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Does the Judge Matter? Exploiting Random Assignment on a Court of Last Resort to Assess Judge and Case Selection Effects

*Theodore Eisenberg, Talia Fisher, and Issi Rosen-Zvi**

We study 1,410 mandatory jurisdiction and 48 discretionary jurisdiction criminal law case outcomes in cases appealed to the Israel Supreme Court in 2006 and 2007 to assess influences on case outcomes. A methodological innovation is accounting for factors—case specialization, seniority, and workload—that modify random case assignment. To the extent one accounts for nonrandom assignment, one can infer that case outcome differences are judge effects. In mandatory jurisdiction cases, individual justices cast 3,986 votes and differed by as much as 15 percent in the probability of casting a vote favoring defendants. Female justices were about 2 to 3 percent more likely than male justices to vote for defendants but this effect is sensitive to including one justice. Defendant gender was associated with outcome, with female defendants about 17 percent more likely than male defendants to receive a favorable vote on appeal. Our data's samples of mandatory and discretionary jurisdiction cases allow us to show that studies limited to discretionary jurisdiction case outcomes can distort perceptions of judges' preferences. Justices' ordinal rank in rate of voting for defendants or the state was uncorrelated across mandatory and discretionary jurisdiction cases. For example, the justice who sat on the most criminal cases was the fourth (of 16 justices) most favorable to the state in mandatory jurisdiction cases but the 12th most favorable in discretionary jurisdiction cases. This result casts doubt on some inferences based on studies of judges on discretionary jurisdiction courts, such as the U.S. Supreme Court, in which only discretionary case outcomes are observed.

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I. Introduction

Studies of the relation between case outcomes and individual judges and their characteristics abound. A few studies exploit random assignment of judges to cases to explore individual judge and judicial background effects.[1] Most studies work with samples biased by case selection[2] or by available opinions.[3] The case selection process, whereby courts choose the cases they review, often confounds studies of courts of last resort because outcome patterns vary from patterns in cases without such selection.[4]

Analyses sensitive to case assignment sometimes rely on random assignment to support a causal inference of judge effects, but nominally random case assignment systems often have nonrandom components. Boyd et al. note that "logic and practice counsels against deeming [purported random assignment] a mechanism for true random selection."[5] Consistent with this warning, Hall demonstrated that Sunstein et al.'s reliance on random assignment of U.S. federal circuit court cases[6] was not supported.[7] Ashenfelter et al. showed a nonrandom aspect of U.S. federal district court case assignment notwithstanding the random assignment norm.[8]

One method of assuring random assignment in analyzed cases is to limit the sample to subsets of cases that can be verified to have been randomly assigned. Another way of dealing with nonrandom assignment is to use propensity score matching to assure that cases judged by groups of interest, such as male and female judges, match on key covariates.[9] A third method is to try to account for the nonrandom aspects of the case assignment

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[1]For example, Orley Ashenfelter, Theodore Eisenberg & Stewart J. Schwab, Politics and the Judiciary: The Influence of Judicial Background on Case Outcomes, 24 J. Legal Stud. 257 (1995); Matthew Hall, Randomness Reconsidered: Modeling Random Judicial Assignment in the U.S. Courts of Appeals, 7 J. Empirical Legal Stud. 574 (2010).

[2]At the trial-court level, most studies ignore the vast bulk of civil case outcomes, which consist of settlements. Since settlement is the dominant outcome for cases in which plaintiffs succeed, ignoring settlements calls into question findings of judge and judicial background effects.

[3]Denise M. Keele, Robert W. Malmsheimer, Donald W. Floyd & Lianjun Zhang, An Analysis of Ideological Effects in Published Versus Unpublished Judicial Opinions, 6 J. Empirical Legal Stud. 213, 234–36 (2009).

[4]Jonathan P. Kastellec & Jeffrey R. Lax, Case Selection and the Study of Judicial Politics, 5 J. Empirical Legal Stud. 407 (2008).

[5]Christina L. Boyd, Lee Epstein & Andrew D. Martin, Untangling the Causal Effects of Sex on Judging, 54 Am. J. Pol. Sci. 389, 394 (2010).

[6]Cass R. Sunstein, David Schkade, Lisa Michelle Ellman & Andres Sawicki, Are Judges Political? An Empirical Analysis of the Federal Judiciary (2006).

[7]Hall, supra note 1.

[8]Ashenfelter et al., supra note 1, at 268–70.

[9]Boyd et al., supra note 5.

system.[10] This article employs the third method to explore judge and judge characteristic effects in criminal cases appealed to the Israel Supreme Court (ISC). The ISC employs random case assignment, subject to departures based on case category specialization, seniority, and workload.

We find that one can reject the null hypothesis that the judge has no effect. Individual justices were as much as 15 percent more likely than other justices to vote for defendants in criminal appeals. Justices' gender also was associated with case outcomes, with female justices being about 2 to 3 percent more likely to vote in favor of defendants, a result that is sensitive to including one justice. The defendant's gender was associated with case outcomes. Female defendants were about 17 percent more likely than male defendants to receive a favorable ISC justice vote.

Justices' voting patterns noticeably differed in mandatory and discretionary cases. This finding has implications for most studies of appellate courts with discretionary jurisdiction. Observing only discretionary cases may not reveal a judge's true voting preferences because of the confounding effect of the court selecting cases for review. We thus can partially test recent concerns expressed about inferring individual justice preferences from outcomes of discretionary jurisdiction cases.

Section II of this article reviews the relevant literature. Section III describes characteristics of the Israeli judiciary and Section IV describes the data. Section V analyzes the case assignment process in the ISC to document nonrandom aspects of case assignment to consider. Section VI presents the results, the limitations of which are discussed in Section VII. Section VIII concludes.

II. Prior Literature

At least three strands of literature relate to this project. The first is the voluminous literature on associations between judges, judge characteristics (e.g., race and gender), and case outcomes. The second is the literature empirically studying the ISC. The third is the literature on the methodology of studying case outcomes and judge effects.

Individual judge effects have been most studied in relation to criminal sentencing. Interjudge differences in the United States often are found,[11] with reductions in disparity when mandatory federal sentencing guidelines were in effect,[12] and increases when

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[10]For example, Joshua D. Angrist & Jörn-Steffen Pischke, Mostly Harmless Econometrics: An Empiricist's Companion 63 (2009).

[11]Kate Stith & José A. Cabranes, Fear of Judging: Sentencing Guidelines in the Federal Courts 9–11 (1998); James M. Anderson et al., Measuring Interjudge Sentencing Disparity: Before and After the Federal Sentencing Guidelines, 42 J.L. & Econ. 271 (1999).

[12]A. Abigail Payne, Does Inter Judge Disparity Really Matter? An Analysis of the Effects of Sentencing Reforms in Three Federal District Courts, 17 Int'l Rev. L. & Econ. 337 (1997) (using data from 1980 to 1991 for select types of cases in three federal district courts); Joel Waldfogel, Aggregate Inter-Judge Disparity in Federal Sentencing: Evidence from Three Districts, 4 Fed. Sentencing Rep. 151 (1991) (using data from three different district courts from 1984 to

mandatory guidelines were not applicable.[13] Beyond criminal sentencing, many studies focus on U.S. Supreme Court outcomes and on individual U.S. Supreme Court justices[14] and other studies focus on appellate judge characteristics. We are aware of two studies examining the effect of individual ISC justices on case outcomes: one study examines the pro-government tendencies of individual justices;[15] the second discusses the association of justices' religious observancy and outcomes of cases involving freedom of religion.[16]

Recent studies of gender effects in appellate courts include Choi and colleagues' finding that, if anything, female judges outperform male judges as measured by opinion production, outside state citations, and co-partisan disagreements, though many of their tests yielded insignificant gender effects on judicial performance.[17] Boyd et al. use propensity score matching for 13 areas of law addressed in U.S. federal appeals court cases. They find consistent judge gender effects only in cases involving sex discrimination, with female judges being more receptive to such cases.[18] The prominence of null effects is consistent with the varying other outcomes reported in the literature.[19] Boyd et al. summarize the literature as follows.

1987); Joel Waldfogel, Does Inter-Judge Disparity Justify Empirically Based Sentencing Guidelines?, 18 Int'l Rev. L. & Econ. 293 (1998).

[13]Ryan W. Scott, Inter-Judge Sentencing Disparity After *Booker*: A First Look, 63 Stan. L. Rev. 1 (2010). There is evidence of congressional overreaction to perceived downward departures by judges. Max Schanzenbach, Have Federal Judges Changed Their Sentencing Practices? The Shaky Empirical Foundations of the Feeney Amendment, 2 J. Empirical Legal Stud. 1 (2005); Scott, supra. Compare Beth A. Freeborn & Monica E. Hartmann, Judicial Discretion and Sentencing Behavior: Did the Feeney Amendment Rein in District Judges?, 7 J. Empirical Legal Stud. 355 (2010).

[14]For example, Timothy R. Johnson, James F. Spriggs II & Paul J. Wahlbeck, Passing and Strategic Voting on the U.S. Supreme Court, 39 Law & Soc'y Rev. 349 (2005).

[15]Yoram Shachar & Miron Gross, Acceptance and Rejection of Appeals to the Supreme Court: Quantitative Analyses, 13 Legal Stud. 329 (1996) (in Hebrew)

[16]Keren Weinshall-Margel, Attitudinal and Neo-Institutional Models of Supreme Court Decision Making: An Empirical and Comparative Perspective from Israel, 8 J. Empirical Legal Stud. 556 (2011).

[17]Stephen J. Choi, Mitu Gulati, Mirya Holman & Eric A. Posner, Judging Women, 8 J. Empirical Legal Stud. 504 (2011). Boyd, Epstein, and Martin and Greiner and Rubin, echoing earlier work, point out some difficulty in asserting that any inherent individual characteristic, such as sex or race, *causes* behavior such as judicial voting patterns. Boyd et al., supra note 5, at 397; D. James Greiner & Donald B. Rubin, Causal Effects of Perceived Immutable Characteristics, 93 Rev. Econ. Stat. 775 (2011). Nevertheless, they recognize that it can be interesting to compare people with such characteristics to see if there are differences in outcome. Boyd et al., supra note 5, at 397 (quoting Donald Rubin). In the Israeli context, a study performed by Bogoch and Don-Yechiya examined the effect of the presence of a female justice on the panel on the tendency to accept or reject appeals as well as its impact on sentencing severity. Bryna Bogoch & Rachelle Don-Yechiya, The Gender of Justice: Bias Against Women in Israeli Courts 133–36 (1999).

[18]Boyd et al., supra note 5.

[19]For example, Ashenfelter et al., supra note 1, at 262 n.12.

> By our count, social scientists and legal academics have produced over 30 systematic, multivariate analyses of the extent to which female judges make decisions distinct from their male colleagues (individual effects) or cause male judges to behave differently than they otherwise would (panel effects). Of these, roughly one-third purport to demonstrate clear panel or individual effects, a third report mixed results, and the final third find no sex-based differences whatsoever.[20]

This literature thus provides no firm guidance on what to expect in our data, and it provides little guidance on individual judge effects, in contrast to the effects of judge characteristics, in mandatory jurisdiction appellate cases.

In the ISC literature, judicial characteristic effects have been found in religion cases. More religiously observant ISC justices were significantly more likely to support freedom of religion claims than nonobservant justices.[21] Salzberger explored another characteristic, justices' acting or permanent status,[22] and found differences in case outcomes between acting and permanent ISC justices.[23] Gross and Shachar found the case assignment pattern in the ISC not to be random, with seniority and case category specialization being sources of nonrandomness.[24] These findings suggest the need to account for the case assignment pattern in exploring ISC justice or justice characteristic effects.

Methodological issues are of sufficient concern in most appellate studies to limit strong reliance on their results. One can divide the methodological issues into concerns about sample bias, case assignment, and inferences based on questionable measures of uncertainty.

The publicized Sunstein et al. study, which finds political ideological effects across a broad range of issues in U.S. federal courts of appeal, notes that it is limited to published opinions. The authors suggest that in courts that limit unpublished opinions to "simple and straightforward cases . . . it is harmless to ignore unpublished opinions, simply because they are easy."[25] Since unpublished opinions can far outnumber published opinions, the study,

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[20]Boyd et al., supra note 5, at 392 (footnote omitted). One reason for varying results is that judge and judge characteristic effects may exist at one court level but not at another due to the selection of cases for appeal. While the mass of cases may be simple enough to preclude judge characteristics from influencing their outcome, cases appealed likely tend to be closer cases in which the legal outcome is less clear. In such close cases, there is more room for judicial characteristics to exhibit an influence. Ashenfelter et al., supra note 1, at 281.

[21]Weinshall-Margel, supra note 16.

[22]Justices are sometimes appointed to the ISC on a temporary basis. Some of the justices appointed on a temporary basis eventually receive permanent status. Others are directly appointed on a permanent basis.

[23]Eli Salzberger, Acting Justices in the Supreme Court and Judicial Independence—Theoretical Analysis and Empirical Findings, 19 Bar Ilan L. Rev. 541 (2003). See also Benyamin Blum, To Concur or Not to Concur: That is the Question: Theoretical and Practical Questions Regarding the Judicial Independence of Judges Appointed Temporarily to the Israeli Supreme Court, Thesis, Master of the Science of Law, Stanford University (May 2006).

[24]Miron Gross & Yoram Shachar, How Are Supreme Court Panels Selected?—A Quantitative Analysis, 29 Hebrew U. L. Rev. 567 (1999).

[25]Sunstein et al., supra note 6, at 18.

despite its 6,408 decisions covering different time periods,[26] may exclude the mass of cases. The decision to publish is not necessarily an unbiased one, as shown in one study of judges' political ideology.[27] So at most the Sunstein study tells us something, not unimportant but of limited use, about the cases that courts think are important and choose to publish. Sample bias in the cases studied is not a concern here because our data source purports to cover all ISC appellate outcomes.

Aside from publication bias, studies suffer from unquestioningly assuming random assignment of appellate judges.[28] As the Boyd et al. quote in the introduction indicates, this can be a mistake. At the trial-court and appellate-court levels, the random assignment assumption is sometimes not warranted.[29] If assignment is not random, the risk arises that adjudicators receive heterogeneous pools of cases and that the different pools of cases are associated with the case outcome of interest. Adjudicator effects then may be artifacts of the case assignment process. The method we use to address this concern, expressly accounting for the known nonrandom factors in the assignment process, has not been widely used.

The case outcome studies that focus on measures of uncertainty, used here to refer to standard errors of the estimates, are limited. At the appellate level, nonindependence exists both with respect to multiple observers (panels of appellate judges) of the same case, and with repeated observations by the same observer (the judge) across cases. These features artificially decrease standard errors and promote questionable findings of statistical significance.[30] If one is interested in judge characteristics, such as political party or gender, the voter-judge's nonindependence across cases should be considered and not just the case-level nonindependence.

A second branch of the methodology literature is relevant to what inferences studies of appellate case outcomes can support. Scholars increasingly recognize that the process of discretionary case selection can distort inferences about judicial preferences.[31] The ISC's

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[26]Id. at 157–63 nn. 2–26.

[27]Keele et al., supra note 3. For a study that verified its sample with respect to publication bias, see Richard L. Revesz, Ideology, Collegiality, and the D.C. Circuit: A Reply to Chief Judge Harry T. Edwards, 85 Va. L. Rev. 805 (1999).

[28]Sunstein et al., supra note 6, at 82–83.

[29]Ashenfelter et al., supra note 1; Boyd et al. supra note 5; Hall, supra note 1.

[30]An analogous situation exists with respect to legislative votes. For example, in a study of senatorial voting on U.S. Supreme Court nominees, the votes of senators on a single nominee are not independent; they are influenced by the nominee's qualifications. Shipan notes this issue in the context of Senate voting and adjusts the standard errors to account for this nonindependence. Charles R. Shipan, Partisanship, Ideology, and Senate Voting on Supreme Court Nominees, 5 J. Empirical Legal Stud. 55, 62–63 (2008). When one is interested not in the nominal senator's votes but in a characteristic of the senator, such as political party, the voter's nonindependence across cases of legislative votes needs to be additionally accounted for and not just the nominee-level nonindependence.

[31]Anna Harvey & Barry Friedman, Ducking Trouble: Congressionally Induced Selection Bias in the Supreme Court's Agenda, 71 J. Pol. 574, 574–76 (2009); Kastellec & Lax, supra note 4, at 408 ("[T]he Court's selection process raises the potential for selection bias in the inferences we draw from its cases."); Theodore Eisenberg, Talia Fisher & Issi Rosen-Zvi, Case Selection and Dissent in Courts of Last Resort: An Empirical Study of the Israel Supreme Court in Empirical Studies of Judicial Systems 2011 (Yun-chien Chang ed. 2012) (forthcoming).

mandatory and discretionary jurisdiction in criminal appeals allows us to test this concern. We can compare individual justices' behavior across the two jurisdictional sources, one in which justices select cases and one in which they do not. This has never been done in a justice-level study of which we are aware.

A final set of relevant articles relates to the effect of the panels on which judges sit. Panel effects are said to exist when the makeup of the panel suggests voting patterns that differ from individual judges' preferences. Thus, for example, a U.S. Republican federal appellate judge may vote differently depending on whether he or she is paired with two other Republicans or with a Republican and a Democrat. Revesz's study of the D.C. Circuit and Sunstein et al.'s larger study show panel effects.[32] We therefore explore panel-level patterns as part of our analysis.

III. The Israeli Judiciary[33]

Israel is a unitary state with a single system of courts of general jurisdiction as well as other tribunals or authorities with judicial power. The institutions other than the traditional courts have jurisdiction limited by subject matter or persons covered. Of the regular law courts, the judiciary law establishes three levels of courts: the ISC, district courts, and magistrates' courts.[34] District courts and magistrates' courts are trial courts; the Supreme Court functions as both an appellate court and as High Court of Justice (HCJ). In its HCJ capacity, the Court operates as a court of first and last instance, primarily in areas relating to government behavior. Because the HCJ activity is not appellate, this study excludes HCJ cases, other than partially accounting for them in considering workload.

The 29 magistrates' courts are the basic trial courts. Magistrates' courts serve the locality and district in which they sit. They generally have criminal jurisdiction over offenses with a potential punishment of a fine or up to seven years' imprisonment. They have civil jurisdiction in matters involving up to a specified monetary amount—which currently is 2.5 million shekels (approximately U.S. $690,000)—as well as over the use, possession, and division of real property. Magistrates' courts also serve as traffic courts, municipal courts, family courts, and small claims courts. Generally, a single judge presides in each case unless the president of the magistrates' court directs that a panel of three judges hear the case.[35]

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[32]Richard L. Revesz, Environmental Regulation, Ideology, and the D.C. Circuit, 83 Va. L. Rev. 1717 (1997); Sunstein et al., supra note 6, at 22–23.

[33]The Israeli judiciary description is based on the descriptions in Eisenberg et al., supra note 31; Theodore Eisenberg, Talia Fisher & Issi Rosen-Zvi, Israel's Supreme Court Appellate Jurisdiction: An Empirical Study, 96 Cornell L. Rev. 693, 700–04 (2011).

[34]See generally Courts Law (Consolidated Version), 5744–1984, 38 LSI 271 (1983–1984).

[35]Courts Law (Consolidated Version) ch. 2, art. 3.

District courts have residual jurisdiction in matters not within the sole jurisdiction of another court. The six district courts sit in Jerusalem, Tel Aviv, Haifa, Beersheva, Nazareth, and Petah-Tikva. The Petah-Tikva court was added in 2007.[36] As courts of first instance, district courts hear criminal cases in which the accused faces punishment of more than seven years' imprisonment. District court civil jurisdiction covers matters in which more than 2.5 million shekels are in dispute. District courts also hear cases dealing with, inter alia, companies and partnership, arbitration, prisoner petitions, and appeals on tax matters, and serve as administrative courts. These courts also hear appeals of judgments of the magistrates' courts. Generally, a panel is composed of a single district court judge. A panel of three judges hears appeals of magistrates' courts' case judgments and hears cases in the first instance when the accused is charged with an offense punishable by imprisonment of 10 or more years. A three-judge panel also sits when the president or deputy president of the district court so directs.[37]

The ISC has jurisdiction to hear criminal and civil appeals from judgments of the district courts. Cases that begin in a district court are appealable, as of right, to the ISC. Other matters, particularly the mass of cases that begin in the magistrates' courts, are appealable only with the ISC's permission. The Supreme Court's decisions are binding on lower courts and Israel adheres to the principle of stare decisis.[38]

The ISC generally sits in panels comprised of three justices. The president or the deputy president of the Court may expand the panel size to any uneven number of justices but that happened rarely enough in our data to not require further consideration. Each panel also has the power to decide to expand its size. The Court can also decide to initiate a "further hearing," in which a panel of five or more justices rehears a case decided by a smaller ISC panel. A single justice may hear petitions for injunctions, temporary restraining orders, and other interim rulings, as well as for an order nisi, but a single justice may not refuse to grant an order nisi or make it contingent on only some of its assertions. A single justice may hear appeals against interim rulings of district courts or against the verdict of a single district court judge hearing an appeal from a case in a magistrate's court.[39]

Courts sitting on appeal, whether district courts or the ISC, are formally authorized to adjudicate both fact and law, but seldom intervene in factual matters and tend to limit their judgment to questions of law. The rationale is that, on appeal, judges usually are not directly exposed to witnesses and other types of evidence. The appellate court may examine whether the factual basis for the lower court's decision has a sound evidentiary foundation, but the de facto appeal practice is not one of a de novo review. Mandatory criminal appeals

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[36]Ordinances of Courts (Establishment of the Central District Court), 2007, KT 6585, 824. In results not reported below, we assessed whether screening outcomes in the ISC differed based on the district court being reviewed. We found no significant differences.

[37]Courts Law (Consolidated Version) ch. 2, art. 2.

[38]Basic Law: Judicature § 20.

[39]Courts Law (Consolidated Version) §§ 26, 30.

are regulated in a slightly different manner than civil appeals under Israeli law. We describe only the criminal appeals process here and refer the reader to our description of civil appeals elsewhere.[40]

In criminal cases, a verdict issued by the district court sitting in the first instance can be appealed as of right to the ISC.[41] A verdict issued by the magistrates' court in the first instance can be appealed as of right to the district court. In Israel, both prosecution and defense have symmetric rights of appeal, as the prosecution is authorized to appeal a defendant's acquittal.[42]

In a case initiated in the magistrates' court and appealed as of right to the district court, both the prosecution and the defense can petition the ISC for a second appellate review. Unlike the situation in civil cases, interim trial court decisions in criminal cases cannot be appealed, with only limited exceptions such as judicial disqualification.[43]

The requirements of discretionary appeal laid down in *Chenion Haifa v. Matzat Or*[44] apply to criminal and civil cases.[45] Under this standard, the result reached by the lower court should not influence the decision whether to grant or deny a discretionary appeal. Therefore, according to the law on the books, an argument made by the defendant concerning the stigmatizing effect of conviction[46] or even the severity of punishment is not grounds for a second appellate review.[47]

A request for discretionary appeal is usually reviewed by a single justice, but it can also be reviewed by a panel of three justices.[48] When the request for appeal is reviewed by a three-justice panel, the panel is authorized to treat the request for appeal as an appeal and decide on the merits.[49] As discussed above, discretionary appeals are based, in most cases, on a preliminary screening by a single justice, a process we explore elsewhere.[50]

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[40]Eisenberg et al., Cornell, supra note 33.

[41]See Courts Law (Consolidated Version) § 41(a).

[42]Israeli law, which does not differentiate between appeals of acquittals and convictions, grants the prosecution the authority to appeal a defendant's acquittal. For discussion of this authority, see Eisenberg et al., Cornell, supra note 33, at 783 n.52.

[43]Criminal Procedure Law (Consolidated Version), 5742–1982, 36 LSI 35, §§ 146–147 (1981–1982).

[44]CA 103/82 Chenion Haifa v. Matzat Or 36(3) PD 123 [1982].

[45]See DC 4927/92 State of Israel v. Ben Yehuda (unpublished opinion).

[46]CrimA 1245/93 Shtarkman v. State of Israel 47(2) PD 177 [1993].

[47]DC 3251/91 Yishai v. State of Israel, PD 45(5) 441 (1991). Our prior work calls into question adherence to the *Chenion Haifa* standards. Eisenberg et al., Cornell, supra note 33.

[48]Criminal Procedure Rules, 5734–1974, § 44(7).

[49]Criminal Procedure Law (Consolidated Version), 5742–1982, 36 LSI 35, § 205 (1981–1982).

[50]Eisenberg et al., supra note 31.

IV. The Data and Descriptive Statistics

This study uses a data set employed in two earlier studies of ISC appellate cases, which include discussions of the data's limitations.[51] We describe here relevant aspects of the original data set and report additional coding activity with respect to the data.

The cases included in this study are: (1) for discretionary and mandatory jurisdiction criminal cases, all cases decided in the years 2006 and 2007; and (2) for discretionary and mandatory civil cases, all cases decided in 2007 and all cases decided in the months of August through December 2006. The study includes every ISC substantive opinion available online via the official Israel Judicial Authority (IJA) website for all cases decided in these time periods. Since the IJA website contains all the cases decided by the ISC,[52] the resulting database provides a complete picture of ISC doctrinal decisional activity in the periods covered. We tested the comprehensiveness and accuracy of the database by comparing it with data obtained from the ISC's secretariat. This comparison suggested that the data obtained from the IJA website are indeed comprehensive, covering the full gamut of criminal and civil cases.

The cases identified by the above methods were coded by student research assistants. Prior to the student coding, the authors designed a data form to structure the coding. After review of the performance of the form and the students in an initial set of cases, the form was revised and a final form constructed. The students used that revised form to code the cases, under the supervision of the authors.[53]

In reviewing the data in preparing our article on screening by individual justices, we corrected some errors in the coding of case outcomes, eliminated interlocutory appeal cases, and removed a few duplicate observations. For purposes of this article, with its greater focus on individual justice activity in decisions on the merits, we verified each justice's participation in each case, recorded the presiding justice in each case that reached a three-judge panel, and removed two additional cases as duplicate observations. The resulting usable sample contains 3,342 cases consisting of 940 discretionary criminal appeals, 1,410 mandatory criminal appeals, 395 discretionary civil appeals, and 597 mandatory civil appeals. Fewer cases may be reported in tables due to missing data for a variable included in a table. We also used the IJA website to identify the workload of individual justices, as measured by case participation, in HCJ cases.

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[51]Eisenberg et al., Cornell, supra note 33; Eisenberg et al., supra note 31.

[52]The website does not include cases decided in camera, but since those cases are an insubstantial fraction of the cases decided by the Court, the omission does not materially affect the analysis here. See Courts Law (Consolidated Version), 5744–1984, 38 LSI 271, § 70(a) (1983–1984).

[53]Preliminary results indicated that the coding of case categories in our original data differed from the case categories that the ISC uses internally to assign discretionary jurisdiction cases to individual screening justices. In preparing Eisenberg et al., supra note 31, which focused on screening decisions by individual justices, we reviewed every discretionary case in the original data to reclassify the cases into categories more relevant to screening by individual justices.

Table 1: Justices' Participation on Merits Appellate Panels and High Court of Justice Cases, by Jurisdictional Source and Type of Case

	Discretionary Jurisdiction				*Mandatory Jurisdiction*							
	Criminal		*Civil*		*Criminal*		*Civil*		*Total Appellate*		*High Court of Justice*	
Justice	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Arbel	18	10.9	16	10.2	373	8.9	112	6.6	519	8.4	525	7.5
Barak	1	0.6	4	2.5	47	1.1	40	2.4	92	1.5	144	2.1
Beinisch	8	4.8	2	1.3	156	3.7	40	2.4	206	3.3	514	7.3
Berliner	6	3.6	4	2.5	282	6.7	69	4.1	361	5.8	240	3.4
Elon	5	3.0	4	2.5	181	4.3	92	5.4	282	4.5	205	2.9
Fogelman	4	2.4	2	1.3	182	4.3	30	1.8	218	3.5	639	9.1
Grunis	6	3.6	15	9.6	183	4.4	200	11.8	404	6.5	576	8.2
Hayut	8	4.8	5	3.2	228	5.4	234	13.9	475	7.7	549	7.8
Joubran	23	13.9	17	10.8	464	11.1	117	6.9	621	10.0	610	8.7
Kheshin, D.	5	3.0	10	6.4	202	4.8	66	3.9	283	4.6	270	3.9
Levy	28	17.0	4	2.5	864	20.6	36	2.1	932	15	507	7.2
Melcer	4	2.4	0	0.0	88	2.1	44	2.6	136	2.2	51	0.7
Naor	5	3.0	12	7.6	164	3.9	168	9.9	349	5.6	541	7.7
Other	1	0.6	4	2.5	30	0.7	24	1.4	59	1.0	—	—
Procaccia	15	9.1	13	8.3	147	3.5	85	5.0	260	4.2	593	8.5
Rivlin	5	3.0	31	19.7	151	3.6	213	12.6	400	6.4	442	6.3
Rubinstein	23	13.9	14	8.9	454	10.8	119.7	7.0	610	9.8	592	8.5
Total	165	100	157	100	4,196	100	1,689	100	6,207	100	6,998	100

NOTE: For each jurisdictional source (discretionary and mandatory) and type of case (criminal and civil), the first column is the number of votes on the merits cast by the row justice and the second column is the percent of votes cast by that justice in cases of the source and type. The percents are thus column percents. For example, Justice Arbel cast 18 of the 165 the votes cast on the merits in discretionary criminal cases, and the second column shows them to be 10.9 percent of the votes cast in such cases. Votes in discretionary cases are limited to those in which three-judge panels granted review. For discretionary and mandatory criminal cases, the data include all cases decided on the merits in the years 2006 and 2007. For discretionary and mandatory civil cases, the data include all cases decided in 2007 and all cases decided from August through December 2006. For HCJ cases, the data include cases decided in 2006 and 2007.

Because of the importance of case categories in understanding both the ISC case assignment process and case outcomes, we first present, in Table 1, a summary of the individual justices' participation in cases by jurisdictional source and case type. The table's "Total Appellate" columns are the number and percent of cases the justice sat on. Table 1 reports justices' participation at the individual-justice level. Because each merits panel contains, with few exceptions, three justices, the number of *cases* represented by the "Total" row's numbers are approximately one-third the numbers shown in the table.

Table 2 presents individual characteristics of justices in this study. The ISC included six female and four acting justices.[54]

[54]We had no desire to identify individual justices and, in prior work, did not do so when it was unnecessary to presenting the results of interest about the ISC. Eisenberg et al., supra note 31. In this article, institutional details about justices, such as when they were appointed, opinion assignments, and who were the presiding justices, made

Table 2: Justices' Characteristics

Justice	*Time Joined Court*	*Gender*	*Status*
Arbel	May 2004	Female	Permanent
Barak	September 1978	Male	Permanent
Beinisch	December 1995	Female	Permanent
Berliner	June 2006	Female	Acting
Elon	April 2007	Male	Acting
Fogelman	April 2007	Male	Acting
Grunis	April 2002	Male	Permanent
Hayut	March 2003	Female	Permanent
Joubran	April 2003	Male	Permanent
Kheshin, D.	June 2006	Male	Acting
Levy	September 2000	Male	Permanent
Melcer	August 2007	Male	Permanent
Naor	June 2001	Female	Permanent
Procaccia	March 2001	Female	Permanent
Rivlin	September 1999	Male	Permanent
Rubinstein	May 2004	Male	Permanent

NOTE: Justice Barak served as President Justice until his retirement in September 2006, at the mandatory retirement age of 70. He was replaced by the then most senior justice, Justice Beinisch. Justices who sat in very few cases during the time period of this study are not shown; their numbers can be seen in the "Other" row in Table 1. Justice Fogelman became a permanent member of the ISC in 2009.

Summary statistics for case-level and justice-level variables used in this study, limited to mandatory criminal cases, are in Table 3. "Government appealed" is a dummy variable equal to 1 if the government appealed and 0 if the defendant appealed. "Female defendant" is a dummy variable equal to 1 if a female defendant appealed and 0 if a male defendant appealed, and is coded only for cases in which we could ascertain gender from the defendant's name. "Arab appealed" is a dummy variable equal to 1 if an Arab defendant appealed and 0 if a Jewish defendant appealed, and is coded only for cases in which we could ascertain ethnicity from the defendant's name. "Sentencing only" is a dummy variable equal to 1 if the appeal was only of the sentence and 0 otherwise. "Panel seniority" is the sum of the times served on the ISC of the justices sitting on a panel. "Presiding justice seniority" is the time, in years, of the ISC of a panel's presiding justice. "Time on ISC" is the time, in years, of individual justices' service on the ISC at the time of the ISC decision.

The outcome variables of interest are "case resolved for defendant" at the case level and "vote for defendant" at the individual-justice level. "Case resolved for defendant" is whether the appeal was resolved in favor of the defendant. "Vote for defendant" is a variable recording the direction of each justice's vote as a dummy variable. It can differ from the case's outcome if a justice dissents, which rarely occurs in the ISC in the time period

identification unavoidable to achieve coherent presentation of results. We take no position on whether individual justices' voting patterns are normatively desirable.

Table 3: Summary Statistics for Mandatory Criminal Cases

	Mean	*Median*	*Minimum*	*Maximum*	SD	N
A. Case-Level Variables						
Government appealed	0.133	0	0	1	0.340	1,398
Female defendant appealed	0.020	0	0	1	0.140	1,400
Arab defendant appealed	0.443	0	0	1	0.497	1,080
Sentencing only	0.674	1	0	1	0.469	1,410
Panel seniority	12.4	11.1	0	46.5	5.638	1,410
Presiding justice seniority	3.8	2.8	0	28.3	5.051	1,393
Panel workload	25.4	26.4	0	31.9	4.609	1,410
Year of ISC decision	2006.6	2007	2006	2007	0.493	1,410
Case resolved for defendant	0.1595	0	0	1	0.366	1,341
B. Justice-Level Variables						
Vote for defendant	0.161	0	0	1	0.368	3,991
Time on ISC	4.2	3.8	0	28.3	3.662	4,163
Workload	8.6	9.2	3.4	11.1	2.202	4,157

NOTE: *SD* = standard deviation; *N* = number of observations. The number varies because some variables are observed at the individual-justice level and others are observed at the case level. Variables are described in the text. Seniority and time are in years. Workload is in hundreds of years. Time on ISC and workload include all justice participations on panels so justices are multiply observed.

studied.[55] A case outcome favors the defendant if it affirms an appeal brought by the state or reverses an appeal brought by the defendant. About 4.5 percent of mandatory jurisdiction criminal case votes are excluded because they involved votes, such as approved in part and denied in part, that we did not characterize as favoring the defendant or the state.

Unlike the other variables, "workload" is not precisely known to us; nor do we know how it influences the ISC's case assignment system. We consider two measures of justices' workloads. A justice's workload is estimated in part based on (1) the time taken by each justice's cases, (2) an adjustment for our sample including more months of criminal than civil cases (relevant due to subject matter specialization), and (3) an adjustment for those justices who did not serve on the ISC for the full period of our study. A second measure of workload is the number of cases in which each justice wrote the Court's opinion. Within the same case, workload varies across justices based on who wrote the Court's decision, as shown in Table 7, and based on whether a justice wrote a dissenting or concurring opinion. Separate opinions do not materially affect the workload because separate opinions are so rare.[56] Our workload estimates are based on the ISC's appellate activity, a limitation discussed in Section VII.[57]

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[55]Eisenberg et al., supra note 31.

[56]Id.

[57]The workload estimate starts with a measure of workload attributable to the cases justices sat on. Table 5 shows that cases vary substantially in the workload they impose (as measured by time to resolution) depending on whether a case is civil or criminal in type, and on whether a case's jurisdiction in the ISC is mandatory or discretionary. We initially estimate workload by summing, for each justice, the time to resolution for all the cases

Table 4: Major Subject of First Crime Mentioned in ISC Opinions

Major Subject of Crime		N
National security, foreign affairs, official state secrets—1		18
Offenses against the regime and the society—2		63
Offenses against the government and the legal system—3		16
Offenses against good governance—4		6
Body injuries—5		765
Subcategories of the 765 "Body injuries" cases		
Causing death—33	170	
Endangering the life and health of others—36	271	
Sex offenses—37	228	
Offenses against another's freedom—39	40	
Assault—40	37	
Other	19	
Property crimes—6		236
Forgery of currency and stamps—7		0
Minor offenses—8		0
Preparation and conspiracy to commit a crime—9		101
White-collar crimes—10		13
Drugs—11		82
Administrative offenses—12		0
Other offenses—13		13
No information in opinion		97
Total		1,410

NOTE: The table shows the number times each offense category was the first offense mentioned in an ISC opinion in mandatory criminal cases. The numbers in the column with the crime category text are internal coding references. More detailed offense categories are shown in Appendix Table A.

Since the probability of obtaining appellate relief may be associated with particular crimes, we constructed a taxonomy of crimes. We coded each of the 1,410 mandatory criminal cases using the offense types described in Table 4 and shown in more detail in Appendix Table A. The taxonomy used is derived in part from the categories of crimes used by the Israeli police to categorize offenses, which is available in the Statistical Abstract of

on which he or she sat. We then make two adjustments. Since we undersampled civil cases relative to criminal cases, this initial sum is adjusted for the civil cases not in our sample. Justices sat on such cases but receive no "credit" for that work in our initial summation because we did not observe these cases. We therefore multiply civil case times to resolution by 24/17 to reflect our sample design, which includes 24 months of criminal cases and 17 months of civil cases. We then adjust for six justices not serving for the full two years of our study. Justice Barak left the Court in mid-September 2006 and, as Table 2 shows, five justices joined the Court during our study period. Simply summing these justices' cases' times to resolution would distort workload's role in their case assignments because they could not have accumulated workload credit while not on the Court. We adjust their workloads by the inverse of the fraction of the 24 months of our study that they served on the Court. This in effect treats them as having a workload that reflects their time on the Court. This ex post workload calculation can only be a proxy for the workload's effect on case assignment, which likely occurs in real time based on justices' estimated pending workloads at the time of each case filing.

Israel.[58] Table 4 shows the frequency of the first offense mentioned in each mandatory criminal case appeal.

V. Case Assignment in the ISC and Its Implications

Interpreting the results reported below depends on understanding the ISC case assignment process. If case assignment were fully random, then case outcome differences across judges would be judge effects and not a consequence of justices seeing different mixes of cases.[59] Randomization should account for differences in case characteristics, including the strength of the appellant's case. If the case assignment process is somehow correlated with the merits, then it is more difficult to distinguish between judge effects and effects attributable to case differences. If case assignment is random conditional on characteristics (covariates) used to assign cases, then analysis that controls for these characteristics likely provides reasonable estimates of justices' effects on case outcomes.[60] We therefore explore the pattern of case assignment before presenting results. Our strategy for estimating individual justice effects is to try and ascertain covariates on which case assignment is based and to account for those covariates in assessing justices' patterns of voting.

Discussions with persons knowledgeable about the ISC and empirical work by Gross and Shachar, described above, suggest three sources of nonrandomness in assigning ISC appellate cases. First, justices specialize by subject area, with evidence of relevant subjects being criminal, civil, and subcategories of civil cases. So specializing justices, particularly presiding justices, receive a higher fraction of cases in their specialty than would occur due to random assignment. Second, cases are assigned based on some measure of workload or availability. So justices with portfolios of cases that are more burdensome may be less likely to be assigned other cases. Third, presiding justices are assigned to cases based on specialization and seniority. So randomization of case assignment likely would be applied separately to the senior justice on a panel and then to the two remaining junior justices. These factors are consistent with the results reported in Gross and Shachar. We therefore explore the relations between case assignment and (1) case category specialization, (2) workload, and (3) seniority.

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[58]For example, Files Opened by the Police, by Type of Offence, Statistical Abstract of Israel 2011 (tbl. 11.3), available at <http://www.cbs.gov.il/reader/shnaton/templ_shnaton_e.html?num_tab=st11_03&CYear=2011>.

[59]For example, Ashenfelter et al., supra note 1, at 259.

[60]Sometimes, the assignment to a treatment is known to be random for some subgroup. Dan A. Black, Jeffrey A. Smith, Mark C. Berger & Brett J. Noel, Is the Threat of Reemployment Services More Effective Than the Services Themselves? Evidence from Random Assignment in the UI System, 93 Am. Econ. Rev. 1313 (2003); Angrist & Pischke, supra note 10, at 63. We assume that, conditional on case specialization, seniority, and workload, case assignment in the ISC is random. Our analysis is therefore in the spirit of models in which the subgroup is known to be randomly assigned, but we have more to account for with respect to the assignment process because it is based on multiple factors.

A. Case Category Specialization

Table 1 shows the justices' participation on merits panels by jurisdictional source and type of case. The data are consistent with the reported case category specialization in the assignment processes. We show elsewhere that two justices, who we identify here as Justices Levy and Joubran, accounted for over 80 percent of the discretionary jurisdiction criminal case screening decisions.[61] Appendix Table B confirms this by including discretionary cases denied review in a table similar to Table 1. Table 1 and Figure 1 confirm that specialization continues in postscreening merits decisions. The column percents for criminal cases show that Justice Levy dominated participation in criminal case merits panels. He accounted for 17 percent of all votes in discretionary criminal cases and 20.6 percent of all votes in mandatory criminal cases. Since almost all merits panels contain three judges,[62] these percentages are out of a maximum single-judge percentage of 33.3 percent of total votes. Justice Levy thus participated in over half the criminal case decisions for both jurisdictional sources.

Justice Joubran participated in about one-third of both discretionary and mandatory jurisdiction criminal cases. Note that this is substantially lower than his share of criminal cases screened,[63] a differential that likely results from Justice Levy having been designated the senior justice on cases that reach merits panels.

Civil case assignments confirm specialization by subject area. For example, Justice Rivlin accounted for 12.6 percent of mandatory civil case votes. This prominence stems from his dominance in tort cases, in which he cast 22 percent of the votes, thus indicating that he adjudicated two-thirds of the mandatory civil tort cases. Justices Hayut and Grunis had the highest participation in mandatory civil cases.

Table 1's "Total Appellate" columns show that Justices Barak, Beinisch, Elon, Fogelman, and Melcer participated in well under their proportionate share of merits panels. This is because Justice Barak retired in September 2006 and, as shown in Table 2, because Justices Elon, Fogelman, and Melcer joined the Court in 2007, and therefore could not have participated in our sample's 2006 cases. But Justice Fogelman nevertheless had the highest number of HCJ participations. Justice Kheshin served for only 10 months beginning in June 2006 and thus understandably has a proportionately lower share of cases. Justice Beinisch became Chief Justice in 2006, probably leading to a reduction in her case assignments due to administrative duties. Justice Procaccia's large shares of discretionary criminal and civil cases and of HCJ cases may be why she had relatively low shares of mandatory civil and criminal cases.

The jurisdictional basis of the case need not alter the desire to exploit justices' expertise via case specialization. Consistently with the specialization hypothesis, the data show that case category specialization exists for both mandatory and discretionary cases.

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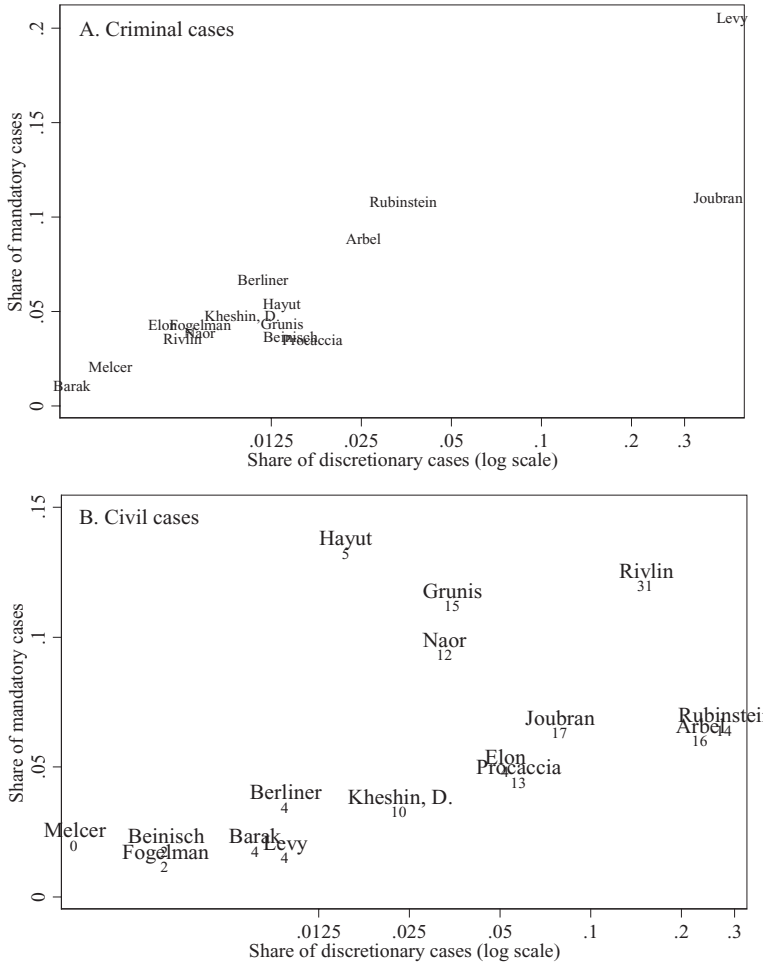
[61]Eisenberg et al. supra note 31.

[62]A trivial number of criminal case panels involved more than three justices.

[63]Eisenberg et al. supra note 31.

Figure 1: Justices' shares of mandatory and discretionary cases.



NOTE: The figures show the relation between each justice's share of mandatory and discretionary cases. Each justice is a data point. The top figure reports criminal cases and the bottom figure reports civil cases. In the bottom figure, the number under each justice's name is the number of discretionary jurisdiction cases heard by the justice. Thus the outliers in Figure 1B are not merely justices with very few cases.

This can be seen in Figure 1, which shows the association between the proportion of mandatory and discretionary cases heard by each justice. Figure 1A shows criminal cases and Figure 1B shows civil cases. For example, Justice Levy participated in a higher fraction of criminal cases than any other justice, with participation in over 40 percent of discretionary cases in which review was granted, and over 20 percent of mandatory cases. It also shows that almost all justices' fractions of mandatory criminal cases increased as their fraction of discretionary cases increased. Equally important, the figures' upper-left and lower-right

Table 5: Time to Disposition of ISC Cases

Jurisdiction and Type	*Review Status*	*Mean Days*	*Median Days*	N
Mandatory criminal	Not applicable	428	322	1,400
Mandatory civil	Not applicable	805	721	594
Discretionary criminal	Granted	393	291	56
Discretionary civil	Granted	694	571	58
Discretionary criminal	Not granted	106	62	828
Discretionary civil	Not granted	255	194	336
Total		401	267	3,272
Significance			$p < 0.001$	

NOTE: The table shows the time to disposition, measured by the time from the date of decision of the district court decision being appealed to the date of the ISC's disposition of the case.

quadrants are nearly empty. Justices were not assigned high proportions of mandatory cases in an area and low proportions of discretionary cases in the same area, or vice versa. Specialization spans jurisdictional source. We address the outliers in Figure 1B below in the discussion of workload.

B. Case Assignment, Workload, and Seniority

Table 1 and Figure 1 establish case category specialization, one source of nonrandom case assignment. Table 1 shows the workload burden on justices as measured by number of cases. All cases are not equally burdensome. Discretionary cases denied review presumably on average take less work than those granted review. Mandatory cases may take longer because the ISC is the first appeal in such cases, rather than the second appeal in discretionary cases. In second appeals, district courts have already provided review and an appellate record. That record simplifies the issues presented to the ISC and should reduce the time needed for adjudication.

Measuring justices' workloads thus is more complex than counting cases. One might assign cases in different categories different workload weights based on the time they consume.[64] Table 5 shows the time to disposition by jurisdictional basis (mandatory or discretionary), review status (granted or denied), and case type (criminal or civil). The time in days shown is the time from the date of the district court decision being appealed to the time of the ISC's disposition. The table shows that discretionary criminal cases denied review take the least amount of time to adjudicate. These cases far outnumber (828 to 56) discretionary criminal cases that are granted review. Mandatory civil and criminal cases take longer than their discretionary jurisdiction counterparts, perhaps, as suggested above, because no prior appeal record exists.

In addition to what is reported in Table 5, the differing workload of one subset of cases within the category of mandatory criminal cases should be noted. The 948 mandatory

[64]For example, Administrative Office of the U.S. Courts, Judicial Business of the United States Courts: Annual Report of the Director 26 (2010) (for purposes of caseload analysis, "[t]he Federal Judiciary has employed techniques for assigning weights to cases since 1946.").

Table 6: Time to Case Disposition for Each Justice, Mandatory Jurisdiction Criminal Cases

	Mean	*Median*	N
Arbel	369	291	370
Barak	586	479	43
Beinisch	502	380	151
Berliner	395	326	282
Elon	381	304	180
Fogelman	315	231	181
Grunis	489	360	182
Hayut	471	379	228
Joubran	403	307	463
Kheshin, D.	449	342	202
Levy	384	287	860
Melcer	335	262	88
Naor	476	381	163
Procaccia	522	381	145
Rivlin	435	371	147
Rubinstein	403	327	453
Total	413	322	4,138
Significance	$p < 0.001$	$p < 0.001$	

NOTE: The table shows the time to disposition, measured by the time in days from the date of decision of the district court decision being appealed to the date of the ISC's disposition of the case, of each justice's mandatory jurisdiction criminal cases.

criminal cases involving only sentencing issues took on average 358 days to disposition compared to 574 days for the 452 mandatory criminal cases not limited to sentencing issues.[65] This is important because workload influences case assignment and we show below that case assignment is not random for sentence-only cases. This may be because of their distinctive workload.

Evidence of workload variation also exists within the category of mandatory jurisdiction criminal cases. Table 6 shows, for each justice, the mean and median time to disposition for these cases. For example, the table shows that the median time ranged from 231 days for Justice Fogelman to 479 days for Justice Barak and the variation across justices is highly statistically significant. These disposition times are not precise measures of individual justice performance; the justices sit in panels and therefore do not individually fully control case processing time. In addition, justices have different mixes of sentence-only cases and other cases. But the time variation does suggest that, regardless of cause, a justice's availability can be a function of the particular group of cases he or she has pending. Whether the time variation exists because of the difficulty of the case, the panel's speed in processing cases, the justice's speed in processing cases, or a combination of factors does not matter. A justice with a larger backlog of pending cases may be less likely to be assigned a newly filed case.

[65]These figures are based on the cases that reported data allowing for the time computation.

Table 7: Frequency and Share of Opinion Assignments, Mandatory Jurisdiction Criminal Cases

	Non-Sentence-Only Cases		*Sentence-Only Cases*		*Totals*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Arbel	40	8.8	46	4.9	86	6.2
Beinisch	16	3.5	11	1.2	27	1.9
Berliner	37	8.1	35	3.7	72	5.2
Court	26	5.7	72	7.7	98	7.0
Elon	28	6.2	12	1.3	40	2.9
Fogelman	9	2.0	18	1.9	27	1.9
Grunis	7	1.5	23	2.4	30	2.2
Hayut	6	1.3	15	1.6	21	1.5
Joubran	20	4.4	37	3.9	57	4.1
Kheshin, D.	21	4.6	15	1.6	36	2.6
Levy	148	32.6	493	52.4	641	46.0
Naor	21	4.6	20	2.1	41	2.9
Other	8	1.8	12	1.3	20	1.4
Procaccia	18	4.0	29	3.1	47	3.4
Rivlin	14	3.1	25	2.7	39	2.8
Rubinstein	35	7.7	77	8.2	112	8.0
Total	454	100	940	100	1394	100

NOTE: For each type of case (non-sentence-only and sentence-only), the first column is the number of opinions written by the row justice and the second column is the percent of all opinions written for that case type. The percents are thus column percents. For example, Justice Arbel wrote 40 of the 454 opinions in non-sentence-only mandatory criminal cases, and the second column shows them to be 8.8 percent of the opinions in such cases. Opinions not attributable to an individual justice appear in the "Court" row.

An individual justice's work within a case also varies. As noted above, the justice assigned to write the opinion must invest more time than the other justices on the panel. Opinion assignment is not random. For example, as Table 7 shows, in mandatory criminal cases, Justice Levy wrote over 50 percent of the sentencing case opinions and nearly one-third of the other mandatory criminal case opinions. Opinion assignment is strongly associated with presiding justice status. In about 58 percent of the mandatory jurisdiction criminal cases with an ascertainable individual justice responsible for the opinion, the presiding justice and the opinion justice were the same.[66]

The workload features help explain the observed pattern of case assignments. Justice Joubran's large fraction of discretionary criminal cases may reflect their relatively low burden. His location in Figure 1A is most striking in relation to Justice Levy, the other justice who shared the bulk of the criminal case workload, including individual screening, and a justice who also sat on many discretionary criminal cases. Justice Levy had a much higher relative share of mandatory cases than Justice Joubran. Justice Joubran may not have had as high a share of mandatory criminal cases because Justice Levy was often the senior

[66]This equivalence varied from 63 percent in sentence-only cases to 47 percent in other mandatory jurisdiction criminal cases.

justice on merits panels, Justice Joubran was not, and seniority is a nonrandom aspect of case assignment, presiding justice status, and opinion assignment. Since mandatory cases far outnumber discretionary cases granted review, Justice Levy's increased mandatory case workload is likely compensated for in part by assigning Justice Joubran other classes of cases. Justice Joubran's share of discretionary criminal cases was about the same as Justice Levy's and, as Figure 1B and Table 1 show, Justice Joubran had much higher shares of both mandatory and discretionary civil cases than Justice Levy. His workload relative to Justice Levy thus appears to have been adjusted by assignment to these other categories of cases.

Given the workload burden of mandatory civil cases, justices with large shares of such cases may be assigned a relatively smaller share of discretionary civil cases. This would help explain Justice Hayut's location in Figure 1B, with the highest share of mandatory civil cases and a much smaller share of discretionary civil cases. Similar reasoning helps explain the civil case shares of Justices Grunis and Naor.[67] Justice Rivlin's tort expertise[68] likely accounts for his high share of both mandatory and discretionary civil cases. Tort accounts for the largest proportion, 19.3 percent, of civil cases. A system that tends to assign tort cases to Justice Rivlin would lead to his having high shares of mandatory and discretionary civil cases.

The departures from random assignment based on case expertise, workload, and seniority need not be associated with the strength or other characteristics of cases. If that is so, these factors do not undermine inferences based on the assumption that justices are assigned cases in ways that are not associated with outcomes or other key covariates. To the extent one can account for these characteristics in statistical analysis, it enhances the reasonableness of inferring justices' effects on case outcomes.

C. Assessing Random Assignment Based on Observable Case Factors Other Than Subject Area and Time

We can further explore the randomness of assignment by assessing whether justices' shares of cases with characteristics observable in our data significantly vary, given their shares of cases in an area. For example, if a case characteristic is present in 30 percent of the mandatory criminal cases, the best point estimate for the proportion of cases with that characteristic on which each justice sits is 30 percent.[69] This expected constant proportion characteristic is not undermined by case category specialization. That Justice Levy sat on many more mandatory criminal cases than other justices does not mean that the proportion

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[67]As noted above, we excluded from our analysis interlocutory appeals, which arise largely in discretionary jurisdiction civil cases. To assess the importance of this exclusion, we analyzed 79 cases retrospectively identified as interlocutory appeals. Eisenberg et al., Cornell, supra note 33, at 708 n.75. Justice Grunis did the vast majority of the screening in these cases, 90.8 percent. This may help account for his relatively low share of discretionary civil cases shown in Figure 1B. The workload imposed by these cases appears to be substantially lower than that in other discretionary civil cases. We had information on the time to disposition for 77 of the cases and they had a mean time of 203 days with a median time of 129 days.

[68]Eisenberg et al., supra note 31.

[69]Ashenfelter et al., supra note 1, at 268–70.

of cases he sat on with any particular characteristic should exceed the proportion of cases with that characteristic that other justices hear.

To illustrate, the Tel-Aviv District Court accounted for about 29 percent of the mandatory criminal cases in our sample. Assuming the district court appealed from is not associated with a case's workload on appeal, random assignment conditional on case category and workload suggests that Tel-Aviv cases should not significantly vary from being 29 percent of each justice's share of mandatory criminal cases. This is the case, both for senior justice assignment and for other justices. Similarly, random assignment conditional on case category and workload suggests that each justice's share of appeals by plaintiffs (the government in criminal cases) and defendants should not significantly vary from the overall proportion of appeals by plaintiffs and defendants. Nor should we observe significant variation in the justices' shares of appeals by female defendants compared to justices' shares of all mandatory criminal appeals.[70]

Table 8 explores this aspect of the case assignment pattern for mandatory criminal cases. The party structure in criminal cases, unlike civil cases,[71] is simple, with only defendants and governments as parties, with the overwhelming majority of defendants being individuals, and with the two actors always appearing on consistent sides of the case. One can interpret justices' votes in criminal cases as tending to favor either the defendant or the government. Judge effects in discretionary cases can be confounded by the case selection process.[72] We therefore limit most of our subsequent analysis to mandatory criminal cases. Civil case data contribute to the analysis in allowing us to identify case specialization and to analyze workloads, and discretionary criminal case data allow us to compare justices' voting patterns in the two classes of criminal cases.

Table 8 shows the proportion of each justice's mandatory jurisdiction criminal appeals that consist of (1) government appeals, (2) appeals by female defendants, (3) appeals by Arab defendants compared to Jewish defendants, and (4) appeals limited to sentencing.

The pattern for three of the covariates in Table 8 is consistent with random assignment of mandatory jurisdiction criminal cases. The table's last row shows that the justices' proportions of government appeals, female appellant cases, and Arab appellant cases[73] do

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[70]These expected null effects are analogous to those suggested in testing for randomness in a study of mandatory appeals. Hall, supra note 1, at 577–78. He focused on the explanatory variable of interest in that study, political party.

[71]The distribution of civil case characteristics, with their more complex party structures than criminal cases, are more difficult to assess. A civil case appellate outcome can favor confounding combinations of litigants—individuals (men and women) or entities, governments or private parties. The litigant categories can appear as plaintiffs or defendants, a further possible confounding factor. Eisenbeg et al., Cornell, supra note 33.

[72]Eisenberg et al., supra note 31; Kastellec & Lax, supra note 4.

[73]Justice Barak's low share of Arab appellant cases is likely partly attributable to his retirement from the ISC in September 2006. The proportion of mandatory criminal Arab defendant cases was higher in 2007 (45.3 percent) than in 2006 (42.8 percent), though not significantly so. This also may help explain his low proportion of Arab appellant cases in Table 11, which focuses on presiding justices.

Table 8: Covariate Proportions of Each Justice's Mandatory Criminal Case Docket

	Government Appellant	*Female Appellant*	*Arab Appellant*	*Sentence-Only*
Arbel	0.136	0.016	0.457	0.681
Barak	0.178	0.043	0.300	0.489
Beinisch	0.132	0.007	0.429	0.590
Berliner	0.135	0.011	0.507	0.706
Elon	0.083	0.039	0.475	0.613
Fogelman	0.095	0.011	0.445	0.742
Grunis	0.154	0.038	0.430	0.617
Hayut	0.114	0.013	0.444	0.640
Joubran	0.159	0.020	0.450	0.728
Kheshin, D.	0.149	0.015	0.457	0.644
Levy	0.128	0.020	0.458	0.725
Melcer	0.069	0.023	0.449	0.818
Naor	0.141	0.018	0.403	0.598
Other	0.100	0.033	0.565	0.700
Procaccia	0.150	0.027	0.390	0.667
Rivlin	0.129	0.007	0.325	0.616
Rubinstein	0.132	0.029	0.438	0.656
Total	0.132	0.020	0.444	0.679
No. of observations	4,162	4,137	3,191	4,196
Significance	0.493	0.385	0.299	0.000

NOTE: The table shows the proportion of each justice's mandatory criminal cases that contain the column characteristic. Observations are at the justice, not case, level so they are approximately three times the number of cases. The number of observations in the columns varies because unknown or unavailable information varies by the column characteristic. The number of mandatory criminal cases for each justice is shown in Table 1. Chi-squared tests are used for column significance levels; the accuracy of the test for the female appellant column is limited by sparse cell counts.

not statistically significantly vary. Evidence of nonrandomness exists, however, in cases involving sentence-only appeals. This may be related to the differential workload burden in such cases, noted above, compared to appeals on the merits or to another aspect of case specialization. Given this pattern, we account for this nonrandom feature in analyzing case outcomes below.

Table 9 explores the case assignment pattern for mandatory criminal cases by major offense subject. It includes the five most frequent major offense subjects reported in Table 4. The offense subjects included in Table 9 account for about 89 percent of the cases in the sample. The table does not support rejection of the hypothesis of random case assignment across the major subject offenses.

Similar analysis can be conducted at the justice-characteristic level in addition to the individual-justice level, as reported in Table 10. The key justice characteristic explanatory variables, female justice and acting justice, show two significant departures from randomness for Table 10's observable characteristics. Sentence-only cases comprised 65.7 percent of female justices' mandatory criminal case participations and 68.9 percent of male justices'

Table 9: Each Justice's Proportion of Major Offense Subjects, Mandatory Criminal Case Docket

	Offenses Against the Regime and the Society	*Body Injuries*	*Property Crimes*	*Preparation and Conspiracy to Commit a Crime*	*Drugs*
Arbel	0.054	0.520	0.158	0.056	0.072
Barak	0.000	0.574	0.277	0.021	0.043
Beinisch	0.045	0.551	0.141	0.051	0.032
Berliner	0.067	0.535	0.149	0.046	0.117
Elon	0.039	0.580	0.155	0.077	0.039
Fogelman	0.038	0.593	0.170	0.066	0.066
Grunis	0.066	0.492	0.169	0.082	0.044
Hayut	0.048	0.544	0.145	0.079	0.048
Joubran	0.032	0.506	0.177	0.095	0.069
Kheshin, D.	0.035	0.545	0.173	0.074	0.040
Levy	0.043	0.544	0.166	0.088	0.058
Melcer	0.034	0.534	0.193	0.068	0.045
Naor	0.043	0.549	0.201	0.061	0.030
Other	0.067	0.533	0.267	0.000	0.100
Procaccia	0.020	0.537	0.197	0.061	0.082
Rivlin	0.060	0.550	0.166	0.079	0.053
Rubinstein	0.044	0.590	0.165	0.064	0.040
Total	0.044	0.544	0.168	0.072	0.058
No. of observations	186	2,283	706	303	245
Significance			0.181		

NOTE: The table shows the proportion of each justice's mandatory criminal cases that consist of the major offense indicated by the columns. Observations are at the justice, not case, level so they are approximately three times the number of cases. Offense subjects with relatively few cases are excluded due to sparse cell counts. A chi-squared test is used for the table's significance level; the accuracy of the test is limited by a few sparse cell counts but is robust to their exclusion.

Table 10: Covariate Proportions for Justice Characteristics, Mandatory Criminal Case Docket

	Government Appellant	*Female Appellant*	*Arab Appellant*	*Sentence-Only*
Female justice	0.134	0.015	0.448	0.657
Male justice	0.131	0.023	0.443	0.689
Significance of male/female difference	0.798	0.062	0.797	0.046
Acting justice	0.119	0.018	0.475	0.679
Permanent justice	0.135	0.021	0.437	0.678
Significance of acting/permanent difference	0.092	0.467	0.013	0.971

NOTE: The table shows, for the justice characteristics in a row, the proportion of mandatory criminal cases that contain the column characteristic. Significance levels are adjusted for nonindependence of observations within cases.

mandatory criminal case participations ($p = 0.046$), again suggesting the need to account for sentence-only cases in analyzing case outcomes.

Although acting justices tended to receive more Arab defendant cases than permanent justices, this difference is not evidence of nonrandom assignment. Arab defendant

cases comprised 47.5 percent of acting justices' cases compared to 43.7 percent of permanent justices cases ($p = 0.013$). But the proportion of Arab defendant cases increased from 2006 to 2007, the two years covered by our criminal case data, a time period during which the proportion of cases heard by acting justices also increased. Justice Barak, the most senior justice, retired in 2006 and acting justices in our data were all recent appointees. These facts explain the lower proportion of Arab defendant cases heard by permanent justices.[74] In addition, since Table 14 suggests that Arab defendant status is uncorrelated with case outcomes, the modest imbalance is not a concern.

D. Presiding Justices

Each appellate panel contains a presiding justice, a nonrandom status because it is based on seniority. The ISC presidency is held by the Court's most senior member. By ISC custom, the president is the presiding justice in cases on which the president sits and the deputy president, the second most senior justice, is the presiding justice in cases on which the deputy president sits and the president does not. In other cases, the justice on the panel with the longest ISC tenure presides. The case assignment process may seek to assure that a senior justice serves as presiding justice, in which case the choice of presiding justice would not be random. The role of seniority and the existence of a presiding justice may help explain why Justice Levy is so dominant in criminal cases and Justice Rivlin is dominant, albeit to a lesser extent, in civil cases. After President Justice Beinisch, Justices Rivlin and Levy are the two most senior justices on the Court.

Among the presiding justices, we can assess the pattern of assignment in a manner similar to that for individual justices. Table 11, again limited to mandatory criminal cases, shows the same case characteristics as Tables 8 and 10, but the rows are now presiding justices on cases rather than all justices.

The presiding justice table (Table 11) is generally consistent with the individual justice table. The shares of justices' dockets consisting of government appeals and Arab defendant appeals do not significantly differ from those appeals proportions of all cases. The shares of female defendant appeals do differ significantly, but barely ($p = 0.046$), and this seems to be a seniority effect because Table 8 shows no significant or near-significant difference in the justices' shares of female appeals. As in Table 8, a significant sentence-only case effect exists. A table similar to Table 9 for presiding justices'

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[74]Another significant difference with respect to Arab defendants exists for seniority, also likely related to Justice Barak's retirement and the low-seniority acting justices, combined with an increasing portion of Arab defendant cases. Justices who heard Arab defendant cases had on average 3.9 years of seniority on the Court. Justices who heard Jewish defendant cases had on average 4.3 years of seniority on the Court, a significant difference ($p = 0.007$). We control for seniority in our analysis of case outcomes as it is a factor acknowledged to be a basis for nonrandom case assignment. As Table 10 shows, female defendant cases comprised 1.5 percent of female justice cases and 2.3 percent of male justice cases, a near-significant difference. Since, as shown below, female defendants tend to fare better on appeal than male defendants, this pattern of case assignment should bias our results against finding a pro-defendant female justice effect, suggesting that results may be a bit stronger than reported.

Table 11: Covariate Proportions of Panels' Presiding Justice's Mandatory Criminal Case Docket

	Government Appellant	*Female Appellant*	*Arab Appellant*	*Sentence-Only*
Arbel	0.143	0.045	0.473	0.615
Barak	0.182	0.044	0.308	0.511
Beinisch	0.143	0.000	0.431	0.613
Grunis	0.167	0.056	0.477	0.648
Levy	0.120	0.019	0.477	0.740
Naor	0.125	0.000	0.458	0.569
Procaccia	0.160	0.032	0.384	0.691
Rivlin	0.126	0.008	0.340	0.612
Rubinstein	0.149	0.021	0.429	0.553
Total	0.132	0.020	0.445	0.679
No. of cases	1,383	1,385	1,072	1,394
Significance	0.907	0.046	0.186	0.000

NOTE: The table shows the proportion of each presiding justice's mandatory criminal cases that contain the column characteristic. Since only one presiding justice sits on each case, observations are at the case level. The number of observations in the columns varies because unknown or unavailable information varies by the column characteristic. Fisher's exact test is used for the female appellant column. A chi-squared test is used for the other columns.

proportion of major offense categories, not reported here, did not yield statistically significant differences.[75]

Table 11 suggests the need to account for seniority in analyzing case outcomes. The most junior justices during the time of our study, Melcer, Fogelman, Danziger, Berliner, and Kheshin, do not appear in the presiding justice table, presumably because of seniority or acting justice status. Whatever the reason, having a position in each case panel assigned by seniority is a source of nonrandomness in case assignment.

VI. RESULTS

Section V identifies nonrandom aspects of ISC case assignment. It also suggests that useful proxies are available for known nonrandom influences. This section presents two sets of results. The first set explores justice and case characteristics in relation to justices' votes. The second set exploits estimates of justices' tendencies to compare the differences in justices' tendencies in mandatory versus discretionary jurisdiction cases. For most discretionary jurisdiction courts of last resort, justices' tendencies in the mass of cases are never observed. Only their votes in cases they select are observable. Their views in the mass of cases are manifested in usually unobserved decisions to grant or deny review.

[75]But the difference was nearly significant ($p = 0.053$) and was largely attributable to Justice Levy being the presiding justice in a relatively large share of cases involving "preparation and conspiracy to commit a crime."

A. Justice and Case Characteristic Results

With respect to justice and case characteristics, we first present results in tables that show the relation between mandatory criminal case outcomes and: (1) individual justices, (2) justice characteristics aggregated across individual justices, (3) defendant characteristics, and (4) three-judge panels. We then report regression results that account for the known nonrandom aspects of the case assignment process assessed in Section V, while simultaneously including the covariates—justices and litigant characteristics—of primary interest. We account for case specialization by limiting most of the analysis to mandatory criminal cases and by accounting for nonrandomness in the assignment of sentence-only cases in the regression analyses. We account for seniority and workload through variables in the regression analysis and further account for seniority by presenting panel-level results. The composition of panels, with their inclusion of a presiding justice, is not random, as shown by several justices who do not appear in Table 11's list of presiding justices.

1. Justice-Level Results

Table 12 shows the mandatory criminal case votes for each justice in the study. The dominant pattern is that the state is overwhelmingly more successful than criminal defendants, both in cases appealed by defendants and in cases appealed by the state. The lowest rate at which any justice votes in favor of the state is 72.1 percent, as shown in the penultimate column. Since the highest rate is 88.1 percent, the spread is substantial—about seven cases out of ten for the state versus about nine cases out of ten, but not as dominant as the trend of agreement. The mean and median outcome is about eight cases out of ten. So the most extreme justices differ from each other in about two cases in ten and from the center in about one case in ten.[76]

2. Justice Characteristic and Defendant Characteristic Results

Table 13 shows justice and case characteristics, divided by whether justices voted for the defendant or for the state. It shows a tendency of female justices to vote with defendants more than male justices and for acting justices to vote with defendants less than permanent justices.

The female justice tendency to vote for defendants more than male justices emerges in both cases appealed by the government ($p = 0.043$) and in cases appealed by defendants ($p = 0.109$) but was stronger in cases appealed by the government.[77] The acting justice tendency to vote for the government more than nonacting justices emerges in both cases

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[76]Our results provide new insights, but also confirm some results reported by a 1996 Shachar-Gross study with respect to previous compositions of the ISC. In a study of 7,147 ISC cases representing 40 percent of all cases published in the years 1948–1994, it was found that while all justices exhibited pro-government tendencies, significant variation existed among the individual justices. Shachar & Gross, supra note 15, at 351–55.

[77]The Bogoch and Don Yechiya study did not find a significant gender effect on appeal outcome. Their study, however, encompassed a relatively small number of cases and the number of female justices in the relevant time period (1988–1992) was much smaller (only two justices). Bogoch & Don-Yechiya, supra note 17, at 133–36.

Table 12: Justices' Votes in Mandatory Criminal Appeal Cases

	Defendant Appealed		*State Appealed*			
Justice	*Voted to Affirm*	*Voted to Reverse*	*Voted to Affirm*	*Voted to Reverse*	*Vote Favored State*	*Vote Favored Defendant*
Arbel	86.5%	13.5%	25.0%	75.0%	84.9%	15.1%
	262	41	12	36	298	53
Barak	75.0%	25.0%	14.3%	85.7%	76.7%	23.3%
	27	9	1	6	33	10
Beinisch	86.2%	13.9%	35.0%	65.0%	83.3%	16.7%
	112	18	7	13	125	25
Berliner	85.6%	14.4%	15.8%	84.2%	85.4%	14.6%
	202	34	6	32	234	40
Elon	86.9%	13.1%	7.1%	92.9%	87.4%	12.6%
	133	20	1	13	146	21
Fogelman	88.8%	11.2%	18.8%	81.3%	88.1%	11.9%
	135	17	3	13	148	20
Grunis	81.9%	18.1%	28.0%	72.0%	80.5%	19.5%
	118	26	7	18	136	33
Hayut	78.5%	21.5%	16.7%	83.3%	79.1%	20.9%
	150	41	4	20	170	45
Joubran	84.8%	15.2%	20.0%	80.0%	84.1%	15.9%
	319	57	14	56	375	71
Kheshin, D.	83.0%	17.0%	20.0%	80.0%	82.6%	17.4%
	137	28	6	24	161	34
Levy	85.8%	14.2%	11.8%	88.2%	86.1%	13.9%
	624	103	12	90	714	115
Melcer	87.5%	12.5%	16.7%	83.3%	87.2%	12.8%
	70	10	1	5	75	11
Naor	73.5%	26.5%	36.4%	63.6%	72.1%	27.8%
	97	35	8	14	111	43
Other	77.8%	22.2%	—	100%	80.0%	20.0%
	21	6	0	3	24	6
Procaccia	80.7%	19.3%	15.8%	84.2%	81.2%	18.8%
	96	23	3	16	112	26
Rivlin	84.6%	15.5%	5.3%	94.7%	85.9%	14.1%
	104	19	1	18	122	20
Rubinstein	84.0%	16.0%	17.2%	82.8%	83.9%	16.1%
	316	60	10	48	364	70
Total	84.2%	15.8%	18.4%	81.6%	83.9%	16.1%
	2,920	547	95	424	3,344	642
Significance	0.012		0.185		0.003	
No. of cases	1,164		177		1,341	

NOTE: For each justice, the first row is the percent of cases with an affirmance or reversal vote and the second row is the number of cases with either kind of vote. Justices who voted in few cases are combined as "Other." The sum of row percentages may exceed 100 percent due to rounding. The last two columns combine the information in the first four columns. In the last two columns, a vote favors the state if it is to affirm an appeal brought by a defendant or reverse an appeal brought by the state. A vote favors the defendant if it is to affirm an appeal brought by the state or reverse an appeal brought by the defendant. The number of observations in the "Total" row differs from the number of cases because the data are reported at the justice level and, with few exceptions, three justices hear each case. Because the justices sit on panels of three, significance levels are adjusted for nonindependence of observations within cases.

Table 13: Justice Characteristics and Mandatory Criminal Case Outcomes

A. Categorical Characteristics

	Percent Pro-Defendant Votes	*Percent Pro-State Votes*	N	*Significance*
Female justice	18.1	81.9	1,282	0.025
Male justice	15.2	84.8	2,709	
Acting justice	14.3	85.7	804	0.036
Permanent justice	16.6	83.4	3,187	

B. Continuous Characteristics

	Mean [95% CI] for Pro-Defendant Votes	*Mean [95% CI] for Pro-State Votes*	N	*Significance*
Time on court	4.35 [4.09–4.62]	4.14 [4.03–4.25]	3,958	0.121
Workload	8.48 [8.31–8.65]	8.67 [8.60–8.74]	3,949	0.036

NOTE: CI = confidence interval. The justices sit on panels of three and the results are presented at the individual-justice level, so the number of cases is approximately one-third of the number of observations in the *N* column. A justice's vote is pro-defendant if it is to affirm an appeal brought by the state or to reverse an appeal brought by the defendant. Time on court is in years. Workload is in hundreds of years. Time on court is the average time, in years, across all cases and justices within a case, of the time from the district court decision appealed from to disposition of the case by the ISC. The workload measure is described above in connection with Table 3. Significance levels are adjusted for nonindependence of observations within cases. For continuous characteristics, significance levels are obtained by logistic regression of the dichotomous variable equal to 1 if the justice voted for the defendant and 0 if the justice voted for the government.

appealed by the defendants ($p = 0.055$) and in cases appealed by the state ($p = 0.439$).[78] The effect was of similar strength in both classes of cases but was more significant in cases appealed by defendants, likely because of the much greater number of such appeals.

Table 14 shifts from justice characteristics to defendant characteristics. A striking result is the difference between the rates of votes favoring male and female defendants. Table 14 shows that 41.2 percent of votes in female defendant cases favored defendants compared to 17.6 percent of votes favoring defendants in male defendant cases, a highly statistically significant difference. No substantial difference emerged between Arab and Jewish defendants.

In shifting from justice to defendant associations with case outcomes, an unobserved case selection mechanism becomes relevant. Female defendants may have different criteria for seeking to appeal than male defendants. Appellate outcome patterns can be a consequence of which cases are appealed rather than of appellate judge behavior.[79] So the ISC

[78]This finding is interesting in light of the Salzberger study, which found that judicial independence (defined as rulings against the government) correlates with an acting justice's chances of obtaining a permanent position. See Salzberger, supra note 23.

[79]Theodore Eisenberg, Appeal Rates and Outcomes in Tried and Nontried Cases: Further Exploration of Anti-Plaintiff Appellate Outcomes, 1 J. Empirical Legal Stud. 659, 677–82 (2004); Theodore Eisenberg & Henry S. Farber, Why Do Plaintiffs Lose Appeals? Biased Trial Courts, Litigious Losers, or Low Trial Win Rates? Princeton Univ., Industrial Relations Section, Working Paper #567 (July 2011).

Table 14: Defendant Characteristics and Mandatory Criminal Case Outcomes

	Percent Pro-Defendant Votes	*Percent Pro-State Votes*	N	*Significance*
Female defendant	41.2	58.8	102	0.001
Male defendant	17.6	82.4	4,053	
Arab defendant	17.3	82.7	1,435	0.743
Jewish defendant	18.1	82.0	1,795	

NOTE: Justices sit on panels of three and the results are presented at the individual-justice level. So the number of cases is approximately one-third of the number of observations in the *N* column. A justice's vote is pro-defendant if it is to affirm an appeal brought by the state or to reverse an appeal brought by the defendant. A vote favors the state if it is to affirm an appeal brought by the defendant or reverse an appeal brought by the state. Gender results include only cases in which gender was determinable from the defendant's name. Ethnicity results include only cases in which Arab or Jewish ethnicity was determinable from the defendant's name. Significance levels are adjusted for nonindependence of observations within cases.

female defendant effect may be a consequence of which cases parties choose to appeal. It is also plausible that females are convicted of a different set of crimes than males, with different reversible potential. It is not obvious, however, why district courts would be regarded by the ISC as erring more in female defendant cases than in male defendant cases. We found no within-group effect in the ISC, which would consist of female justices treating female defendants more favorably or male justices treating male defendants more favorably.

3. Panel-Level Results

With 16 justices in our study who sat in panels of three, 560 different three-judge panels were theoretically possible, with downward adjustment for justices who did not overlap in their tenure on the Court, and upward adjustment for the few cases heard by justices not in our tables. The actual number of possible panels is limited by the nonrandom factors of specialization, seniority, and workload. We found 199 distinct three-judge panels in mandatory criminal cases, too many to report separately, and many of which had too few cases to be of interest. Table 15 reports case outcomes for the three-judge panels with at least 15 cases. The 565 cases adjudicated by these panels account for about 35 percent of the mandatory criminal case panels. The panels appear in decreasing order of cases favoring defendants (the fourth numerical column). The range of outcomes across the frequent panels is broader than the individual justices' spread, ranging from 33.3 percent votes for defendants to 2.8 percent.

Individual justice patterns across panels are worth noting. Justice Berliner appeared on the panels most favorable and least favorable to defendants, as shown in the first and last rows of Table 15. This may reflect her acting justice status leading to a tendency to agree with other panel members.[80] Justice Arbel appeared on the panels that are tied for first and

[80]Two previous studies attempted to assess the independence of the individual justices by examining the tendency of acting justices to dissent before and after attaining tenure. Both studies found no significant correlation between the acting justice status and the tendency to dissent. See Salzberger, supra note 23; Blum, supra note 23, at 73.

Table 15: Outcomes for Most Common Panels, Mandatory Criminal Cases

	Cases Favoring State		*Cases Favoring Defendant*		*Total*
Panel	*No.*	*%*	*No.*	*%*	*No.*
Beinisch Rubinstein Berliner	12	66.7	6	33.3	18
Arbel Hayut Naor	14	66.7	7	33.3	21
Levy Grunis Joubran	14	70.0	6	30.0	20
Levy Arbel Hayut	11	73.3	4	26.7	15
Levy Joubran Rubinstein	24	75.0	8	25.0	32
Levy Hayut Kheshin	19	79.2	5	20.8	24
Levy Rubinstein Fogelman	21	84.0	4	16.0	25
Levy Joubran Berliner	52	85.2	9	14.8	61
Levy Elon Rubinstein	15	88.2	2	11.8	17
Levy Kheshin Rubinstein	23	88.5	3	11.5	26
Levy Joubran Kheshin	23	88.5	3	11.5	26
Levy Arbel Fogelman	24	88.9	3	11.1	27
Levy Berliner Rubinstein	42	89.4	5	10.6	45
Levy Hayut Melcer	19	90.5	2	9.5	21
Levy Joubran Elon	37	94.9	2	5.1	39
Levy Joubran Fogelman	58	95.1	3	4.9	61
Levy Melcer Rubinstein	23	95.8	1	4.2	24
Levy Arbel Rubinstein	24	96.0	1	4.0	25
Levy Arbel Berliner	35	97.2	1	2.8	36
Total	490	86.7	75	13.3	565

NOTE: For the two pairs of column outcomes (favoring state or defendant), the first column is the number of cases adjudicated by the row panel and the second column is the percent of cases adjudicated by that panel with the column outcome. A case outcome favors the state if it affirms an appeal brought by a defendant or reverses an appeal brought by the state. A case outcome favors the defendant if it affirms an appeal brought by the state or reverses an appeal brought by the defendant. Only panels with at least 15 mandatory criminal cases are shown. Panels are presented in descending order of percent of cases favoring defendant. The 565 outcomes shown account for 35.1 percent of mandatory criminal cases satisfying our outcome criteria. A chi-squared test of significance yields $p = 0.002$, which is not fully reliable due to sparse cell counts. For the mandatory criminal case outcomes adjudicated by panels not in the table, 139 of 776 outcomes (17.9 percent) favored defendants. The difference in the rate of cases favoring defendants between the panels in the table and the less frequently occurring panels not in the table is significant at $p = 0.023$.

are the fourth most favorable to defendants but also appeared on the two panels least favorable to defendants. Justice Rubinstein appeared on the panels most favorable to defendants and on the panels second and third least favorable to defendants. As suggested by his frequency of participation in criminal cases shown in Table 1, Justice Levy appeared on so many panels that only two of the most frequent panels do not include him. The most common panels range in outcomes across a broad spectrum, but it is the two panels most favorable to defendants that do not include him. Justice Joubran, also as suggested by Table 1, appeared on many of the most common panels but on none of the four most extreme panels, either pro-defendant or pro-government.

If one treats the frequent Levy-Joubran pairing as a control pair, then one can order the other justices in mandatory criminal cases based on the pro-defendant rate in cases in which they sat on panels with those two justices. By this measure, Justices Grunis and Rubinstein were most favorable to defendants and Justices Fogelman and Elon were least favorable to defendants. Justices Berliner's and Fogelman's positions may be most precisely

Table 16: Voting by the Number of Female Justices on Panels, Mandatory Criminal Cases

	Votes Favoring State		*Votes Favoring Defendant*			
No. of Female Justices	*No.*	*%*	*No.*	*%*	*Total Votes*	*Total Panels*
0	1124	86.3	178	13.7	1302	440
1	1445	84.0	276	16.0	1721	578
2	647	81.5	147	18.5	794	265
3	132	75.9	24.1	24.1	174	58
Total	3,348	83.9	643	16.1	3,991	1,341

NOTE: For each column vote (favoring state or defendant), the first column is the number of votes cast by the row panel and the second column is the percent of votes cast. A vote favors the state if it is to affirm an appeal brought by a defendant or to reverse an appeal brought by the state. A vote favors the defendant if it affirms an appeal brought by the state or reverses an appeal brought by the defendant.

estimated because they sat on panels with Justices Levy and Joubran more than any other justices. This measure is incomplete in that not all justices had enough cases with Justices Levy and Joubran to appear in the table with them, given its cutoff of at least 15 cases. Justices Berliner's and Fogelman's much more frequent combination with Justices Levy and Joubran may reflect a practice of grouping acting or junior justices with senior justices.

a. Individual Justices. The panel-level analysis tends to confirm the results of the individual justice analysis reported in Table 12 for those justices who appear in both tables. Justices Naor, Hayut, and Grunis were the three most favorable to defendants in Table 12 who also appear in the panel table and were relatively favorable to defendants in the panel-level analysis. Justices Fogelman, Melcer, and Elon were the three most favorable to the state in Table 12 and were relatively favorable to the state in Table 15.

b. Female Justices. The panel-level analysis provides mixed evidence of the pro-defendant female justice effect suggested in Table 13. Two of the four most pro-defendant panels had a majority of female justices or consisted of all female justices. But the two panels least favorable to defendants also had one or two female justices. Table 16 explores the panel-level female justice effect further by showing the votes cast as a function of the number of female justices on panels. The pro-defendant trend is monotonically increasing in the number of female justices and is statistically significant ($p = 0.011$).[81]

c. Acting Justices. The panel-level analysis is consistent with Table 13's result of acting justices (Berliner, Elon, Fogelman, and Kheshin) tending to vote for the government. The only two frequent panels on which Justice Elon participated favored defendants at a rate lower than the overall 13.3 percent rate of frequent panels' pro-defendant outcomes. Justices Fogelman and Kheshin served on two panels with less than 13.3 percent

[81]This significance level is based on a logistic regression model that controls for sentence-only cases, panel seniority, workload, and individual seniority in mandatory criminal cases. A simple nonparametric test for trend yields $p = 0.019$.

pro-defendant outcomes and one panel with more. When grouped with the baseline pair of Justices Levy and Joubran, each of Justices Kheshin, Elon, and Fogelman participated in cases with lower than average pro-defendant rulings. Justice Berliner's cases when sitting with Justices Levy and Joubran had an above-average pro-defendant outcome rate but not far above the average.

d. Presiding Justices. The frequent panels reported in Table 15 account for only about 35 percent of the mandatory jurisdiction criminal cases. A presiding justice sits in each case and, based on seniority or expertise, might exert an influence on other justices in ways not observable in Table 15. Such an effect emerges with respect to Justice Levy. When he was the presiding justice, other justices on the panel voted for defendants 13.4 percent (188 out of 1,400) of the time. When he was not the presiding justice, other justices voted for defendants 19.3 percent (304 out of 1,762) of the time, a difference significant at $p < 0.001$. A similar effect was not observed when the two other most frequent presiding justices, Justices Beinisch or Rivlin, presided in mandatory criminal cases. Justice Levy himself did not significantly differ in the rate of voting for defendants based on his presiding justice status. When he was the presiding justice, he voted for defendants 13.4 percent (94 out of 700) of the time. When he was not the presiding justice, he voted for defendants 16.3 percent (21 out of 129) of the time, a difference significant at $p = 0.389$.

Justice Beinisch's appearance on one of the most pro-defendant frequent panels has an additional interesting feature. Table 12's first two columns show that Justice Beinisch did not tend to vote more than other justices for defendants in defendant appeals. Her rate of voting to reverse in such cases was lower than the whole Court's mean reversal rate. But Table 12's second two columns show that she tended to vote for defendants more than other justices in government appeals. In this sense, she tended to side with her lower court colleagues when the government appealed their rulings. This tendency is responsible for her being ranked in the first row of Table 15.

4. Regression Results

Since individual justice effects, case characteristic effects, and defendant characteristic effects may simultaneously affect outcomes, we use regression models that allow accounting for these factors. The models in Table 17 employ a dependent variable that equals 1 if a justice voted for the defendant and 0 if the vote was for the state. Since the dependent variable is dichotomous, we use logistic regression. Model (1) includes dummy variables for the justices and a dummy variable for sentence-only cases, which Tables 8 and 11 show do not satisfy a random assignment pattern. It also includes a dummy variable for female defendant cases, shown to be associated with case outcomes in Table 14. Since seniority is a nonrandom aspect of case assignment, we account for it. We construct a panel-level variable, panel seniority, equal to the sum of the three-panel justices' years on the Court. This variable is added in Model (2). Model (3) adds a variable to account for the workload of the justices sitting on a panel. Since presiding justice status and opinion-writing burden are associated with seniority, we rely on our seniority measure to account for these aspects of workload. Models (4) to (6) use the same variables as Models (1) to (3) but limit the

Table 17: Logistic Regression Models' of Justices Votes

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
	All Justices			*Justices on ISC for Full Time Period*		
Arbel	–0.012	–0.012	–0.014	–0.008	–0.008	–0.011
	(0.023)	(0.023)	(0.022)	(0.023)	(0.023)	(0.023)
Barak	0.078	0.012	0.010			
	(0.068)	(0.041)	(0.041)			
Beinisch	–0.009	–0.027	–0.038*	–0.008	–0.021	–0.030
	(0.029)	(0.025)	(0.021)	(0.030)	(0.028)	(0.024)
Berliner	–0.015	–0.016	–0.020			
	(0.022)	(0.022)	(0.021)			
Elon	–0.038	–0.039	–0.031			
	(0.026)	(0.026)	(0.026)			
Fogelman	–0.037	–0.037	–0.039			
	(0.026)	(0.026)	(0.025)			
Grunis	0.016	0.009	0.006	0.018	0.013	0.010
	(0.031)	(0.030)	(0.030)	(0.032)	(0.031)	(0.031)
Hayut	0.044	0.039	0.039	0.048	0.045	0.043
	(0.032)	(0.031)	(0.031)	(0.033)	(0.032)	(0.032)
Joubran	–0.009	–0.012	–0.008	–0.006	–0.008	–0.006
	(0.020)	(0.019)	(0.019)	(0.020)	(0.020)	(0.020)
Kheshin, D.	0.004	0.004	0.010			
	(0.027)	(0.027)	(0.027)			
Levy	–0.027*	–0.032**	–0.028*	–0.026	–0.029*	–0.027*
	(0.015)	(0.015)	(0.014)	(0.016)	(0.016)	(0.016)
Melcer	–0.040	–0.042	–0.035			
	(0.033)	(0.033)	(0.034)			
Naor	0.110***	0.099**	0.092**	0.115***	0.107***	0.100***
	(0.040)	(0.039)	(0.038)	(0.040)	(0.040)	(0.039)
Procaccia	0.029	0.014	0.005	0.034	0.022	0.015
	(0.035)	(0.034)	(0.031)	(0.036)	(0.036)	(0.033)
Rivlin	–0.017	–0.031	–0.031	–0.016	–0.026	–0.027
	(0.030)	(0.027)	(0.027)	(0.031)	(0.029)	(0.029)
Female defendant	0.172**	0.173**	0.176**	0.170*	0.170*	0.172*
	(0.086)	(0.088)	(0.088)	(0.087)	(0.088)	(0.088)
Sentence-only appeal	0.058***	0.059***	0.059***	0.055***	0.056***	0.056***
	(0.020)	(0.020)	(0.020)	(0.021)	(0.021)	(0.021)
Panel seniority (square root)		0.001	0.001		0.001	0.001
		(0.001)	(0.001)		(0.001)	(0.001)
Panel workload			–0.002			–0.002
			(0.002)			(0.002)
Observations	3,972	3,972	3,972	3,012	3,012	3,012
Chi-squared prob.	0.000	0.000	0.000	0.000	0.000	0.000
Prob. female justice coefficients jointly = 0	0.005	0.008	0.005	0.003	0.004	0.004
Prob. acting justice coefficients jointly = 0	0.258	0.508	0.549			

NOTE: Prob. = probability. Dependent variable is 1 if a justice's vote favored the defendant and 0 if it favored the state. A vote favors the state if it is to affirm an appeal brought by a defendant or to reverse an appeal brought by the state. A vote favors the defendant if it is to affirm an appeal brought by the state or to reverse an appeal brought by the defendant. All models include dummy variables for offense categories. Justice Rubinstein is the reference justice for justice dummy variables. Robust standard errors, clustered at the case level, are in parentheses. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

sample to those justices who sat on the ISC for the full period of our study. This assures that the justices all had the same pool of cases to which they might be assigned.

All models include a set of dummy variables for offense categories. The dummy variables represent the first major offense subject, as described in Table 4, referred to in the Court's opinion, except that if any offense mentioned in the opinion was murder, rape, or offenses against another's freedom, a dummy variable was used for those offenses. This coding assured that the most serious crimes were represented in the criminal offense coding. The regression coefficients for the 13 offense categories are reported in Appendix Table C.[82]

The results shown for each coefficient are the marginal effects and are interpretable as the change in the probability of voting for a defendant given a change in an indicator variable from 0 to 1. Justice Rubinstein, who Table 12 shows has a rate of voting for defendants closest to the Court's overall average of 15.8 percent, is the reference category for the justice dummy variables. A positive sign for a justice's coefficient indicates that the justice was more likely than Justice Rubinstein to vote for the defendant. A negative sign indicates that the justice was more likely than Justice Rubinstein to vote for the state. Therefore, for example, the −0.027 coefficient for Justice Levy in Model (1) of Table 17 is interpretable as his being 2.7 percent more likely to vote for the state than Justice Rubinstein, holding constant the other variables in the model.

a. Individual Justices. The difference in probability of a vote favoring a defendant between the justices with the largest positive and negative effects is substantial. The difference in probability between Justice Naor (with a positive coefficient of about 10 or 11 percent) and Justices Fogelman, Elon, and Melcer (each with similarly sized negative coefficients of about 4 percent) is about 15 percent, significant at $p < 0.01$ in Models (1) to (3) of Table 17. A defendant's chance of a favorable vote thus is materially affected by the justices drawn to sit on the case. This is consistent with the variation shown in Table 12 and with the variation in panel outcomes shown in Table 15. Other significant differences exist between pairs of justices.

b. Female Justices. The models also allow further exploration of the female justice effect suggested by Tables 13 and 16. As Table 17's penultimate row shows, the female justice coefficients were consistently jointly statistically significant. In models that replace the individual justice dummy variables with a female justice dummy variable, the female justice effect is 2 to 3 percent. But excluding Justice Naor from the group yields consistently insignificant results for the five other female justices. It would be questionable to claim a gender effect sensitive to the inclusion of a single justice. Revisiting Table 16's panel-level results, exclusion of Justice Naor again leads to no significant female justice effect.

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[82]In additional models not reported here, we used a different set of dummy variables for offense categories. In those models, the dummy variables represent the first major offense subject, as described in Table 4, referred to in the Court's opinion, without substitution in cases in which the second or third offense referred to was murder, rape, or offenses against another's freedom.

Both the small number of female justices and the process of selecting justices also suggest caution in interpreting any gender effect. Interpreting judicial characteristic effects is subject to the limitation that judges are not randomly selected to serve on the Court. So a judicial characteristic effect, such as gender, is conditional on being selected to serve on the ISC. It is not an effect necessarily generalizable to other female or male judges.

c. Presiding Justices. In models not reported here, we confirm the effect, noted above, of increased votes against defendants when Justice Levy was the presiding justice. The coefficient on a dummy variable for Justice Levy as the presiding justice is highly statistically significant, negative, and suggests an increased probability of voting for the state of about 6 percent. A similar effect was not found for other presiding justices.

d. Acting Justices. As noted in Section II, some research suggests that acting justices behave differently than permanent justices, and Table 13 shows a significant acting justice effect. But in regression models, not reported here, that include a variable for acting justice status, the acting justice variable is not consistently significant. Table 17's last row reports tests of the hypothesis that the acting justice dummy variables are jointly equal to 0 and shows that one cannot reject the hypothesis. The initial acting justice effect in Table 13 appears to be an artifact of not controlling for the differences in case assignment and the changes in the makeup of the ISC during the period of our study. The acting justices were added to the Court during our time period; they saw a different mix of cases than most of the permanent justices, and this could lead to a spurious effect. In this respect, our results confirm Hall's observation that Sunstein et al.'s U.S. judicial ideology results are questionable in part because they do not account for the changing composition of courts as judges retire and are replaced.[83] The models in Columns (4) through (6) of Table 17 exclude the justices who were not on the ISC for the full two years of our study. Each of our principal effects is stable with only minor changes in coefficient size or significance.

e. Female Defendants. The models consistently show strong, significant female defendant effects, with female defendants about 17 percent more likely to receive a favorable vote. In a separate study, we showed that female defendants also fared better than did male defendants at the screening level in discretionary jurisdiction cases.[84] As noted in Section VI.A.2, interpreting this finding is difficult due to limitations that we cannot fully control for given our data.

f. Sentence-Only Versus Non-Sentence-Only Cases. Because sentence-only cases are frequent and evidence exists that they are not randomly assigned, we examined each justice's pattern of votes for sentence-only cases and other cases. Justices Barak's and Grunis's patterns significantly differed, with a much higher rate of votes favoring defendants in sentence-only cases.

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[83]Hall, supra note 1, at 578.

[84]Eisenberg et al., supra note 31.

For Justice Barak, the rate was 42.9 percent compared to 4.6 percent in other cases ($p = 0.004$); for Justice Grunis, the rate was 25.5 percent compared to 8.5 percent ($p = 0.008$). No justice who served in both years of the study significantly differed in rates across the two years. In regression models, not reported here, limited to non-sentence-only cases, the differences between the justices most and least favorable to defendants was larger than the difference for the pooled sample of sentence-only and non-sentence-only cases reported in Table 17. The difference between Justices Naor and Fogelman in the probability of a vote for defendants was consistently about 24 percent. In sentence-only cases, this difference was about 12 percent. But even in sentence-only cases, Justice Naor was significantly different ($p = 0.02$ or less) from Justices Elon, Fogelman, Levy, and Melcer. In sentence-only cases, Justice Levy was consistently about 4 percent less likely to vote for defendants than was Justice Rubinstein and Justice Elon was about 6 percent less likely. Both results were highly statistically significant. The female defendant coefficient has a positive sign in the separate sets of cases but was significant only in sentence-only cases.

B. Jurisdictional Source and Perceptions of Justices' Preferences

Estimates of individual justices' voting patterns in Section VI.A address behavior in the mass of appealed criminal cases. These estimates are unaffected by justices' case selection criteria because jurisdiction is mandatory. Such individual justice behavior in the mass of cases is rarely observable in courts of last resort with discretionary jurisdiction because the courts' selection activity consists of unpublicized decisions to grant or deny review. Justices' votes are observed only in cases that survive this selection mechanism. And the pattern of case outcomes materially differs between the selected cases and the mass of cases. Reversal rates are much higher in cases selected for review.[85] Because our data include votes on the merits in both mandatory jurisdiction cases and in cases selected via discretionary jurisdiction, we can illuminate the reliability of characterizing judges' tendencies based on cases they select. A discussion of the ISC discretionary jurisdiction case selection process and its outcomes appears in earlier work.[86]

Table 18 reports each justice's rate of voting for the state in mandatory and discretionary cases, as well as their rank order of voting for the state in both types of cases.[87] The justices are sorted in ascending order of rate of voting for defendants in mandatory cases, as reported in the first numerical column. The results are striking. Justice Fogelman, who is most favorable to the state in mandatory cases, is tied for least favorable to the state in discretionary cases. Justice Naor, who is most favorable to defendants in mandatory cases, is tied for the second least favorable to defendants in discretionary cases.

One hesitates to make much of these two results because these justices were involved in so few discretionary cases, a consequence of the highly selective discretionary case

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[85]Eisenberg et al., Cornell, supra note 33.

[86]Eisenberg et al., supra note 31.

[87]About 2.4 percent of discretionary jurisdiction criminal case votes are excluded because they involved votes that we did not characterize as favoring the defendant or the state.

Table 18: Rate and Rank of Justices' Voting for Defendant by Jurisdictional Source

	Mandatory Cases		*Discretionary Cases*			
Justice	*Rate Favoring Defendant*	N	*Rate Favoring Defendant*	N	*Justice's Mandatory Case Rank*	*Justice's Discretionary Case Rank*
Fogelman	0.12	168	1.00	4	1	13
Elon	0.13	167	0.80	5	2	4
Melcer	0.13	86	1.00	3	2	13
Levy	0.14	829	0.87	23	4	12
Rivlin	0.14	142	0.80	5	4	4
Arbel	0.15	351	0.82	17	6	8
Berliner	0.15	274	0.60	5	6	2
Joubran	0.16	446	0.80	20	8	4
Rubinstein	0.16	434	0.85	20	8	10
Beinisch	0.17	150	0.57	7	10	1
Kheshin, D.	0.17	195	0.80	5	10	4
Procaccia	0.19	138	0.85	13	12	10
Grunis	0.20	169	1.00	5	13	13
Hayut	0.21	215	0.83	6	14	9
Barak	0.23	43	1.00	1	15	13
Naor	0.28	154	0.60	5	16	2

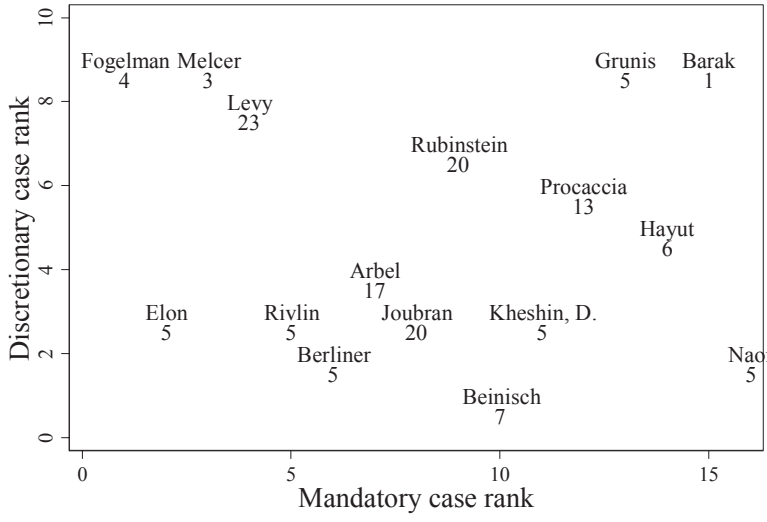
NOTE: The table shows the rate at which each justice voted for the state's position in mandatory and discretionary criminal cases. A vote favors the state if it is to affirm an appeal brought by a defendant or to reverse an appeal brought by the state. A vote favors the defendant if it is to affirm an appeal brought by the state or to reverse an appeal brought by the defendant. The last two columns show the ordinal rank of each justice for mandatory and discretionary criminal cases. The ordinal rank is based on the rate at which justices vote for the state in criminal cases, with a lower rank number corresponding to voting more favorably for the state.

screening process.[88] However, the observer of a discretionary jurisdiction court would observe only the equivalent of these cases. Similar inconsistency emerges if one focuses on the justice who decided the most discretionary cases. Justice Levy, the justice who participated in the most criminal cases, ranks fourth most favorable to the state in mandatory cases, but 12th most favorable to the state in discretionary cases. Of the four justices with at least 15 discretionary case outcomes, Justice Levy ranked most favorable to the state in mandatory cases and least favorable to the state in discretionary cases. More formal analysis establishes that the justices' ranks in voting for defendants or the state are uncorrelated across jurisdictional source. We can reject the hypothesis that the justices' ranks across mandatory and discretionary criminal cases are equal (Wilcoxon signed-rank test $p = 0.046$).

The absence of correlation is shown visually in Figure 2. The figure's x-axis is a justice's ordinal rank in mandatory cases, with a lower numbered rank corresponding to voting more favorably for the state. The y-axis is a justice's ordinal rank in discretionary cases. The number under each justice's name is the number of discretionary jurisdiction cases with a definitive appellate outcome. As Table 18 shows, Justices Fogelman and Naor

[88]Eisenberg et al., supra note 31.

Figure 2: Ranking in discretionary and mandatory criminal cases.



NOTE: The figure shows the ordinal rank of justices as measured by the rate at which they vote for the state in criminal cases, with a lower rank number corresponding to voting more favorably for the state. A vote favors the state if it is to affirm an appeal brought by a defendant or to reverse an appeal brought by the state. A vote favors the defendant if it is to affirm an appeal brought by the state or to reverse an appeal brought by the defendant. The number under each justice's name is the number of discretionary cases in which the justice participated that had an outcome favoring the defendant or the state.

differ sharply in their rank across the two jurisdictional sources. Justice Levy's location in the upper-left quadrant of the figure suggests that even the justice who adjudicated the most criminal cases would be perceived to have different preferences if observed only in discretionary cases.

VII. LIMITATIONS

Notwithstanding our efforts to account for case assignment, the data are observational and the results are subject to limitations. Mandatory criminal cases may have additional characteristics that are not randomly distributed but that affect case outcomes. And the process by which appeals terminate before a decision on the merits cannot be fully accounted for by our data. Appellants may file notices of appeal and then settle or withdraw cases before the Court adjudicates them.

Our seniority and workload variables are composed of justices' characteristics and thus are correlated with individual justice dummy variables. This promotes multicollinearity and can raise problems of endogeneity. In Table 17's models we used panel-level composites of seniority and workload to minimize multicollinearity. These problems cannot be fully

eliminated but are not a concern in Models (1) and (4), which do not contain seniority and workload controls, and yield results similar to the models that do.[89]

Another concern is that available data do not fully measure workload. But we do have reasonable estimates of the workload for appellate cases. We lack the time information for a similar estimate of the workload in HCJ cases, but that may not be a serious problem. If the ISC tries to equalize justices' workloads across all justice activities, then our measure of the appellate case load is implicit information about the rest of the justices' workload. If in fact Justice A has, for example, only 4 percent of the appellate court workload because of easy cases or specialization in nonappellate areas, then the ISC goal would be for Justice A to have had a larger share of the nonappellate court workload. The 4 percent appellate workload tells us that Justice A should have had a larger share of the nonappellate workload. We do not need an actual measure of the nonappellate workload. We are interested in workload to the extent it influences the probability of Justice A being assigned cases. The 4 percent workload we observe should give us that information. So we effectively account for the nonappellate workload on the assumption of the ISC seeking to impose equal burdens on justices. If there is no goal of an equal burden, then workload is of reduced importance. The fact that Justice A is very busy with other matters would no longer substantially influence the probability of him being assigned a case.

VIII. Conclusion

An ideal condition for assessing judge effects would be completely random case assignment, without the variations for which we have tried to account. However, this ideal likely does not correspond to an ideal real-world ISC. The ISC is an incredibly busy court and good reason exists to exploit expertise and experience and to seek to distribute the workload. A court structured like the ISC cannot be expected to seek or achieve complete random assignment. An alternative ideal situation would be to have an accurate measure of the merits of each case. Excellent control of the merits would preclude the need for random assignment to assess judge effects. Variables controlling for the merits are sometimes available[90] but the cost of collecting them is high, and debate about the merits of cases likely not completely resolvable. So we are left with nonrandom aspects of case assignment and no objective assessment of the merits of cases. These limitations suggest that something along the lines

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[89]We have explored other models, using the seniority of the presiding justice as the measure of seniority for a case. Significant justice effects remain but standard errors deteriorate as expected.

[90]Theodore Eisenberg, Paula L. Hannaford-Agor, Valerie P. Hans, Nicole L. Waters, G. Thomas Munsterman, Stewart J. Schwab & Martin T. Wells, Judge-Jury Agreement in Criminal Cases: A Partial Replication of Kalven and Zeisel's *The American Jury*, 2 J. Empirical Legal Stud. 171 (2005) (variables included judge, jury, and lawyer views of the strength of the evidence). Ex post assessment of the merits is sometimes possible in medical malpractice cases due to the availability of documented information about the case and expert reviewers. But even here the merits of behavior can be debated. Tom Baker, Reconsidering the Harvard Medical Practice Study Conclusions About the Validity of Medical Malpractice Claims, 33 J. L., Med. & Ethics 501 (2005); Philip G. Peters, Jr., What We Know About Malpractice Settlements, 92 Iowa L. Rev. 1783 (2007).

of our analysis may approach the limit of what is realistically achievable in studying ISC or similar judges.

We have documented nonrandom aspects of case assignment, including case category and seniority. After accounting for these factors, we find significant judge effects. Although the eye-catching result may be interjudge differences, the dominant reality is overall similarity. Any group of 16 different people likely will vary in their voting tendencies. The range of voting patterns we observe, although unlikely to arise by chance, is not shockingly broad. Substantial interjustice agreement in the mass of mandatory jurisdiction appeals is consistent with other studies of the mass of cases that find little or no judge or judicial characteristic effects.[91]

Finding no association between justices' ordinal rankings across mandatory and discretionary cases has important implications. The finding affects many studies of judicial preferences in courts in which judges' votes to select cases are not observed. For example, studies of U.S. Supreme Court justices' preferences are conditional on the cases selected. The studies may not accurately portray justices' preferences because they do not account for the mass of cases that justices review.

Appendix

Table A: Detailed Subjects of First Crime Mentioned in ISC Opinions

Major Subject of Crime	N	*Type of Crime Within Major Subject of Crime*	N	*Specific Clause Relating to Crime Within Type of Crime*	N
National security, foreign affairs, official state secrets—1	18	Treason—14	13		
		Causing damages to the armed forces of the state—15	0		
		Espionage—16	5		
		Exposure of official state secretes—17	0		
		Threat to foreign relations—18	0		
Offenses against the regime and the society—2	63	Weapon crimes, hate crimes—19	39		
		Forbidden unionizing—20	0		
		Interference to public safety—21	0		
		Insults directed to hurt religious feelings—22	0		
		Causing public harm—23	18		
		Prostitution and abomination—24	6		
		Nuisances—25	0		
		Illegal gambling—26	0		
		Other—27	0		
Offenses against the government and the legal system—3	16	Disruption of proceedings—28	9		
		Crimes evasion—29	0		
		Assaulting police officers—30	7		

[91]Ashenfelter et al., supra note 1; Brian T. Fitzpatrick, Judicial Study of Class Action Settlements and Their Fee Awards, 7 J. Empirical Legal Stud. 811 (2010); Gregory C. Sisk et al., Charting the Influences on the Judicial Mind: An Empirical Study of Judicial Reasoning, 73 N.Y.U.L. Rev. 1337 (1998); Laura Beth Nielsen, Robert L. Nelson & Ryon Lancaster, Individual Justice or Collective Legal Mobilization? Employment Discrimination Litigation in the Post Civil Rights United States, 7 J. Empirical Legal Stud. 175, 188 (2010).

Table A *Continued*

Major Subject of Crime	N	*Type of Crime Within Major Subject of Crime*	N	*Specific Clause Relating to Crime Within Type of Crime*	N
Offenses against good governance—4	6	Offenses relating to public servants—31	2	Fraud and breach of trust—59	2
				Other—60	0
		Bribery—32	4		
Body injuries—5	765	Causing death—33	170	Manslaughter—61	74
				Murder—62	52
				Attempted murder—63	22
				Causing death by negligence—64	20
				Other—65	2
		Forbidden abortion—34	0		
		Responsibility for the safety of others—35	3		
		Endangering the life and health of others—36	271	Bodily harm in aggravating circumstances—66	86
				Risking life in transport path—67	69
				Causing injuries/harm in regular/aggravating circumstances—68	112
				Other—69	4
		Sex offenses—37	228	Rape—70	91
				Rape or sodomy within the family—71	36
				Prohibited sexual intercourse (with consent)—72	4
				Sodomy—73	35
				Sexual relations between therapist and patient—74	2
				Indecent act + indecent act in public—75	58
				Sexual harassment—76	1
				Unknown	1
		Offenses against minors and seniors—38	16		
		Offenses against another's freedom—39	40	Abduction, false imprisonment—77	23
				Slavery and human trafficking—78	17
		Assault—40	37		
Property crimes—6	236	Larceny—41	17		
		Quasi-larceny—42	0		
		Robbery—43	135		
		Burglary housebreaking—44	6		
		Possession of stolen property—45	0		
		Property offenses regarding vehicles—46	14		
		Deception, blackmail, and exploitation—47	43		
		Fraud—48	2		
		Trespassing—49	0		
		Property damage—50	19		
Forgery of currency and stamps—7	0				
Minor offenses—8	0				
Preparation and conspiracy to commit a crime—9	101				

Table A *Continued*

Major Subject of Crime	N	*Type of Crime Within Major Subject of Crime*	N	*Specific Clause Relating to Crime Within Type of Crime*	N
White-collar crimes—10	13	Money laundering—51	3		
		Offenses regarding securities—52	0		
		Antitrust offenses—53	7		
		Tax offenses—54	3		
Drugs—11	82	Manufacturing drugs and possession of drugs—55	40	Manufacturing or producing drugs—79	0
				Possession and use of drugs—80	40
		Trading and transferring drugs—56	42		
		Instigation of a minor—57	0		
		Other—58	0		
Administrative offenses—12	0				
Other offenses—13	13				
No information in opinion	97				
Total	1410				

NOTE: The table shows the number times each offense category was the first offense mentioned in an ISC opinion in mandatory criminal cases. The numbers in the crime designation columns are internal coding references.

Table B: Justices' Participation on Appellate Merits Panels by Type of Case and Jurisdictional Source

	Discretionary Jurisdiction				*Mandatory Jurisdiction*					
	Criminal		*Civil*		*Criminal*		*Civil*		*Total*	
Justice	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Arbel	28	2.5	120	23.3	377	9.0	112	6.7	637	8.5
Barak	3	0.3	4	0.8	47	1.1	39	2.3	93	1.2
Beinisch	16	1.4	2	0.4	155	3.7	40	2.4	213	2.8
Berliner	13	1.2	5	1.0	283	6.8	66	3.9	367	4.9
Elon	6	0.5	27	5.2	179	4.3	92	5.5	304	4.1
Fogelman	8	0.7	2	0.4	182	4.3	30	1.8	222	3.0
Grunis	15	1.4	18	3.5	183	4.4	200	11.9	416	5.5
Hayut	15	1.4	8	1.6	227	5.4	235	14.0	485	6.5
Joubran	436	39.3	41	7.9	462	11.0	116	6.9	1,055	14.1
Kheshin, D.	11	1.0	12	2.3	205	4.9	61	3.6	289	3.9
Levy	479	43.2	5	1.0	862	20.6	36	2.1	1,382	18.4
Melcer	4	0.4	1	0.2	89	2.1	44	2.6	138	1.8
Naor	8	0.7	17	3.3	163	3.9	168	10.0	356	4.7
Other	3	0.3	1	0.2	31	0.7	24	1.4	59	0.8
Procaccia	19	1.7	30	5.8	145	3.5	86	5.1	280	3.7
Rivlin	7	0.6	79	15.3	151	3.6	212	12.6	449	6.0
Rubinstein	38	3.4	144	27.9	450	10.7	119	7.1	751	10.0
Total	1,109	100	516	100	4,191	100	1,680	100	7,496	100

NOTE: For each jurisdictional source (discretionary and mandatory) and type of case (criminal and civil), the first column is the number of votes on the merits cast by the row justice and the second column is the percent of votes cast by that justice in cases of the source and type. The percents are thus column percents. For example, Justice Arbel cast 28 of 1,109 of the votes on the merits in discretionary criminal cases, and the second column shows that to be 2.5 percent of the votes cast in such cases.

Table C: Logistic Regression Models' of Justices Votes, Showing Coefficients for Criminal Offense Categories

	(1)	*(2)*	*(3)*
Arbel	–0.012	–0.012	–0.014
	(0.023)	(0.022)	(0.022)
Barak	0.078	0.012	0.010
	(0.068)	(0.041)	(0.041)
Beinisch	–0.009	–0.027	–0.038*
	(0.029)	(0.025)	(0.021)
Berliner	–0.015	–0.016	–0.020
	(0.022)	(0.022)	(0.021)
Elon	–0.038	–0.039	–0.031
	(0.026)	(0.026)	(0.026)
Fogelman	–0.037	–0.037	–0.039
	(0.026)	(0.026)	(0.025)
Grunis	0.016	0.009	0.006
	(0.031)	(0.030)	(0.030)
Hayut	0.044	0.039	0.039
	(0.032)	(0.031)	(0.031)
Joubran	–0.009	–0.012	–0.008
	(0.020)	(0.019)	(0.019)
Kheshin, D.	0.004	0.004	0.010
	(0.027)	(0.027)	(0.027)
Levy	–0.027*	–0.032**	–0.028*
	(0.015)	(0.015)	(0.014)
Melcer	–0.040	–0.042	–0.035
	(0.033)	(0.033)	(0.034)
Naor	0.110***	0.099**	0.092**
	(0.040)	(0.039)	(0.038)
Procaccia	0.029	0.014	0.005
	(0.035)	(0.034)	(0.031)
Rivlin	–0.017	–0.031	–0.031
	(0.030)	(0.027)	(0.027)
Female defendant	0.172**	0.173**	0.176**
	(0.086)	(0.088)	(0.088)
Sentence only appealed	0.058***	0.059***	0.059***
	(0.020)	(0.020)	(0.020)
Panel seniority (square root)		0.001	0.001
		(0.001)	(0.001)
Panel workload			–0.002
			(0.002)
National security, foreign affairs, official state secrets	0.116	0.117	0.126
	(0.122)	(0.124)	(0.126)
Offenses against the regime and the society	–0.029	–0.024	–0.023
	(0.056)	(0.059)	(0.059)
Offenses against the government and the legal system	0.202	0.215	0.226
	(0.145)	(0.151)	(0.153)
Body injuries other than murder, rape, and offenses against another's freedom	–0.052	–0.048	–0.045
	(0.048)	(0.050)	(0.051)
Property crimes	–0.009	–0.006	–0.004
	(0.051)	(0.053)	(0.054)

Table C *Continued*

	(1)	*(2)*	*(3)*
Preparation and conspiracy to commit a crime	0.003	0.006	0.012
	(0.059)	(0.062)	(0.064)
White-collar crimes	0.173	0.189	0.199
	(0.208)	(0.216)	(0.220)
Drugs	–0.048	–0.044	–0.043
	(0.049)	(0.052)	(0.053)
Other offenses	–0.055	–0.052	–0.051
	(0.075)	(0.078)	(0.078)
No information in opinion	0.177*	0.183*	0.186*
	(0.094)	(0.098)	(0.099)
Rape	–0.016	–0.013	–0.011
	(0.054)	(0.056)	(0.057)
Offenses against another's freedom	–0.091**	–0.089**	–0.087*
	(0.043)	(0.045)	(0.046)
Observations	3,972	3,972	3,972
Chi-squared probability	0.000	0.000	0.000

NOTE: Dependent variable is 1 if a justice's vote favored the defendant and 0 if it favored the state. A vote favors the state if it is to affirm an appeal brought by a defendant or to reverse an appeal brought by the state. A vote favors the defendant if it is to affirm an appeal brought by the state or to reverse an appeal brought by the defendant. Murder is the reference category for offense categories. Robust standard errors, clustered at the case level, are in parentheses. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.