two or three was sufficient to find a violation, because sample sizes used skewed results and because "comparing the standard deviation is only the starting point of a proper analysis of a claim of substantial underrepresentation"); United States v. Donohue, 574 F. Supp. 1269, 1279 (D. Md. 1983) (finding no jury cross-section violation where standard deviation was -3.298); Hillery v. Pulley, 563

Nonetheless, a test of significance *alone* is inappropriate for determining disparity. The test does not directly indicate the magnitude of disparity. Instead, the test merely shows whether a certain disparity *could* have occurred by chance. The test is affected by both the sample size[76] and the magnitude of the disparity. With very large samples, virtually any disparity will be considered significant. As the sample size decreases, the level of significance (Z score) also declines. Therefore, the use of a test of significance alone is not a dependable or an accurate measure.

b. The Proper Use of a Test of Significance

While use of a test of significance *alone* may be inappropriate, the test, nonetheless, has a role to play in the analysis of disparities. The test measures the significance of the observed disparities and, thus, indicates the reliability of the statistical analysis. Accordingly, the test should operate in conjunction with comparative disparity or absolute disparity to discount properly the possibility that the measured disparity in question could have occurred by chance.

To use a test of significance, one must first determine a decision rule or a "criterion of significance." As an example, a decision rule might state that if there is a 5% probability or greater that the results could have occurred by chance, one would conclude that the results did in fact occur by chance. Applied to the jury selection context, this rule would state that if there is a 5% probability or greater that the disparity in a specific case could have occurred by chance, one would decide that the result could be caused by the sampling process. Accordingly, one would conclude that a fair cross-section violation had not been proven.

Statisticians have no hard-and-fast rule for deciding what the criterion of significance level should be. However, the closer the criterion of significance is to zero, the more likely one would conclude that the results occurred by chance and, thus, that the statistics do not evidence a fair cross-section violation.[77] Most social scientists use

---

F. Supp. 1228 (E.D. Cal. 1983) (discussing both standard deviation and non-statistical evidence in determining whether fair cross-section violation existed, and granting habeas corpus relief where standard deviation was approximately three).

76. "Sample size" refers to the size of the selection from the larger group. In the jury challenges discussed in this Article, sample size refers to the number of juror questionnaires which were selected for analysis from the total number of questionnaires returned.

77. In establishing a criterion of significance, statisticians consider the cost of being wrong. In the context of fair cross-section challenges, a "Type I" error occurs if one concludes that a disparity is systematic when in fact the disparity was purely a function of chance. A "Type II" error is the opposite; in this

.05 as the criterion of significance,[78] which corresponds to the two standard deviations suggested in *Castaneda*.[79] Similarly, the Authors have adopted that level.

After a criterion of significance level is chosen (.05 will be used throughout the remainder of this Article), that level is compared to the probability level (called a p-value) in the individual case to determine whether the disparity in question could have resulted by chance. If the p-value is lower than .05, one would conclude that the results were not caused by a chance occurrence.

4. Summary

To demonstrate that a substantial disparity exists, thereby meeting the second prong of *Duren*, one must show: (1) the existence of a sufficiently large disparity, as measured by either absolute disparity or comparative disparity and (2) that the disparity is statistically significant.[80] Absolute disparity is an inaccurate measure when the proportion of the cognizable class is substantially less than 50% of the population. Therefore, this Article suggests that comparative disparity is a more accurate measure in such circumstances. Finally, although it is impossible to propose absolute rules, this Article suggests that an absolute disparity of 10% (where the size of the

---

context, it occurs if one concludes the disparity is a chance occurrence when it is actually caused by inequalities in the process of composing the jury pool. If the cost of a "Type I" error is greater than the cost of a "Type II" error, one will set a criterion of significance closer to zero. Conversely, if the cost of a "Type II" error is greater than the cost of a "Type I" error, one will set a higher criterion of significance level. One could argue that the criteria should be set above .05 because if the disparity were improperly attributed to chance an unredressed due-process violation would be created. The Authors leave this argument aside.

78. DAVID C. BALDUS & JAMES W. COLE, PH.D., STATISTICAL PROOF OF DISCRIMI-NATION 50 n.101; NATIONAL JURY PROJECT, *Jurywork: Systematic Techniques*, at 5-56 n.111.1 (Beth Bonora & Elissa Krauss eds., 1979); Michael O. Finkelstein, *The Application of Statistical Decision Theory to the Jury Discrimination Cases*, 80 HARV. L. REV. 338 (1966); Kairys et al., *supra* note 56, at 792; Munsterman, *supra* note 33, at 64 ("The cutoff probability normally used is .05 . . . .").

79. Castaneda v. Partida, 430 U.S. 482, 496 n.17 (1977). The Court in *Castaneda* suggested that "two or three" standard deviations was significant. *Id.* at 496. There is actually a large difference between Z scores of two and three. A Z score of two translates into a p-value of .0454 (approximately 45 chances in 1000 of the event occurring by chance). A Z score of three translates into a p-value of .0027 (approximately three chances in 1000). Most social scientists would accept a Z score above 1.96 (p < .05) as indicating significance. Accordingly, this Article has adopted that level.

80. Duren v. Missouri, 439 U.S. 357, 364 (1979).

group approaches 50% of the population) or a comparative disparity of 20% for smaller groups, coupled with a level of statistical significance of .05, should be accepted as sufficient evidence that underrepresentation exists.

C. Prong Three of the Duren Test: Systematic Exclusion

Once the defendant has shown underrepresentation, it is his burden to prove that this underrepresentation was caused by systematic exclusion of the group in the jury selection process.[81] Systematic underrepresentation means that the disparity is "inherent in the particular jury-selection process utilized."[82] In *Duren*, the Court ruled that the third prong of the test was met when the defendant made an "undisputed demonstration that a large discrepancy [in the percentage of women appearing in the jury panel] occurred not just occasionally, but in every weekly venire for a period of nearly a year."[83] The Court noted that this discrepancy "manifestly indicate[d] that the cause of the underrepresentation was systematic — that is inherent in the particular jury-selection process utilized."[84]

Intent need not be shown for a disparity to be systematic.[85] Instead, "officials must adhere to a standard more stringent than mere abstention from intentional discrimination; they have an affirmative duty to develop and pursue procedures aimed at achieving a fair cross-section of the community."[86]

---

81. *Id.*
82. *Id.* at 366. In *Duren*, the jury selection system at issue exempted women from jury service upon request. The Court found that the system was flawed but noted that when questionnaires were sent out randomly to registered voters, no underrepresentation existed. On the other hand, when the jury wheel was constructed (the next stage in the process), fewer than 30% of those summoned were female, indicating that a substantial number of women who answered the questionnaire claimed either ineligibility or exemption from service. Additionally, women were given another opportunity to claim an exemption when they were summoned and were presumed to have claimed an exemption if they did not respond to the summons. This meant that the percentage of women who appeared in the venire stage (14.5%) was much lower than the percentage of women who were summoned for service (26.7%). *Id.*
83. *Id.*
84. *Id.*
85. *See* LaRoche v. Perrin, 718 F.2d 500, 503 (1st Cir. 1983) (finding that a process, "however neutral on its face," systematically excludes a group if that group is consistently and substantially underrepresented in the jury pools); *cf.* People v. Harris, 679 P.2d 433 (Cal.) (holding that high absolute disparity is sufficient to show that random selection from racially-neutral voter lists systematically excludes blacks), *cert. denied*, 469 U.S. 965 (1984). The Court of Special Appeals of Maryland criticized these opinions as holding that the third prong was automatically satisfied whenever the second prong was satisfied. *See* Bailey v. State, 63 Md. App. 594, 604-06, 493 A.2d 396, 401 (1985).
86. *Harris*, 679 P.2d at 446 (citing People v. Superior Court, 38 Cal. App. 3d 966, 971-72 (Cal. 1974)).

Although there is no standard to determine the duration of underrepresentation necessary to prove systematic exclusion, the *Duren* Court held that underrepresentation for a period of nearly a year was systematic,[87] and, in *People v. Harris*,[88] the Supreme Court of California held that underrepresentation for a period of three months was systematic.[89]

D. Rebuttal: The State Must Prove Significant State Interest

Once the defendant comes forward with facts sufficient to prove a prima facie case of a fair cross-section violation by meeting the first three prongs of the *Duren* test, the state has the high burden of proving a significant state interest.[90] Thus, the state must justify the infringement by showing that attaining a fair cross-section is incompatible with a significant state interest.[91]

For example, if a defendant successfully demonstrated that African-Americans were underrepresented as result of the use of voter registration lists, the state would need to prove either that it had a significant interest in using *only* voter registration lists or that the use of a supplemental list, such as a driver's license list, would be incompatible with a significant state interest.

IV. APPLICATION OF THE *DUREN* TEST TO MARYLAND JURIES

This section will apply the standards outlined in the previous section to data on racial disparities from seven counties in Maryland. Because it is clear that the first and third prongs of the *Duren* test are readily satisfied,[92] this section will focus primarily on the second

---

87. *Duren*, 439 U.S. at 366.
88. *Harris*, 679 P.2d at 445.
89. *Id.* at 442.
90. *Duren*, 439 U.S. at 368.
91. *Id.* at 368-69 (citing Taylor v. Louisiana, 419 U.S. 522, 533-35 (1975)). Additionally, in *Duren*, the lower court suggested that underrepresentation of women might be a result of permissible exemptions and not a result of the automatic exemption under examination. *Id.* at 368-69. However, the record did not contain any proffer that the permissible exemptions caused the underrepresentation, and, therefore, the state did not meet its burden of proof beyond mere suggestions or assertions. *Id.* at 369.
92. The first prong requires that the group be a cognizable class. *Id.* at 364. The courts have specifically held that African-Americans are a distinctive group. *See, e.g.*, Strauder v. West Virginia, 100 U.S. 303 (1879). The third prong requires that the "underrepresentation [be] due to systematic exclusion of the group in the jury selection process." *Duren*, 439 U.S. at 364.

Weekly underrepresentation for a year in *Duren* was found to constitute systematic exclusion. *Id.* at 366. The data which the Authors collected demonstrates at least four years underrepresentation in each county. *See infra* Table 1. Therefore, the systematic exclusion requirement is satisfied in this study.

prong — whether the representation of African-Americans in the jury pool is fair and reasonable. The section will first describe the process for selecting jurors and will then recount the data collection process and discuss potential problems with the data collection methods. Finally, the section will analyze the data using the methods outlined in the sections above.

A. Jury Selection Methods in Maryland

While each county in Maryland has its own jury selection process, Prince George's County's process is typical and will be used as a model. Four times a year the jury commissioner requests that the Board of Registered Voters randomly draw approximately 7500 names from its list of registered voters.[93] The people whose names are drawn are sent jury qualification questionnaires. About 5000 people return the questionnaires and, of the 5000, about 4200 are then qualified by the jury commissioner.[94] Every week, 150 to 250 of the qualified jurors are randomly selected and sent summonses. Over the course of a term, approximately 2500 jurors are called. On an average week, thirty jury trials occur. When a judge requests a jury panel, the jury commissioner randomly chooses jurors from the pool of those summoned for that day. Additionally, in each term twenty-three people are chosen for service on the grand jury.[95]

Violations of a random selection of the population may occur at five levels in this jury selection process. First, not all members of the population over the age of eighteen are registered to vote. Those who are not registered to vote are excluded from this process. Second, despite a follow-up letter, many potential jurors do not return the jury qualification questionnaire. Third, many jurors are disqualified or excused by the jury commissioner in the initial screening of the jury qualification questionnaires. Fourth, some jurors refuse the

---

93. Descriptions of jury selection procedures are based on the Authors' conversations with court officials during the process of gathering the statistics for the jury challenges and on testimony in the circuit court in State v. Jackson, CT 84-1146 (1985). In some counties jury qualification questionnaires are mailed twice a year, and the wheel is filled on a less frequent basis.

94. Jurors are disqualified if they: (1) are not United States citizens; (2) cannot read, write and understand English; (3) have a felony conviction; or (4) have a pending felony charge. MD. CODE ANN., CTS. & JUD. PROC. § 8-207 (1995). In addition, citizens may opt out of jury duty if they: (1) are over the age of 70; (2) are a member of the militia; or (3) have served jury duty within the last three years. *Id.* § 8-209. Jurors who ask for a medical hardship excuse must present a letter from a doctor, while other hardship excuses, such as work, family, and school, are disfavored. Some counties are more liberal in granting these requests than others.

95. *See supra* note 93.

summons for jury service. Fifth, some jurors who are summoned are given late disqualifications or exemptions.[96]

B.   Gathering Data for the Jury Pools

1.   The Method of Collection of Jury Pool Data

Maryland state law requires that jury qualification forms and records regarding jury selection be preserved for at least four years.[97] Parties who challenge the jury selection procedures may request access to those forms in order to prepare challenges. The Authors obtained access to the data in connection with several challenges in death penalty cases.[98]

The data collection methods utilized in the seven selected Maryland counties are described below. In those counties where all questionnaires were not analyzed, questionnaires were chosen at regular intervals, for example, every fourth questionnaire or every fifteenth questionnaire.[99] Different intervals were used in each county.

---

96. The use of peremptory challenges will also affect the representativeness of the jury, and the Supreme Court has held that the discriminatory use of peremptory challenges may violate the Equal Protection Clause. *See, e.g.,* J.E.B. v. Alabama, 511 U.S. 127 (1994); Georgia v. McCollum, 112 S. Ct. 2348 (1992); Batson v. Kentucky, 476 U.S. 79 (1986). The constitutional concern with representativeness, however, applies only to the pool of people called for jury service, not to individual petit juries. *See* Holland v. Illinois, 493 U.S. 474, 478-80 (1990).

97. MD. CODE ANN., CTS. & JUD. PROC. § 8-212 (1989).

98. Access to these forms was granted in two cases in Prince George's County, Bailey v. State, 84 Md. App. 323, 579 A.2d 774, *cert. denied,* 321 Md. 225, 582 A.2d 531 (1990) and State v. Jackson, CT 84-1146, Prince George's County Circuit Court (1985), one case in Dorchester County, State v. King, CR 5012, Dorchester County Circuit Court (1986), two cases in Caroline County, State v. Malone, CR 3374, Caroline County Circuit Court (1989) and State v. Boyt, CR 3872, Caroline County Circuit Court (1992), one death penalty case in Anne Arundel County, State v. Colvin, CR 25340, Anne Arundel County Circuit Court, *aff'd,* Colvin v. State, 299 Md. 88, 472 A.2d 953, *cert. denied,* 469 U.S. 873 (1984), one case in Charles County, State v. Emanuel, CR 93-101, Charles County Circuit Court (1994), and one case in Baltimore County, State v. Wiggins, 88-CR-5464, Circuit Court of Baltimore County (1994). In another case in Montgomery County, State v. Calhoun, 306 Md. 692, 511 A.2d 465 (1986), *cert. denied,* 480 U.S. 910 (1987), the court allowed the petitioner to examine data compiled by the jury commissioner's office.

99. Some counties in Maryland recently began computerizing the jury questionnaire returns. Computerizing the returns will make analysis of jury data simpler and more comprehensive. Prince George's County computerized its system in 1989 and Anne Arundel County began this process in 1993. However, data for this study were gathered in these two counties prior to the computerization. Montgomery County began maintaining information from the juror questionnaires

In general, the data collectors attempted to choose an interval such that 300 or more juror qualification questionnaires would be selected for each year, in order to obtain an adequate sample size. The process of selecting every "nth" questionnaire is equivalent to a random sample; in fact, it is the same method that each county uses to create the master jury wheel from the jury questionnaires.[100]

The selection method for each of the seven selected Maryland counties was as follows:

Anne Arundel County - Research assistants transferred information from every fifteenth juror qualification questionnaire between 1980 and 1983 onto a coding form.

Baltimore County - For 1988 and 1989, a research assistant transferred information from every fourth questionnaire. In 1990 and 1991, the county began using a one-day, one-trial juror selection system. Therefore, in those years the research assistants chose a questionnaire from every three-fourths of a linear inch of questionnaires. In 1992 and 1993, the Authors used the computerized data.

Caroline County - Research assistants transferred information from every juror qualification questionnaire between 1986 and 1992. This data collection occurred in two stages and was used for two separate challenges.

Charles County - Research assistants transferred information from every fourth questionnaire for the years 1989 to 1993.

Dorchester County - Research assistants transferred information from every juror qualification questionnaire for the years 1983 to 1986.

Montgomery County - Montgomery County officials denied access to the juror qualification forms. Information was obtained from the court's computerized data base for the years 1979 to 1983.

Prince George's County - Research assistants transferred information from every fifteenth juror qualification questionnaire for the years 1979 to 1985. This data collection occurred in two different time periods for two different cases.

The number of forms which included racial and age data are shown in Table 1 and Table 2.

2. The Analysis of Missing Data

The jury questionnaire that is sent to a prospective juror requests information on age, race, religion, and national origin. Pursuant to

---

in 1979, but not all information from the jury qualification questionnaires was coded onto the computer. Baltimore County began using a computerized system in January of 1990, but much of the computerized data was inadvertently destroyed. Baltimore County officials provided the computerized data for 1992 and 1993.

100. *See supra* note 93.

Maryland law, however, prospective jurors are free to decline to provide this information,[101] and the form provides an explicit notice of that right.[102] As a result, it is likely that a number of prospective jurors will not provide information on race.[103]

The refusal rate may affect the accuracy of the statistics on the racial composition of the jury pool. For example, if the refusal rate for African-Americans is significantly higher than other groups' refusal rates, failure to account for those African-Americans who refuse to answer the race question will understate the true percentage of African-Americans in the jury pool. In contrast, if the refusal rates for all groups are the same, the statistics from those people who answered the question will yield an accurate measure of the racial composition of the pool. Thus, to be certain of the accuracy of the data, one must find some way to determine the race of the jurors who decline to provide race information.

---

101. MD. CODE ANN., CTS. & JUD. PROC. § 8-202.5(iii) (1995) states:
    > The form shall make clear to the person that furnishing any information with respect to his race, religion, or national origin is not a prerequisite to his qualifications for jury service, and that this information need not be furnished if the person finds it objectionable to do so.

    Id.

102. Since 1982, for most counties, the form places the questions concerning race, religion, and national origin in a separate box, with the following notice: "The furnishing of any information with respect to your race, religion, or national origin is not a prerequisite to your qualification for jury service: and such information need not be furnished if you find it objectionable to do so."

    Prior to 1982, the race, religion, and national origin questions were not placed in a box and the instructions merely stated, "If you object, you need not answer [the] Questions on line 5. Failure to answer will not disqualify you from jury service."

103. Since the inauguration of the new form in 1982, the number of prospective jurors who declined to provide race information (the "refusal rate") has increased substantially. The average refusal rate for race on the old form was 17%; the refusal rate on race for the new form was 29.7%, over 10% points higher. Across six counties, the refusal rate for race ranged from 17.9% in Anne Arundel County to 29.7% in Caroline County. In contrast, the age refusal rate averages under 5%.

    The effect of the form on the refusal rate is most clearly seen in Baltimore County. The race refusal rate in Baltimore County, beginning in 1990, was 71.5%, more than double the average refusal rate. The apparent reason for this jump in the refusal rate is that the court in Baltimore County changed the jury qualification form in 1990.

    The pertinent part of the form prior to 1990 stated: "The furnishing of any information with respect to your race, religion, or national origin is not a prerequisite to your qualification for jury service; and such information need not be furnished, if you find it objectionable to do so." The 1990 form states: "THE DATA IN THIS BOX IS NOT A REQUIREMENT FOR JURY DUTY AND MAY BE LEFT BLANK." (Original is capitalized).

    For obvious reasons, jurors are far more likely to refuse to answer the race question on the 1990 form.

One method is to impute the race of the jurors who did not answer the race question by using other information provided by the juror, such as education, occupation, and zip code.[104] Such techniques were applied to questionnaires in eight of the nine cases discussed below, and the questionnaires revealed that item-refusal rates on the race question were similar for African-Americans and Caucasians.[105] While this technique has been accepted by statisticians, some courts have rejected the technique on the ground that it is too speculative.[106]

The Authors used more direct methods in one other county to account for missing data. In Caroline County, the "jury eligible" population in 1990 was 19,935. The number of residents who were sent jury qualification questionnaires over a given year ranged from 546 to 687. For all prospective jurors who refused to answer the race question over a three term period (1991 and the first term of 1992), the court clerk, the jury commissioner, and the respective postmasters were asked if they could identify the person's race.[107] They were asked only about the last eighteen months of jury duty, on the assumption that the recall of the various personnel would be more accurate for more recent years. When the person's race could not be determined by these methods, the jury pool member was contacted to obtain the information. Although there are problems with having one person identify the race of another,[108] the error rate in this context is manageable.

---

104. To make this imputation, the Authors analyzed the questionnaires from all people in a specific zip code, determined the racial percentages of the people who answered the race question, and projected the same percentages for those people who refused to answer the race question. For example, if analysis of the questionnaires for the people living in zip code 20912 who answered the race question show that 60% were Caucasian, and if 10 jurors from that zip code did not answer the race question, one would impute that 6 (60%) of the 10 jurors were Caucasian. The Authors used this imputation for all those who did not answer the race question.

105. In *State v. Calhoun*, access to the raw questionnaires was denied, and imputations were not possible.

106. *See, e.g.,* United States v. Biaggi, 680 F. Supp. 641, 646 (S.D.N.Y. 1988) (stating that questionnaires which did not include race should not be used in statistical analysis). Courts have also rejected the technique because it is too complicated. In *Biaggi*, the court noted that the "ideal treatment of the incomplete and lost questionnaires in the present case would probably have been to use the Census Bureau's procedure to impute racial and ethnic values where they were lacking." *Id.* at 647. However, since the method was both complicated and time consuming, the court stated that the next best procedure was to leave those questionnaires out altogether. *Id.*

107. Because the county is rather small, the Authors postulated that court personnel would know many of the residents who received jury qualification questionnaires.

108. *See generally* Robert A. Hahn, et al., *Inconsistencies in Coding of Race and Ethnicity Between Birth and Death in U.S. Infants*, 267 JAMA 259 (1992).

In the two terms of 1991 and the first term of 1992, 1018 prospective jurors received juror questionnaires. Of that group, 30.9%, or 315 prospective jurors, refused to answer the race question. Race data were ascertained for all but 7 (2.2%) of the 315 jurors who refused to answer this question. The percentage of African-Americans among those who did not answer the race question was 8.66%. The percentage of African-Americans among those who returned jury qualification questionnaires was 9.20%. Although Caucasians were somewhat less likely than African-Americans to answer the race question, this difference was not statistically significant ($Z = 0.37$).

Imputation techniques and more direct methods of determining the race of those who refuse to answer the race question have shown that the refusal rates are approximately the same for African-Americans as for other racial groups. Therefore, the use of the racial data from those who answered the questions should provide an accurate depiction of the racial makeup of the jury pool.

C. The Use of Census Data to Determine Community Composition

In order to determine whether the racial composition of the jury pool is a fair cross-section of the community, one must also determine the racial composition of the community. Data from the Bureau of the Census is the most comprehensive source for this information. Racial estimates have been used for 1980 and 1990 from the Bureau of the Census.[109] For the years between 1980 and 1990, the percentage of African-Americans was extrapolated by assuming a constant change for the racial ratio between the 1980 Census and the 1990 Census.[110]

The accuracy of Census data has been questioned on several grounds. Some people claim that Census data is inaccurate because such data includes members of the community who are ineligible for

---

109. U.S. BUREAU OF THE CENSUS, CHARACTERISTICS OF THE POPULATION: GENERAL POPULATION CHARACTERISTICS - MARYLAND, WASHINGTON, D.C., U.S. Government Printing Office, 1982, Table 45; 1990 CENSUS OF POPULATION AND HOUSING, MARYLAND, available in CD-ROM v.6 Prepared by the Bureau of the Census, Washington, D.C. 1991, Table P12, P13.

110. Until the results of the 1990 Census were released, the Bureau of the Census did not have racial estimates for years after 1980. In most of the court challenges, the Authors used racial estimates derived from the Maryland Department of State Planning for the years after 1980. *See* MARYLAND DEPARTMENT OF STATE PLANNING, OFFICE OF PLANNING DATA, FINAL POPULATION PROJECTIONS, INDIVIDUAL YEARS, 1980-1990 (Sept. 1984). The Maryland Department of State Planning does not have racial estimates for the African-American population. Rather, they provide estimates for the non-Caucasian population. The Authors divided the non-Caucasian population into "African-Americans" and "Others" by using the proportionate breakdown from the 1980 U.S. Bureau of the Census data.

jury duty: non-citizens, members of the armed forces, and felons.[111] If a disproportionate percentage of these groups are African-American, then the percentage of African-Americans in the Census data will not be an accurate measure of the percentage in the population who are eligible for jury service.

No data exists, however, to support the argument that members of these three groups are disproportionately African-American. Furthermore, even if one assumes such disproportion, the number of people who fall into these categories is minimal and does not affect the overall percentage estimates. For example, in Baltimore County, non-English-speaking citizens comprised 1% of the population, inmates of institutions comprised 1.5%, and non-citizens comprised 2.4%.[112] Assuming that all or most of these groups were African-American would cause only slight changes in the overall disparities.

Census data has also been attacked on the ground that such data underestimates the number of African-Americans in the population. Most analysts estimate that if one took into consideration this undercounting, the African-American percentage of the population would be at least one-half of one percent higher.[113] Given this underrepresentation in the Census data, the use of the such data to

---

111. *See, e.g.*, United States v. Butera, 420 F.2d 564, 570 n.13 (1st Cir. 1970) (noting that a greater disparity would be accepted where general population figures were used since they do not accurately reflect the number of persons actually eligible for service under valid statutory conditions), *overruled by* Baber v. Ponte, 772 F.2d 982 (1st Cir. 1985) (overruling case on the issue of cognizability of young people); People v. Harris, 679 P.2d 433, 442 (Cal. 1984) (noting that while criticism has been leveled against the use of Census lists in cross-section challenges, "eligible population figures are almost impossible to obtain" (quoting Kairys et al., *supra* note 56, at 786 n.63)); Illinois v. Flores, 549 N.E.2d 1342, 1346 (Ill. App. Ct. 1990) (criticizing the use of seven year old Census data).

112. These estimates are derived from BUREAU OF THE CENSUS, CHARACTERISTICS OF THE POPULATION: GENERAL SOCIAL AND ECONOMIC CHARACTERISTICS - MARYLAND, summary tape file 3A, available in CD-ROM v.6 Prepared by the Bureau of the Census, Washington, D.C. 1992.

113. *See* J. PASSEL ET AL., COVERAGE OF THE NATIONAL POPULATION IN THE 1980 CENSUS, BY AGE, SEX, AND RACE: PRELIMINARY ESTIMATES BY DEMOGRAPHIC ANALYSIS, DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS, 1982. For 1990, the Bureau of the Census conducted the Post Enumeration Survey (PES). This data was released in the form of a press release: Census Bureau Releases Refined Estimates From Post Enumeration Survey of 1990 Census Coverage — June 13, 1991. The PES surveyed 165,000 housing units after the actual Census enumeration. The answers were matched with those arising from the actual enumeration. The PES found a total undercount of 2.1% and an African-American undercount of 4.8%. If one used this survey to project Caroline County, for example, the proportion of the county that would be African-American is 16.17% instead of 15.76%. *See also* Williams, *supra* note 52, at 605-08 (noting Census undercounting of minorities and citing studies).

determine the percentage of African-Americans works to the disadvantage of those who claim a violation.[114] In contrast, however, when the Census data demonstrates sufficient disparity to establish a prima facie violation, it is likely that a disparity exists and that the data does not overstate the violation.

D. Results: Racial Disparity in Maryland Juries

The data displayed in Table 1 represents the racial disparities in the seven Maryland counties that were investigated for this study. The data shows that if one uses an absolute disparity test with a threshold of 10% disparity required to establish a prima facie case,[115] only Prince George's County shows sufficient underrepresentation.[116] Because the other counties have smaller African-American populations, the absolute disparities range from -2.00% to -9.95%, which is below the level necessary to establish a prima facie case.[117]

However, when one uses the test that this Article has suggested for groups comprising a smaller portion of the population — comparative disparity and a .05 test of significance — statistically significant disparities occur for six of the seven counties.[118] The comparative disparities in Anne Arundel County (-42.7%), Baltimore County (-58.3%), Caroline County (-31.7%), Charles County (-29.9%),

---

114. *See, e.g.,* Williams, *supra* note 52, at 606-08 (advocating adjustment of Census data to consider the undercount of minorities).

115. *See supra* note 55 and accompanying text (discussing absolute disparity test and 10% threshold).

116. Prince George's County, which had an African-American population from 34.3% to 41.9% during the six years in which data were collected, had absolute disparities ranging from -10.5% to -18.5%.

117. A look at the average percentage of African-Americans and the average absolute disparities in the counties studied clearly shows the inadequacy of the absolute disparity method for smaller minority populations. In Anne Arundel County, the average African-American population was 11% and the average absolute disparity was -4.7%. In Baltimore County, the average African-American population was 12.18% and the average absolute disparity ranged from -5.25% to -9.95%. In Caroline County, the average African-American population was 15.8% and the average absolute disparity was -5%. In Charles County, the average African-American population was 17.7% and the average absolute disparity was -5.3%. In Dorchester County, the average African-American population was 27% and the average absolute disparity was -4.4%. In Montgomery County, the average African-American population was 8.7% and the average absolute disparity was -4%.

118. Specifically, there are significant disparities for all years but one in Anne Arundel County, all years in Baltimore County, all years in Charles County, all years but one in Caroline County (that year was of borderline significance), two of four years in Dorchester County, and all years in Prince George's County. Yearly data was not available for Montgomery County, but the disparity was significant when the five years were pooled.

Montgomery County (-46.0%), and Prince George's County (-36.0%) were substantial and easily satisfied the threshold of 20% that this Article has suggested.[119] These disparities indicate a jury selection system that systematically discriminates against African-Americans. Only in Dorchester County, where the comparative disparity is 16.3%, does the data indicate that the disparities are insufficient to establish a prima facie case. In Baltimore County, with a comparative disparity of -58.3%, an African-American had a 58% lower probability of serving in the jury pool than another citizen.[120]

These disparities are not only large, they are *statistically significant*.[121] When combining all years together, the likelihood that the measured disparity for each county occurred by a chance selection from a representative list is *far* below .05, the level that this Article has established as a criterion of significance.[122] The disparities likely resulted from source lists that did not provide a fair cross-section of the community rather than from chance in the sample selection.

V. A REMEDY TO DISPARITY

There is a very simple remedy to the large and statistically significant disparities found in this study — the use of more than one source list for the jury pool. The use of driver's license lists in addition to voter registration lists would end the disparity and would be inexpensive and administratively simple to implement.

When Census data is compared to data from the Department of Motor Vehicles rather than from voter registration lists, the disparities in the representation of the non-Caucasian population are dramatically reduced. For example, the absolute disparities range from a low of -0.8% in Charles County to a high of -3.91% in Montgomery

---

119. *See supra* note 68 and accompanying text.

120. Previous research has also found significant racial disparities in jury composition in Worcester County in the mid-1980s. *See* David Honig, *Worcester County, Maryland—A Dream Deferred*, 27 How. L.J. 91, 93 (1984).

121. See *supra* part III.B.3.a. for a discussion of the term "significance."

122. A Z score of 5.20 for Anne Arundel County translates into a p-value of approximately 5.4×10^{-7}; a Z score of 8.67 for Caroline County translates into a p-value of 1.9×10^{-17}; a Z score of 5.92 for Charles County translates into a p-value of 9.7×10^{-9}; a Z score of 3.41 for Dorchester County translates into a p-value of 1.0×10^{-3}; a Z score of 30.0 for Montgomery County translates into a p-value of 9.6×10^{-197}; and a Z score of 13.2 for Prince George's County translates into a p-value of 3.4×10^{-39}. It is difficult to combine years in Baltimore County because of different sampling methods. However, in 1992, the Z score of 13.91 translated into a p-value of 3.7×10^{-43}. The Z scores were very high in Baltimore County and Montgomery County (1992-93) because the Authors has data on the entire computerized jury pool. Because the sample is so large, the likelihood that such a large disparity occurred in a random sampling is minuscule.

County. In fact, the absolute disparities between the driver's license lists and the Census data were lower in every county than were the disparities between the voter lists and the Census.[123]

In addition, the test this Article has suggested generates comparative disparities well under the 20% threshold in every county except Montgomery County, ranging from a low of -2.35% in Prince George's County to a high of -14.74% in Caroline County.[124] It is clear, therefore, that combining both lists would produce a jury pool that is representative of the population.

There are two reasons why driver's license lists are more representative of the population than voter registration lists. First, the driver's license lists are more inclusive. Table 4 shows that only about 50% to 60% of the population of any one county is registered to vote. However, over 90% of the population is licensed to drive.

Second, a smaller percentage of African-Americans register to vote than Caucasians. Neither the counties nor the State of Maryland collects data on the racial characteristics of those who register to vote. The best source of this data is the Bureau of the Census which publishes a bi-annual special voting supplement to the Current Population Survey (CPS).[125] For its data collection, the CPS interviews

---

123. The absolute disparities were as follows:

County	Voters List	Drivers List
Anne Arundel	-4.70%	-1.66%
Baltimore	-7.10%	1.11%
Caroline	-5.00%	-2.45%
Charles	-4.70%	-1.66%
Dorchester	-4.40%	-1.88%
Montgomery	-4.00%	-3.91%
Prince George's	-13.8%	-1.30%

124. The comparative disparities were as follows:

County	Voters List	Drivers List
Anne Arundel	-42.73%	-11.98%
Baltimore	-58.3%	7.49%
Caroline	-31.65%	-4.00%
Charles	-29.9%	-14.74%
Dorchester	-16.30%	-6.93%
Montgomery	-45.98%	-20.36%
Prince George's	-36.03%	-2.35%

125. For 1990 data on racial characterization of those who register to vote, see U.S. Bureau of the Census, Current Population Reports, Series P-20, No. 453, Voting and Registration in the Election of November 1990, U.S. Government Printing Office, Washington, D.C., 1991. Other years are similarly covered. For 1984, state data was not provided in Voting and Registration in the Election of November 1984, U.S. Government Printing Office, Washington, D.C., 1995. Jerry Jennings of the Population Division of the Bureau of the Census was able to supply the Authors with the missing data.

approximately 60,000 households each month. For the special supplement to the CPS, respondents were asked whether they were registered to vote, whether they voted in the most recent election, and whether they were a citizen. Although helpful, this data is not completely reliable because survey participants generally tend to overreport their participation in the voting process.[126] This overreporting is greater for minorities.[127] Nevertheless, it shows that African-Americans are underrepresented on voter registration lists.

Table 5 shows the proportion of Caucasians and African-Americans who were registered to vote in all election years between 1980 and 1992 in the State of Maryland. African-Americans were less likely than Caucasians to register to vote in all years except 1988, when the proportions were about equal. Because this underrepresentation does not appear on driver's license lists, using such lists to supplement the voter list will remedy the underrepresentation.

Using driver's license lists to supplement voter registration lists is a remedy that is inexpensive and administratively simple to implement.[128] A number of states currently use more than one source list without apparent difficulty.[129] Only Oklahoma uses solely driver's license lists to chose its venires.[130] The Maryland Jury Selection statute already provides for the ability to supplement voter registration lists

---

126. *See* Williams, *supra* note 52, at 607 n.115.

127. *See* Paul R. Abramson & William Clagett, *Race-Related Differences in Self-Reported and Validated Turnout*, 46 J. POL. 719, 721 (1984).

128. *See infra* notes 129-33 and accompanying text. There is also some evidence that if multiple source lists were used, there might be greater voter registration. Some people refuse to register to vote because they wish to avoid jury duty. In each of the challenges conducted, there were jurors who were "disqualified" because they told the jury commissioner that they were removing their names from the list of registered voters. *See also* Stephen Buckley, *Some in Maryland Use Polling Booth Detour to Escape Jury Duty*, WASH. POST, Feb. 17, 1991, at B1.

129. *See* ARIZ. REV. STAT. ANN. § 21-301 (1992); CONN. GEN. STAT. ANN. §§ 51-221, 222(a) (West 1993); FLA. STAT. ANN. §§ 40.01, 40.011 (West 1989 & Supp. 1994); HAW. REV. STAT. § 612-11 (1993); IDAHO CODE § 2-206 (1990); ILL. REV. STAT. ch. 705, para. 305/1 (Supp. 1994); IOWA CODE ANN. § 607A.22 (West 1996); KY. REV. STAT. ANN. § 29A.040 (Michie/Bobbs-Merrill 1992); ME. REV. STAT. ANN. tit. 14, § 1252-A (West Supp. 1995); MICH. COMP. LAWS ANN. §§ 600.1310(1), (4) (West Supp. 1994); NEB. REV. STAT. § 25-1628 (1989); NEV. REV. STAT. ANN. §§ 483.225, 704.147 (Michie 1993); N.J. STAT. ANN. § 2A:70-4 (West 1994 & Supp. 1995); N.M. STAT. ANN. § 38-5-3 (Michie Supp. 1995); N.Y. JUD. LAW § 16-506 (McKinney 1992); N.C. GEN. STAT. § 9-2 (1986); OR. REV. STAT. § 10.215 (1995); S.C. CODE ANN. § 14-7-130 (Law. Co-op. Supp. 1995); S.D. CODIFIED LAWS ANN. § 16-13-4.1 (Supp. 1995); TENN. CODE ANN. § 22-2-302 (1994); TEX. GOV'T CODE ANN. § 62.001 (West 1988 & Supp. 1994); W. VA. CODE § 52-1-5 (1994).

130. OKLA. STAT. ANN. tit. 38, § 18 (West 1990).

with additional lists.[131] In fact, four counties on the Eastern Shore now supplement the voter registration lists with a list from the Motor Vehicle Administration.[132] With the use of high-speed computers, this process is relatively easy and inexpensive to implement. Expert testimony in a recent case in Baltimore County indicated that it would cost $3800 to merge the lists for the first year and $2800 per year thereafter; the same testimony indicated that merging the lists would take one day.[133]

VI.   THE REMEDY AND MARYLAND COURTS

As the previous discussion reveals, there is clear underrepresentation of African-Americans on jury source lists and there is a simple and inexpensive device available to remedy this disparity. Courts in Maryland, however, have been unwilling to find that the current system violates the Sixth Amendment. This section will analyze the courts' reasoning and will suggest that much of it results from a misunderstanding of the requirements of the Sixth Amendment.

Since 1973, the Maryland courts have held that the use of voter registration lists in the jury selection process does not deprive a defendant of his right to be tried by a jury selected from a fair cross-section of the community.[134] These decisions have rested on

---

131. *See* MD. CODE ANN., CTS. & JUD. PROC. § 8-104 (1995); *accord* ALA. CODE § 12-16-57 (1995); ALASKA STAT. § 9.20.050 (1994); CAL. CIV. PROC. CODE § 197 (West 1993 & Supp. 1996); COLO. REV. STAT. ANN. § 13-71-107 (West Supp. 1995); DEL. CODE ANN. tit. 10, §§ 4504(a), 4507 (Supp. 1994); GA. CODE ANN. § 15-12-40 (1990 & Supp. 1995); IND. CODE ANN. § 33-4-5.5-7 (West 1992); KAN. STAT. ANN. § 43-162 (1995); N.D. CENT. CODE § 27-09.1-05 (Supp. 1991); OHIO REV. CODE ANN. § 2313.06 (Anderson 1993); PA. CONS. STAT. ANN. tit. 42, § 4521 (1981); VT. STAT. ANN. tit. 4, § 953 (1988); VA. CODE ANN. § 8.01-345 (Michie 1992); WIS. STAT. ANN. § 756.04 (West Supp. 1995); WYO. STAT. § 18-3-402(a)(xix) (1977).

132. These counties are Dorchester, Worchester, Wicomoco, and Caroline. Testimony of David Malinger, a computer analyst from Data Services, Inc. for Baltimore County. Wiggins v. State, 88-CR-5464, Circuit Court of Baltimore County, (1994).

133. *Id.*

134. Wilkins v. State, 270 Md. 62, 310 A.2d 39 (1973), *cert. denied*, 415 U.S. 992 (1974); *see* State v. Calhoun, 306 Md. 692, 710-11, 511 A.2d 461, 470 (1986) (holding that evidence did not support challenge to voter registration lists as underrepresenting African-Americans because: (1) there was no showing of the potential impact of using motor vehicle registration lists, (2) census figures might have included blacks who were non-citizens, and (3) there was no accounting for high refusal rate among those who did not answer race question), *cert. denied*, 480 U.S. 910 (1987); Colvin v. State, 299 Md. 88, 106, 472 A.2d 953, 962 (holding that defendant must show use of voter registration lists resulted in purposeful discrimination), *cert. denied*, 469 U.S. 873 (1984); Moore v. State, 84 Md. App. 165, 171, 578 A.2d 304, 307 (finding selection of

several bases. First, relying upon isolated language from the legislative history of the JSSA,[135] federal courts in Maryland have approved the

---

potential jurors from the lists of registered voters constitutional because no evidence existed that list failed to provide a representative cross-section), *cert. denied*, 321 Md. 385, 582 A.2d 1256 (1990); Bailey v. State, 63 Md. App. 594, 604, 493 A.2d 396, 400 (finding a -13.5% absolute disparity between the number of African-Americans in the population and the number of African-Americans in the jury pool to be insufficient to show unfair and unreasonable underrepresentation), *cert. denied*, 304 Md. 296, 498 A.2d 1183 (1985); Miller v. State, 53 Md. App. 1112, 452 A.2d 180, 186 (1982) (holding defendant's comparison of the jury array to the city's general population, rather than to the list of registered voters, to be improper); Johnson v. State, 44 Md. App. 515, 521, 411 A.2d 118, 121-22 (1980) (holding that defendant failed to provide statistical evidence demonstrating the underrepresentation of grand juries as compared to the number of African-Americans in the total population); *see also* United States v. Cecil, 836 F.2d 1431, 1448-49 (4th Cir.) (holding mere underrepresentation of black males on voter registration lists to be insufficient to establish a violation of the Constitution because no cognizable group could be systematically excluded from the lists), *cert. denied*, 487 U.S. 1205 (1988); Moultrie v. Martin, 690 F.2d 1078, 1082 (4th Cir. 1982) (finding petitioners' methodology to prove underrepresentation to be incorrect because it compared the percentage of African-Americans in the county instead of the percentage of African-Americans on voter registration lists); United States v. Blair, 493 F. Supp. 398, 407 (D. Md. 1980) (holding mere underrepresentation of African-American males on voter registration lists to be insufficient to establish a violation of the Constitution because neither economic nor social characteristics prevent a person from registering to vote), *aff'd,* 665 F.2d 500 (4th Cir. 1981).

In addition, there have been a number of unpublished opinions on point in Maryland that have held that the selection process does not deprive the defendant of a fair cross-section community. *See* State v. Wiggins, 88-CR-5464, Circuit Court of Baltimore County (1994) (finding that three prongs of *Duren* had been met but holding that defendant did not prove that merger of source list could have occurred in 1988, the year of trial, despite testimony that lists could have been merged in 1988); State v. Emanuel, CR 93-101, Charles County Circuit Court (1994) (following the Court of Appeals of Maryland holding that it was permissible to use voter registration list as sole source list); State v. Boyt, CR 3872, Circuit Court of Caroline County (1992) (same); State v. Jackson, Circuit Court of Prince George's County (1985) (adopting reasoning of trial court in *Bailey*); State v. Colvin, CR 25340, Circuit Court of Anne Arundel County (1985) (absolute disparity of 4.9% permissible), *aff'd,* Colvin v. State, 299 Md. 88, 472 A.2d 953, *cert. denied,* 469 U.S. 873 (1984).

135. The House Report to the Judiciary Committee provides:

In a sense the use of voter lists as the basic source of juror names discriminates against those who have the requisite qualifications for jury service but who do not register or vote. This is not unfair, however, because anyone with minimal qualifications — qualifications that are relevant to jury service — can cause his name to be placed on the list simply by registering or voting. No economic or social characteristics prevent one who wants to be considered for jury service from having his name placed in the pool from which jurors are selected.

H.R. Rep. No. 1076, *reprinted in* 1968 U.S.C.C.A.N. at 1794-95.

use of voter registration lists, despite underrepresentation of African-Americans on those lists, because African-Americans are allowed to register to vote. The Fourth Circuit, for example, has concluded that "there is no violation of the jury cross-section requirement where there is merely underrepresentation of a cognizable class by reason of failure to register, when that right is fully open."[136]

This reasoning misconstrues both the JSSA and the fair cross-section requirement of the Sixth Amendment. The JSSA explicitly states that it is the policy of the United States that litigants have the right to juries "selected at random from a fair cross section of the community,"[137] and the JSSA requires the use of supplemental lists when the voter registration lists result in an unfair cross-section.[138] Given these explicit provisions, a more reasonable interpretation of the legislative history is that discrimination against those who do not register to vote is of no consequence *as long as the voter list provides a fair cross-section of the community.*

Furthermore, by focusing on an African-American's right to vote, and thus to be eligible for the jury pool, the court is focusing on a potential *juror's* right to equal protection under the law. This right is not at issue in a Sixth Amendment cross-section claim. Instead, the court should focus on the right of a *defendant* to be tried by a jury drawn from a pool representative of the community.[139] Intentional discrimination or the availability of equal access to jury service is simply irrelevant in Sixth Amendment fair cross-section cases.[140]

---

136. *Cecil*, 836 F.2d at 1448; *see also Blair*, 493 F. Supp. at 407 (relying on JSSA to hold that voter registration lists were fair because no group was prevented from voting).

137. 28 U.S.C. § 1861 (1994).

138. *Id.* § 1863(b)(2) (1994) ("The plan shall prescribe some other source or sources of names in addition to voter lists where necessary to foster the policy and protect the rights secured by . . . this title.").

139. Williams, *supra* note 52, at 593 (confusing equal protection with Sixth Amendment).

140. Until 1968 a defendant in state court could only rely on the Equal Protection Clause of the Fourteenth Amendment to challenge the composition of a jury venire. However, in Duncan v. Louisiana, 391 U.S. 145 (1968), the Supreme Court began the process of applying the Bill of Rights, including the Sixth Amendment, to the states. In Taylor v. Louisiana, 419 U.S. 522 (1975), the Court held that "the selection of a petit jury from a representative cross section of the community is an essential component of the Sixth Amendment right to a jury trial," thereby opening the door to fair cross-section challenges in state court. *Id.* at 528.

In contrast to an equal-protection challenge, a fair cross-section challenge does not require any showing that the state intentionally excluded jurors. *See* Castenada v. Partida, 339 U.S. 482, 510 (1977) (Powell, J., dissenting) ("[A defendant] need only show that the jury selection procedure 'systematically

Also, courts have misused the voter registration lists by comparing the percentage of the cognizable group in the venire to the percentage of the cognizable group on the voter registration list to determine the level of underrepresentation in the venire. The appropriate level of underrepresentation can only accurately be obtained by comparing the percentage of the cognizable group in the venire to the percentage of the cognizable group in the local population. For example, in *Moultrie v. Martin*,[141] the Fourth Circuit rejected the defendant's suggestion that the percentage of African-Americans in the county was the proper statistic to compare with the percentage of African-Americans on grand juries. The court reasoned that "the use of this statistic for this purpose is inappropriate because the grand jury membership was based on the county voting rolls."[142] If one accepts the *Moultrie* court's reasoning, there would be no violation even if *no* African-Americans were registered on the voter rolls. This reasoning is obviously incorrect. The Constitution, the JSSA, and the laws of Maryland require a jury pool that is a fair cross-section of the *community*. The JSSA's use of the voter registration rolls is simply a means of attempting to achieve that cross-section.[143] Voter rolls should not be accorded such sacred deference if they do not achieve that goal.[144] As other federal courts have recognized, the proper basis for comparison is the local community.[145]

---

exclude[s] distinctive groups in the community and thereby fail[s] to be reasonably representative thereof.'"). An equal-protection challenge to jury composition focuses on an individual's right to have the same chance of being chosen for the jury venire as any other citizen. In contrast, a Sixth Amendment challenge focuses on a defendant's right to a jury composed of a fair cross-section of the community. Thus, even if there is no equal protection violation because there was no discrimination in the selection of the jury venire, there may be a Sixth Amendment fair cross-section violation. In effect, the Sixth Amendment imposes an affirmative duty to ensure that "distinctive groups" are not disproportionately excluded or underrepresented on the jury venire.

141. 690 F.2d 1078 (4th Cir. 1982).

142. *Id.* at 1082; *see also* Miller v. State, 53 Md. App. 1, 12, 452 A.2d 180, 186 (1982) ("[Defendant] has drawn his conclusions by comparing the array in this case with the city's general population. However, the jurors were not selected from the city's general population. Instead, . . . the jury was drawn from the city's list of registered voters.").

143. 28 U.S.C. §§ 1861, 1863(b)(2) (1994).

144. Indeed, the JSSA itself recognizes that voter rolls may need to be supplemented with other lists if their use does not achieve a fair cross-section. 28 U.S.C. § 1863(b)(2) (1994).

145. *See, e.g.,* Duren v. Missouri, 439 U.S. 357, 366 (1979) ("Such a gross discrepancy between the percentage of women in jury venires and the percentage of women in the community requires the conclusion that women were not fairly represented . . . ."); United States v. Armsbury, 408 F. Supp. 1130, 1140 (D. Or. 1976) ("The voting list is not the end sought but only the means used to ensure that all cognizable groups within the populace are represented

A second basis upon which courts have upheld the continued use of voter registration lists is that those people on the list are randomly chosen for jury duty.[146] This reasoning again imports equal-protection concepts into the fair cross-section analysis. The absence of purposeful discrimination in selecting names from the list is irrelevant to the issue of whether the resultant pool evidences a fair cross-section of the community. Again, the courts are confusing equal-protection claims, where purposeful discrimination must be shown, with Sixth Amendment challenges, where no intent is necessary.[147]

A third basis that the courts have relied upon to support the continued use of voter registration lists is that any change in lists will create "confusion and administrative nightmare"[148] and will open the door to challenges in all circuits that use voter registration lists.[149] As this Article reveals, however, the administrative costs of using multiple source lists are not substantial, and many jurisdictions have used multiple source lists successfully.[150]

Finally, Maryland courts have been skeptical that driver's license lists would be more representative of the community than voter registration lists.[151] The data collected during the development of this

---

on juries. The voting list cannot be adequate if some groups are significantly under-represented . . . .").

146. *See* Moore v. State, 84 Md. App. 165, 170-71, 578 A.2d 304, 306 (1990) (reasoning that no Sixth Amendment violation occurred because there was no suggestion that the jury was hand-picked) (citing Wilkins v. State, 16 Md. App. 587, 300 A.2d 411 (1973), *cert. denied,* 321 Md. 385, 582 A.2d 1256 (1990)); Bailey v. State, 63 Md. App. 594, 601, 493 A.2d 396, 399 (citing *Wilkins,* 16 Md. App. at 596-97, 300 A.2d at 416-17 (finding random selection is fair selection)), *cert. denied,* 304 Md. 296, 498 A.2d 1183 (1985); Miller v. State, 53 Md. App. 1, 12, 452 A.2d 180, 186 (1982) (holding that because names were randomly drawn, there was no systematic exclusion under the Sixth Amendment).

147. Therefore, the reasoning in United States v. Cecil, 836 F.2d 1431, 1449 (4th Cir.), *cert. denied,* 487 U.S. 1205 (1988), that there was no taint by "some affirmative form of discrimination" by using the voter registration list, is irrelevant.

148. *Id.* at 1454.

149. *Id.*

150. *See supra* notes 128-33 and accompanying text (discussing costs and administrative aspects of multiple source lists).

151. *See Cecil,* 836 F.2d at 1453-54 ("It seems fair for us to assume that whites are over-represented on such driver registration lists. In any event, there is no assurance that African-Americans will be represented more proportionately on those lists than on the voter registration lists."); *see also* Moore v. State, 84 Md. App. 165, 171, 578 A.2d 304, 307 ("We are urged by the appellants to hold that the list of registered motor vehicle owners would have produced a more likely 'representative cross-section of Prince George's County adult citizens.' That conclusion by appellants is unsupported and constitutes no more than sheer speculation."), *cert. denied,* 321 Md. 385, 582 A.2d 1256 (1990).

Article clearly rebuts this assertion.[152] Driver's license lists are substantially more inclusive than voter registration lists, and disparities between the percentage of minorities on those roles and the general population as reflected in Census data are negligible.

VII. CONCLUSION

The method of statistical analysis of jury disparities proposed in this Article will produce consistent and reliable results, regardless of any group's size as a percentage of the total population. By using this method to analyze data collected in Maryland, this Article has shown that significant racial disparities exist in the composition of juries in all but one of the counties studied. These disparities would disappear if the source list of voter registration roles were supplemented with driver rolls. Although this remedy is inexpensive and simple to administrate, Maryland courts have refused to adopt this remedy and have instead applied inaccurate reasoning to defend the use of voter rolls as the only source for the creation of jury lists. If Maryland is to provide representative juries to its citizens, the courts must take a fresh look at the issue and must reevaluate their reasoning.

---

152. *See supra* part V.

Table 1
RACIAL DISPARITIES
(% African-American)

Anne Arundel County

Year	Pop	Jury	N	AD	CD	Z	P
All	11.00%	6.30%	1198	-4.70%	-42.73%	5.20	.000001
1980	10.90%	4.80%	314	-6.10%	-55.96%	3.47	.0010
1981	11.00%	7.30%	287	-3.70%	-33.64%	2.00	.05
1982	11.00%	4.80%	292	-6.20%	-56.36%	3.39	.001
1983	11.10%	8.70%	300	-2.40%	-21.62%	1.32	.17

Baltimore County

Year	Pop	Jury	N	AD	CD	Z	P
1988	12.18%	4.89%	225	-7.29%	-59.85%	3.34	.001
1989	12.18%	5.93%	364	-6.25%	-51.31%	3.65	.0005
1990	12.18%	5.94%	185	-6.24%	-51.23%	2.60	.01
1991	12.18%	2.23%	134	-9.95%	-81.69%	3.52	.0008
1992	12.18%	4.55%	3556	-7.63%	-62.64%	13.91	.000000
1993	12.18%	6.93%	1790	-5.25%	-43.10%	6.79	.000000

Caroline County

Year	Pop	Jury	N	AD	CD	Z	P
All	15.80%	10.80%	3999	-5.00%	-31.65%	8.67	.000000
1986	15.90%	12.00%	574	-3.90%	-24.53%	2.56	.02
1987	15.90%	9.60%	591	-6.30%	-39.62%	4.19	.00006
1988	15.80%	11.70%	546	-4.10%	-25.95%	2.63	.01
1989	15.80%	10.30%	623	-5.50%	-34.81%	3.76	.0003
1990	15.80%	13.00%	644	-2.80%	-17.72%	1.95	.06
1991	15.70%	9.60%	687	-6.10%	-38.85%	4.39	.00003
1992	15.70%	8.40%	323	-7.30%	-46.50%	3.61	.0006

Charles County

Year	Pop	Jury	N	AD	CD	Z	P
All	17.7%	12.4%	1818	-5.3%	-29.9%	5.92	.000000
1989	17.7%	13.3%	248	-4.4%	-24.9%	1.82	.02
1990	17.7%	14.8%	472	-2.9%	-16.4%	1.65	.10
1991	17.7%	10.4%	376	-7.3%	-41.2%	3.71	.0004
1992	17.7%	11.3%	409	-6.4%	-36.2%	3.39	.001
1993	17.7%	11.9%	310	-5.8%	-32.8%	2.68	.01

Dorchester County

Year	Pop	Jury	N	AD	CD	Z	P
All	27.00%	22.60%	1185	-4.40%	-16.30%	3.41	.001
1983	27.20%	18.50%	260	-8.70%	-31.99%	3.15	.003
1984	27.10%	21.10%	261	-6.00%	-22.14%	2.18	.04
1985	26.90%	24.80%	274	-2.10%	-7.81%	.78	.29
1986	26.80%	24.80%	391	-2.00%	-7.46%	.89	.27

Montgomery County 1979-1983

Year	Pop	Jury	N	AD	CD	Z	P
All	8.70%	4.70%	44722	-4.00%	-45.98%	30.01	.000000

Prince George's County

Year	Pop	Jury	N	AD	CD	Z	P
All	38.30%	24.50%	2175	-13.80%	-36.03%	13.24	.000000
1980	34.70%	22.60%	505	-12.10%	-34.87%	5.71	.000000
1981	36.10%	21.40%	379	-14.70%	-40.72%	5.96	.000000
1982	37.60%	19.30%	275	-18.30%	-48.67%	6.27	.000000
1983	39.00%	20.50%	264	-18.50%	-47.44%	6.16	.000000
1984	40.50%	29.90%	411	-10.60%	-26.17%	4.38	.00003
1985	41.90%	31.40%	341	-10.50%	-25.06%	3.93	.0002

LEGEND

Pop-   Percent African-American in population according to Census
Jury -   Percent African-American in jury pool
N -   Number of jurors
AD -   Absolute disparity
CD -   Comparative disparity
Z -   Z-score - a test of significance
P -   Probability difference occurred by chance

Table 2
AGE DISPARITIES
(% 18-29)

Anne Arundel County

Year	Pop	Jury	N	AD	CD	Z	P
All	33.00%	21.80%	1364	-11.20%	-33.94%	8.80	.000000
1980	33.70%	23.60%	348	-10.10%	-29.97%	3.99	.0001
1981	33.20%	21.90%	310	-11.30%	-34.04%	4.22	.00005
1982	32.70%	20.90%	326	-11.80%	-36.09%	4.54	.00001
1983	32.30%	20.40%	373	-11.90%	-36.84%	4.91	.000002

Baltimore County

Year	Pop	Jury	N	AD	CD	Z	P
1988	24.00%	19.06%	299	-4.94%	-20.58%	2.00	.05
1989	24.00%	21.03%	504	-2.97%	-12.37%	1.56	.12
1990	24.00%	17.71%	463	-6.29%	-26.21%	3.17	.00
1991	24.00%	16.62%	403	-7.38%	-30.75%	3.47	.001
1992	24.00%	15.88%	14448	-8.12%	-33.83%	22.85	.000000
1993	24.00%	21.20%	9260	-2.80%	-11.67%	6.31	.000000

Caroline County

Year	Pop	Jury	N	AD	CD	Z	P
All	26.30%	14.20%	4251	-12.10%	-46.01%	17.92	.000000
1986	27.50%	15.30%	652	-12.20%	-44.36%	6.98	.000000
1987	27.10%	15.90%	668	-11.20%	-41.33%	6.51	.000000
1988	26.70%	13.40%	626	-13.30%	-49.81%	7.52	.000000
1989	26.30%	14.40%	678	-11.90%	-45.25%	7.04	.000000
1990	25.90%	13.00%	663	-12.90%	-49.81%	7.58	.000000
1991	25.50%	14.70%	645	-10.80%	-42.35%	6.29	.000000
1992	25.10%	10.70%	310	-14.40%	-57.37%	5.85	.000000

Dorchester County

Year	Pop	Jury	N	AD	CD	Z	P
All	27.30%	21.70%	1200	-5.60%	-20.51%	4.35	.00003
1983	27.90%	21.70%	263	-6.20%	-22.22%	2.24	.03
1984	27.50%	20.50%	263	-7.00%	-25.45%	2.54	.02
1985	27.10%	22.50%	276	-4.60%	-16.97%	1.72	.09
1986	26.70%	21.90%	398	-4.80%	-17.98%	2.16	.04

Prince George's County

Year	Pop	Jury	N	AD	CD	Z	P
All	35.20%	24.10%	3198	-11.10%	-31.53%	13.14	.000000
1979	34.90%	26.80%	425	-8.10%	-23.21%	3.50	.0009
1980	36.20%	22.70%	603	-13.50%	-37.29%	6.90	.000000
1981	35.70%	27.10%	454	-8.60%	-24.09%	3.82	.0003
1982	35.20%	23.50%	344	-11.70%	-33.24%	4.54	.00001
1983	34.70%	20.40%	362	-14.30%	-41.21%	5.72	.000000
1984	34.30%	22.30%	561	-12.00%	-34.99%	5.99	.000000
1985	33.80%	26.30%	448	-7.50%	-22.19%	3.36	.001

LEGEND

Pop-   Percent 18-29 in population according to Census

Jury -   Percent 18-29 in jury pool

N -   Number of jurors

AD -   Absolute disparity

CD -   Comparative disparity

Z -   Z-score - a test of significance

P -   Probability difference occurred by chance

Table 3
DISPARITIES USING MOTOR VEHICLE LIST
(Non-Caucasian, age 18-69)
(1991 Motor Vehicles Administration Data)

	Census	MVA	AD	CD
Anne Arundel	13.86	12.20	-1.66	-11.98
Baltimore County	14.81	15.92	1.11	7.49
Charles	20.1	19.3	-0.8	- 4.0
Caroline	16.62	14.17	-2.45	-14.74
Dorchester	27.14	25.26	-1.88	- 6.93
Montgomery	23.11	19.20	-3.91	-20.36
Prince George's	55.37	54.07	-1.30	- 2.35
Age-%18-29				
Anne Arundel	28.99	27.47	-1.52	- 5.24
Baltimore County	24.00	25.7	1.77	7.36
Caroline	25.92	24.73	-1.19	- 4.59
Dorchester	24.54	24.88	0.34	1.39
Montgomery	26.65	27.21	0.56	2.10
Prince George's	33.32	29.53	-3.79	-11.37

Table 4
REGISTERED VOTERS AND LICENSED DRIVERS

	Pop 18+ (1990)	Regis Voters (1991)	Driv Lic 18+ (1991)	% Pop Reg Voters	% Pop Driv Lic
Anne Arundel	322,051	181,888	309,085	56.5%	96.0%
Baltimore County	540,972	336,957	521,985	62.3%	96.4%
Caroline	19,935	9,229	19,519	46.3%	97.9%
Charles	71,398	44,948	70,771	62.9%	99.1%
Dorchester	23,319	12,608	21,265	54.1%	91.2%
Montgomery	578,783	360,865	575,879	62.3%	99.5%
Pr. George's	551,323	270,109	493,508	49.0%	89.5%

Table 5
VOTER REGISTRATION RATES BY RACE
(Maryland)

	Caucasian	*African-American*	*Differential*
1980	68.3%	61.3%	7.0%
1982	67.5%	61.4%	6.1%
1984	71.0%	65.0%	6.0%
1986	62.4%	58.0%	4.4%
1988	64.6%	64.5%	0.1%
1990	60.7%	44.4%	16.3%
1992	74.6%	66.4%	8.2%