

## Measuring the Effect of Social Background on Judicial Decision-Making in Tax Cases

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## MEASURING THE EFFECT OF SOCIAL BACKGROUND ON JUDICIAL DECISION-MAKING IN TAX CASES

by

Orli Oren-Kolbinger\*

### ABSTRACT

*Judicial decision-making is an important part of the law-making process. The positive research of judicial decision-making is expanding, and its normative significance is undeniable. Even so, judicial decision-making in tax cases has not yet received much empirical attention. This study contributes to the existing literature, empirically evaluating if, and to what extent, non-legal factors affect the outcomes of tax cases. It examines the potential effects of judges' social backgrounds and adds to the rather small but growing empirical literature on tax litigation. I coded the dependent variable—the judge's level of acceptance of the taxpayer's claim, meaning whether the judge sides with the taxpayer and*

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*overrules the IRS’s decisions—as an ordinal variable rather than the more common binary coding of the prevailing party. Binary coding can often be arbitrary, resulting in loss of information and misestimation. By allowing for an intermediate category of the prevailing party, in addition to the traditional binary options, the variable transforms to an ordinal measure of the judge’s acceptance level of the taxpayer’s claim. This study finds that in the Israeli setting, judges’ gender, seniority, age at the time of appointment, and age at the time of the decision affect judges’ decisions and subsequently the law.*

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## I. INTRODUCTION: DOES A JUDGE’S PERSONAL AND PROFESSIONAL BACKGROUND INFLUENCE DECISIONS IN TAX CASES?

Predicting legal outcomes and identifying variables that underlie the judicial decision-making process has social and public value. For many years now, legal scholars, economists, and political scientists dealt with the question of how judges with different characteristics, including gender, professional background, and policy preferences, determine legal outcomes.<sup>1</sup> In this Article, I provide an empirical examination of this question in the tax context—an area that has received relatively less focus than other legal fields—that could be implemented in various tax jurisdictions. I do so by using an original sample of tax cases from Israeli district courts, which were decided during 1993–2012. Lastly, I advocate the use of a more fine-tuned method for coding the prevailing party in legal disputes.

According to the social background model of judicial decision-making, judges’ personal characteristics and professional experience affect judicial behavior.<sup>2</sup> Relying on this theory, I measure the influence

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1. See, e.g., LAWRENCE BAUM, *JUDGES AND THEIR AUDIENCES: A PERSPECTIVE ON JUDICIAL BEHAVIOR* 1–24 (2006); FRANK B. CROSS, *DECISION MAKING IN THE U.S. COURTS OF APPEALS* 6 (2007); RICHARD A. POSNER, *HOW JUDGES THINK* 19–56 (2008); David Gliksberg, *Does the Law Matter? Win Rates and Law Reforms*, 11 J. EMPIRICAL LEGAL STUD. 378, 379–83 (2014). For an extensive list of quantitative empirical studies on judicial behavior published prior to 2013, see LEE EPSTEIN ET AL., *THE BEHAVIOR OF FEDERAL JUDGES: A THEORETICAL AND EMPIRICAL STUDY OF RATIONAL CHOICE* 89–99 (2013).

2. For a recent review of the theory, see Tracey E. George & Taylor Grace Weaver, *The Role of Personal Attributes and Social Backgrounds on*

of various explanatory variables on the acceptance level of the taxpayer's claim, meaning whether the judge sides with the taxpayer and overrules the IRS's decisions. These explanatory variables include gender, previous occupation, seniority, age at the time of appointment, and age at the time of the decision. The analysis also includes several control variables: the macroeconomic state of the market; the type of taxpayer, either individual or business; the district where the court resides; and whether the judge has a judicial specialization in tax cases, in other words is a "tax judge."

I use the aforementioned variables to estimate the dependent variable, the level of acceptance of the taxpayer's claim. These claims are referred to in the Israeli context as *tax appeals*, therefore I will use this term for the rest of this Article. I coded the dependent variable as an ordinal, rather than binary, variable. While binary is the frequent coding method of the prevailing party variable, as evidenced by its use in previous studies, coding the variable as ordinal allows for the use of the ordinal regression model. Judicial decision-making is not necessarily binary. Therefore, coding the prevailing party in ordinal categories will better capture the judge's decision, leading to a more reliable analysis.

In the past, the dominant theoretical approach of judicial decision-making was the legal reasoning model.<sup>3</sup> According to this model, judges' decisions rely on law, legislative intent, legal precedent, and logic.<sup>4</sup> Judicial decision-making was perceived as a good representation of existing law, depending on the facts of the given case.<sup>5</sup> Judges are supposed to follow the law in a uniform manner.<sup>6</sup> Neither judges'

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*Judging*, in THE OXFORD HANDBOOK OF U.S. JUDICIAL BEHAVIOR 286 (Lee Epstein & Stefanie A. Lindquist eds., 2017). For an elaborated discussion of the theory, see also *infra* notes 21–27 and accompanying text.

3. See Frederick Schauer, *Formalism*, 97 YALE L.J. 509 (1988).

4. See Frank B. Cross, *Political Science and the New Legal Realism: A Case of Unfortunate Interdisciplinary Ignorance*, 92 NW. U. L. REV. 251, 255–64 (1997); Tracey E. George, *Developing a Positive Theory of Decisionmaking on U.S. Courts of Appeals*, 58 OHIO ST. L.J. 1635, 1642–45 (1998); Tracey E. George & Lee Epstein, *On the Nature of Supreme Court Decision Making*, 86 AM. POL. SCI. REV. 323, 324 (1992).

5. See Jeffrey A. Segal, *Predicting Supreme Court Cases Probabilistically: The Search and Seizure Cases, 1962–1981*, 78 AM. POL. SCI. REV. 891 (1984).

6. See Cross, *supra* note 4; Keren Weinshall-Margel, *Attitudinal and Neo-Institutional Models of Supreme Court Decision Making: An Empirical*

personal attributes nor past experiences should impact their judicial discretion.<sup>7</sup> Under the legal reasoning model, similar cases should be decided similarly by different judges because decisions are believed to be free from outside influences.

Many empirical studies support the legal reasoning model. For example, Cross concluded that courts follow the rule of law after finding an existing high affirmance rate of federal district court decisions by the courts of appeals.<sup>8</sup> Songer et al. found that courts of appeals react to and follow Supreme Court precedent changes.<sup>9</sup> In an empirical study of 6,400 appeals, covering 24 legal areas, Sunstein et al. found that in some legal areas judges' decisions cannot be attributed to their ideological views. This might indicate that the rule of law was the dominant factor in these decisions.<sup>10</sup> Notably, Ashenfelter et al. reached similar conclusions with their study on federal district courts.<sup>11</sup>

As a reaction to the legal reasoning model, other positive theories were developed to explain judicial decision-making.<sup>12</sup> Political

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*and Comparative Perspective from Israel*, 8 J. EMPIRICAL LEGAL STUD. 556, 557 (2011).

7. See POSNER, *supra* note 1, at 41.

8. See CROSS, *supra* note 1, at 45–49. *But see* POSNER, *supra* note 1, at 45–46 (suggesting that Cross's findings of high affirmance rates only indicate that many of the cases are routine cases that are resolved faster by relying on the legal reasoning model).

9. Donald R. Songer et al., *The Hierarchy of Justice: Testing a Principal-Agent Model of Supreme Court-Circuit Court Interactions*, 38 AM. J. POL. SCI. 673, 673–96 (1994). For another example on the power of precedent, see DANIEL R. PINELLO, *GAY RIGHTS AND AMERICAN LAW* (2003) (finding that state and federal courts follow a seminal precedent regarding gay rights, rather than their ideological views). On the other hand, Spaeth and Segal in 1999 found that dissenting Supreme Court justices continued to dissent when the same issue was litigated again, despite the existing precedent. See HAROLD J. SPAETH & JEFFREY A. SEGAL, *MAJORITY RULE OR MINORITY WILL: ADHERENCE TO PRECEDENT ON THE U.S. SUPREME COURT* 287–315 (1999).

10. CASS R. SUNSTEIN ET AL., *ARE JUDGES POLITICAL? AN EMPIRICAL ANALYSIS OF THE FEDERAL JUDICIARY* 17–18, 61–62 (2006).

11. Orley Ashenfelter et al., *Politics and the Judiciary: The Influence of Judicial Background on Case Outcomes*, 24 J. LEGAL STUD. 257, 257 (1995).

12. For reviews of the various theories, see CROSS, *supra* note 1; FORREST MALTZMAN ET AL., *CRAFTING LAW ON THE SUPREME COURT: THE COLLEGIAL GAME* 10–26 (2000); POSNER, *supra* note 1, at 19–56.

scientists and legal scholars raised doubts about the law as a sole predictor of legal decisions. One of these theories, inspired by legal realism and behaviorism, is the attitudinal model, which proposes that judges' attitudes and policy preferences affect their decision-making.<sup>13</sup>

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13. For review of the model, see JEFFREY A. SEGAL & HAROLD J. SPAETH, *THE SUPREME COURT AND THE ATTITUDINAL MODEL REVISITED* 86–96 (2002) [hereinafter SEGAL & SPAETH 2002]; JEFFREY A. SEGAL & HAROLD J. SPAETH, *THE SUPREME COURT AND THE ATTITUDINAL MODEL* 65 (1993) [hereinafter SEGAL & SPAETH 1993]. For review of legal realism, see KARL NICKERSON LLEWELLYN, *JURISPRUDENCE: REALISM IN THEORY AND PRACTICE* 3–41 (1962); SEGAL & SPAETH 2002, *supra*, at 87–96; Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457, 468–69 (1897); Yosai Rogat, *Legal Realism*, in *THE ENCYCLOPEDIA OF PHILOSOPHY* 420 (Paul Edwards ed., 1972). Attitudinal researchers focused their attention on the judges' ideology and determining whether that attribute guided judges. According to Cross, other background variables might have been perceived as less consequential by attitudinal researchers because judges are nominated after a screening process that considers their ideological views. See CROSS, *supra* note 1, at 69–70. Note that ideology in this context does not mean the political ideology of the party the judge supports, but the location of the judge on the conservative-liberal range, meaning that judges express their personal views, whether conservative or liberal. See *id.* at 12. Many empirical attitudinal studies used the political party of the nominating president as a proxy for the judge's political ideology, although this variable has its drawbacks. See *id.* at 19–20; POSNER, *supra* note 1, at 24–30 (claiming this proxy is not optimal); Richard L. Revesz, *Environmental Regulation, Ideology, and the D.C. Circuit*, 83 VA. L. REV. 1717, 1717–19 (1997) (when deciding environmental cases, the political affiliation of the other judges on the panel, measured by the party of their appointing president, had a larger effect on a judge's decision than that judge's own affiliation). Other researchers used various advanced scoring systems of individual judges' attitudes and ideologies to reach a more accurate estimation of this variable. See Jeffrey A. Segal & Albert D. Cover, *Ideological Values and the Votes of U.S. Supreme Court Justices*, 83 AM. POL. SCI. REV. 557 (1989). This score was updated in Jeffrey A. Segal et al., *Ideological Values and the Votes of U.S. Supreme Court Justices Revisited*, 57 J. POL. 812 (1995). See EPSTEIN ET AL., *supra* note 1; Andrew D. Martin & Kevin M. Quinn, *Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953–1999*, 10 POL. ANALYSIS 134, 134–53 (2002). Some studies used both measurements. See, e.g., Alma Cohen & Crystal S. Yang, *Judicial Politics and Sentencing Decisions*, AM. ECON. J: ECON. POL'Y., Feb. 2019, at 160 (using the party of the appointing president and then common ideological scores as a robustness check); Sepehr Shahshahani & Lawrence J. Liu, *Religion and Judging on the Federal Courts*

Another example is the strategic model, which assumes that judges are rational actors who maximize their personal utility as they make their choices.<sup>14</sup>

This study focuses on another positive theory of judicial decision-making, the social background model.<sup>15</sup> This model focuses on the question: are judges affected by their personal and professional attributes while making legal decisions? Per this model, certain non-legal parameters of judges, such as personal attributes and professional backgrounds, rather than the law itself, can explain their rulings. Under the social background model, these attributes help to better predict judicial outcomes.

Although empirical legal studies have evolved over the last few decades, empirical knowledge from quantitative analysis of tax litigation and decision-making is still limited compared with other legal areas.<sup>16</sup> Moreover, this is the first research in the Israeli context that uses

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*of Appeals*, 14 J. EMPIRICAL LEGAL STUD. 716, 716–44 (2017) (using different measures of ideology, the party of the appointing president and then common ideological scores as a robustness check); Gregory C. Sisk & Michael Heise, *Ideology “All the Way Down”? An Empirical Study of Establishment Clause Decisions in the Federal Courts*, 110 MICH. L. REV. 1201, 1201–64 (2012) (using the party of the appointing president and common space ideological scores as alternative measures of the judge’s ideology).

14. See LEE EPSTEIN & JACK KNIGHT, CHOICES JUSTICES MAKE 10–18 (1998); MALTZMAN ET AL., *supra* note 12, at 13–14; Lee Epstein & Tonja Jacobi, *The Strategic Analysis of Judicial Decisions*, 6 ANN. REV. L. & SOC. SCI. 341, 343.

15. See Part II.

16. Welcomed exceptions include the following: NANCY STAUDT, THE JUDICIAL POWER OF THE PURSE: HOW JUDGES FUND NATIONAL DEFENSE IN TIMES OF CRISIS 1–17 (2011); Joshua D. Blank & Nancy Staudt, *Corporate Shams*, 87 N.Y.U. L. REV. 1641 (2012); Michael J. Bommarito II et al., *An Empirical Survey of the Population of U.S. Tax Court Written Decisions*, 30 VA. TAX REV. 523 (2011); Thomas Brennan et al., *Economic Trends and Judicial Outcomes: A Macrotheory of the Court*, 58 DUKE L. REV. 1191 (2009); Thomas Brennan et al., *The Political Economy of Judging*, 93 MINN. L. REV. 1503, 1516–17 (2009); David Gliksberg, *The Taxation of Corporations and Shareholders and the Judicial Attitude*, 44 HEBREW U. L.R. 731 (2015), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2622274](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2622274); Gliksberg, *supra* note 1; Thadeus Hwong, *An Exploration of Influences of Sociodemographic Characteristics of Supreme Court Justices in Judicial Decision-Making in Income Tax Cases in 1920–2003*, 33 MAN. L. J. 150 (2009); Mark Jackson et al., *Court*



regression analysis to estimate the effect of judges' social background on their decisions in tax cases.<sup>17</sup>

The motivation for this current research is two-fold: First, I use ordinal regression to analyze the measured effect on the prevailing party in tax cases. Very few researchers have taken this route before.<sup>18</sup> Many

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*Rulings in Estate Tax Cases: Is Gender a Factor?*, ATA J. LEGAL TAX RES., no. 2, 2014, at 74 [hereinafter Jackson et al., *Court Rulings*]; Mark Jackson et al., *Asset and Business Valuation in Estate Tax Cases: The Role of the Courts*, J. AM. TAX'N ASS'N, Fall 2013, at 121; Leandra Lederman, *Which Cases Go to Trial? An Empirical Study of Predictions of Failure to Settle*, 49 CASE W. RES. L. REV. 315 (1999); James Edward Maule, *Instant Replay, Weak Teams, and Disputed Calls: An Empirical Study of Alleged Tax Court Judge Bias*, 66 TENN. L. REV. 351 (1999); Daniel M. Schneider, *Use of Judicial Doctrines in Federal Tax Cases Decided by Trial Courts, 1993–2006: A Quantitative Assessment*, 57 CLEV. ST. L. REV. 35 (2009); Daniel M. Schneider, *Using the Social Background Model to Explain Who Wins Federal Appellate Tax Decisions: Do Less Traditional Judges Favor the Taxpayer?*, 25 VA. TAX REV. 201 (2005) [hereinafter Schneider, *Appeals*]; Daniel M. Schneider, *Statutory Construction in Federal Appellate Tax Cases: The Effect of Judges' Social Backgrounds and of Other Aspects of Litigation*, 13 WASH. U. J.L. & POL'Y 257 (2003) [hereinafter Schneider, *Effect*]; Daniel M. Schneider, *Assessing and Predicting Who Wins Federal Tax Trial Decisions*, 37 WAKE FOREST L. REV. 473 (2002) [hereinafter Schneider, *Trial*]; Daniel M. Schneider, *Empirical Research on Judicial Reasoning: Statutory Interpretation in Federal Tax Cases*, 31 N.M. L. REV. 325 (2001) [hereinafter Schneider, *Statutory Interpretation*]; Nancy Staudt et al., *The Ideological Component of Judging in the Taxation Context*, 84 WASH. U. L. REV. 1797 (2006) (finds a larger effect of ideology in corporate tax cases when compared with individual tax cases).

17. Regression analysis was used in relation to other legal areas in the Israeli context, such as detention laws, the freedom of religion, and criminal law, but not in tax law. Two studies conducted by David Gliksberg analyzed all tax appeals that were decided during 1948–2008 by the Israeli Supreme Court, rather than by District Courts using descriptive statistics and hypotheses testing. They did not report controlling for background characteristics of judges or judicial specialization. See Gliksberg, *supra* note 16 (focusing on the type of taxpayer correlation with the case's outcome); Gliksberg, *supra* note 1, at 379–83 (measuring the connection between law reforms and win rates of taxpayers).

18. See Rob Robinson, *Does Prosecutorial Experience “Balance Out” a Judge’s Liberal Tendencies?*, 32 JUST. SYS. J. 143, 145 (2011); Moses Shayo & Asaf Zussman, *Judicial Ingroup Bias in the Shadow of Terrorism*,

studies of judicial decision-making and tax litigation used logistic or multinomial regression, which are not always adequate for modeling legal reality. Using ordinal regression is possible because the dependent variable of the model—the acceptance level of the taxpayer’s claim—accepts three<sup>19</sup> discrete values ordered in a legally meaningful way.<sup>20</sup> Comparing these three regression models—ordinal, logistic, and multinomial—shows that the coefficients from the ordinal regression model are the most statistically significant.

Second, this research supplements the growing empirical legal study of tax law and tax litigation. The findings might also assist with a better understanding of legal proceedings that involve the government as a repeat player in court.

The remainder of the Article consists of five parts. In Part II, I discuss the social background model, citing previous empirical studies as part of the theoretical discussion about judicial decision-making. I will complement this review of literature with previous empirical research about decision-making in tax cases. In Part III, I detail the methodology, including the background of the legal process, the data collection process, the regression variables, and the hypotheses. In Part IV, I provide descriptive statistics and present the results of the regression model. In Part V, I analyze the results and compare the ordinal regression results with the logistic and multinomial regression models’ estimations. In Part VI, I conclude.

## II. THE SOCIAL BACKGROUND MODEL

### A. General

This research focuses on the social background model, which theorizes that a judge’s social background might influence her or his decisions. Many empirical studies have already explored this issue, revealing that judges’ personal attributes and professional backgrounds affect court

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22 Q.J. ECON. 1447, 1447–51 (2011). For a further discussion on these studies, see *infra* notes 110–113 and accompanying text.

19. Rather than only two when using a binary regression model.

20. Rather than using a multinomial model that does not account for the ordinal feature of categories, even though it allows for the dependent variable to accept more than two categories.

decisions. Some of the studies also considered judges' ideology and policy preferences.<sup>21</sup> Personal attributes included age, gender, and race. Professional background included the judge's law school, professional position before appointment, and seniority. Policy preferences were usually measured by the political party of the nominating president or by ideological scores, when applicable.<sup>22</sup>

Compared with those that focused mainly on ideology, empirical studies on the U.S. Supreme Court, which included parameters about the judges' backgrounds in addition to ideology, better predicted legal outcomes.<sup>23</sup> The studies that focused on ideology found that even though personal or professional attributes, especially the judges' previous occupation, influence judicial decisions, the effect is smaller than the influence of their ideology.<sup>24</sup> Even so, because ideology is correlated with other background variables, one might hypothesize that these other variables affect the evolution of judges' ideology.<sup>25</sup>

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21. In contrast, in their recent review of the social background model, George and Weaver did not cover judges' policy preferences or any of the common proxies. They expressed the view that political affiliation and the political party of the nominating president are proxies for the judge's unstated policy preferences, in contrast with their observed characteristics. *See* George & Weaver, *supra* note 2, at 286.

22. *See* Jilda M. Aliotta, *Combining Judges' Attributes and Case Characteristics: An Alternative Approach to Explaining Supreme Court Decisionmaking*, 71 JUDICATURE 277 (1988); C. Neal Tate & Roger Handberg, *Time Binding and Theory Building in Personal Attribute Models of Supreme Court Voting Behavior, 1916-88*, 35 AM. J. POL. SCI. 460 (1991); S. Sidney Ulmer, *Are Social Background Models Time-Bound?*, 80 AM. POL. SCI. REV. 957 (1986); *see also* LAWRENCE BAUM, *THE PUZZLE OF JUDICIAL BEHAVIOR* 63 (1997); HENRY R. GLICK, *COURTS, POLITICS, AND JUSTICE* 313 (3d ed. 1993); POSNER, *supra* note 1, at 94. For references on the ideology scores, *see supra* note 13 and accompanying text.

23. *See* C. Neal Tate, *Personal Attribute Models of the Voting Behavior of U.S. Supreme Court Justices: Liberalism in Civil Liberties and Economics Decisions, 1946-1978*, 75 AM. POL. SCI. REV. 355 (1981); Tate & Handberg, *supra* note 22; Ulmer, *supra* note 22; S. Sidney Ulmer, *Social Background as an Indicator to the Votes of Supreme Court Justices in Criminal Cases: 1947-1956 Terms*, 17 AM. J. POL. SCI. 622 (1973) [hereinafter Ulmer, *Indicator*]; S. Sidney Ulmer, *Dissent Behavior and the Social Background of Supreme Court Justices*, 32 J. POL. 580 (1970).

24. *See* CROSS, *supra* note 1, at 48-53, 92-93.

25. *See* POSNER, *supra* note 1, at 46.

Empirical scholars found that personal and professional attributes affect judicial decision-making in various legal areas, including criminal law, search and seizure cases, employment law, sex- and race-based discrimination, sexual harassment, tax law, and economic regulation.<sup>26</sup> The results, however, were not always consistent.<sup>27</sup>

Through the rest of this Part, I will review the main background parameters and the studies that measured their effect on judicial outcomes.

### *B. Personal Background Parameters of Judges*

The main personal background attributes that scholars consider when assessing their effect on judicial decision-making are gender, age, race, and religious beliefs.

#### *1. Gender*

Gender is a dominant characteristic of human life. In past literature, scholars have debated whether male and female judges reach different legal decisions.<sup>28</sup>

The theoretical debate over these potential differences focused mainly on two arguments. The first argument is that female judges tend to prefer communitarian causes and family values over other considerations and are more attentive to plaintiffs with discrimination or

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26. See, e.g., Christina L. Boyd et al., *Untangling the Causal Effects of Sex on Judging*, 54 AM. J. POL. SCI. 389 (2010); James J. Brudney et al., *Judicial Hostility Toward Labor Unions? Applying the Social Background Model to a Celebrated Concern*, 60 OHIO ST. L.J. 1675 (1999); Theodore Eisenberg et al., *Does the Judge Matter? Exploiting Random Assignment on a Court of Last Resort to Assess Judge and Case Selection Effects*, 9 J. EMPIRICAL LEGAL STUD. 246 (2012); Schneider, *Trial*, *supra* note 16, at 481–82 nn.29–31; Weinshall-Margel, *supra* note 6, at 557.

27. See Brudney et al., *supra* note 26; Schneider, *Appeals*, *supra* note 16, at 207–08 nn.14–19; Schneider, *Trial*, *supra* note 16, at 481–82 nn.29–31; Gregory C. Sisk et al., *Charting the Influences on the Judicial Mind: An Empirical Study of Judicial Reasoning*, 73 N.Y.U. L. REV. 1377, 1451–65, 1470–80 (1998).

28. See Suzanna Sherry, *Civic Virtue and the Feminine Voice in Constitutional Adjudication*, 72 VA. L. REV. 543 (1986).

exclusion claims.<sup>29</sup> This claim is related to the different voice theory, which was developed by Carol Gilligan.<sup>30</sup> Gilligan claimed that women speak in a “different voice” because they make community-oriented decisions, while men make more rule-oriented decisions. Suzanna Sherry added that the different voice theory applies in the judicial decision-making discussion.<sup>31</sup> Female judges bring a feminine point of view to the judiciary and emphasize social relationships, while male judges emphasize the rules. The prediction was that female judges would be willing to deviate from legal rules and apply more social and communitarian values when deciding legal disputes.<sup>32</sup>

The second argument relies on the organizational theory. According to the organizational theory, gender is inconsequential to judicial decision-making<sup>33</sup> because judges’ professional backgrounds, specialization processes, and nomination processes are similar. The theory also postulated that, because all judges encounter similar professional challenges, biological and sociological differences do not influence their performance as judges.<sup>34</sup>

Many empirical studies about the effect of gender on judicial decision-making focused on the U.S. judicial system.<sup>35</sup> These studies

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29. See *id.*; Suzanna Sherry, *The Gender of Judges*, 4 LAW & INEQ. 159, 161 (1986); see also CAROL GILLIGAN, IN A DIFFERENT VOICE: PSYCHOLOGICAL THEORY AND WOMEN’S DEVELOPMENT (1982); Boyd et al., *supra* note 26; Kenneth L. Karst, *Woman’s Constitution*, 1984 DUKE L.J. 447; Herbert M. Kritzer & Thomas M. Uhlman, *Sisterhood in the Courtroom: Sex of Judge and Defendant in Criminal Case Disposition*, 14 SOC. SCI. J. 77 (1977); Carl Tobias, *Closing the Gender Gap on the Federal Courts*, 61 U. CIN. L. REV. 1237, 1243 (1993).

30. See GILLIGAN, *supra* note 29, at 17–23, 32, 173–74.

31. See Sherry, *supra* note 28, at 578–91.

32. See Brudney et. al., *supra* note 26, at 41–42; Sue Davis, *Do Women Judges Speak “In a Different Voice?”: Carol Gilligan, Feminist Legal Theory, and the Ninth Circuit*, 8 WIS. WOMEN’S L.J. 143, 143–73 (1992–93); Schneider, *Appeals*, *supra* note 16, at 207 n.14; Darrell Steffensmeier & Chris Hebert, *Women and Men Policymakers: Does the Judge’s Gender Affect the Sentencing of Criminal Defendants?*, 77 SOC. FORCES 1163 (1999).

33. See Kritzer & Uhlman, *supra* note 29, at 86.

34. See Darrell Steffensmeier & Chester L. Britt, *Judges’ Race and Judicial Decision Making: Do Black Judges Sentence Differently?*, 82 SOC. SCI. Q. 749, 752–53 (2001).

35. See Tracey E. George, *Court Fixing*, 43 ARIZ. L. REV. 9, 18–19 (2001).

showed that the effect of gender varies by legal area and instance of the court. Researchers found a consistent effect on judicial decisions in several specific legal areas but not in others.<sup>36</sup> For example, in the context of gender-related disputes, such as a number of employment discrimination claims, female appellate court judges reached different decisions than their male counterparts. The mere presence of the female appellate court judge on the judicial panel influenced other panel members' decisions.<sup>37</sup> Researchers also identified gender as a proxy for ideology, as female judges in state supreme courts reached more liberal decisions than men.<sup>38</sup>

Studies examining the effect of gender on trial courts' decision-making reached mixed results.<sup>39</sup> In one study, researchers found that female judges reached lenient decisions in criminal cases. However, a different study found that female judges were stricter on defendants, rejecting the different voice hypothesis.<sup>40</sup> Several studies found that female judges rejected "pro-female" arguments in cases dealing with maternal rights, equal employment opportunities, and personal liberties,<sup>41</sup> while others found the opposite. In their study on cases pertaining to property assessment for tax purposes cases, Jackson et al. found that male judges favor taxpayers in cases that involve a factual dispute, rather than in cases that involve interpretation of the law.<sup>42</sup>

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36. See Jilda M. Aliotta, *Justice O'Connor and the Equal Protection Clause: A Feminine Voice?*, 78 JUDICATURE 232 (1995); David W. Allen & Diane E. Wall, *The Behavior of Women State Supreme Court Justices: Are They Tokens or Outsiders?*, 12 JUST. SYS. J. 232 (1987); John Gruhl et al., *Women as Policymakers: The Case of Trial Judges*, 25 AM. J. POL. SCI. 308 (1981); Donald R. Songer & Kelley A. Crews-Meyer, *Does Judge Gender Matter? Decision Making in State Supreme Courts*, 81 SOC. SCI. Q. 750 (2000).

37. See Jonathan P. Kastellec, *Racial Diversity and Judicial Influence on Appellate Courts*, 57 AM. J. POL. SCI. 167 (2013); see also Boyd et al., *supra* note 26, at 402.

38. See Songer & Crews-Meyer, *supra* note 36.

39. See, e.g., Ashenfelter et al., *supra* note 11; Sisk et al., *supra* note 27.

40. See Paul M. Collins, Jr., et al., *Gender, Critical Mass, and Judicial Decision Making*, 32 LAW & POL'Y. 260 (2010).

41. See Thomas G. Walker & Deborah J. Barrow, *The Diversification of the Federal Bench: Policy and Process Ramifications*, 47 J. POL. 596, 607 (1985).

42. See Jackson et al., *Court Rulings*, *supra* note 16, at 74.

## 2. Age

In addition to gender, sociological studies show that age affects conservatism.<sup>43</sup> These studies support the hypothesis that judges become more conservative over time. Older judges will decide in a more conservative way—e.g., in favor of the government when it is a party—than their younger colleagues.<sup>44</sup>

In his research, Goldman found evidence of this effect in appellate courts.<sup>45</sup> However, Goldman did not control for the judges' political tendencies. This might distort his finding if age and political ideology correlate.<sup>46</sup> In comparison, Ulmer found that a judge's age at the time of appointment, and not her or his age at the time of deciding the case, affects case outcomes. Judges who were appointed to the bench at an older age favored the prosecution in criminal cases.<sup>47</sup> Other empirical studies did not find any connection between age and case outcomes even after controlling for political affiliation and social background variables.<sup>48</sup> One exception is a study that found that older judges ruled in favor of plaintiffs' claims in discrimination cases, in contrast with the theoretical prediction.<sup>49</sup>

## 3. Race and Ethnicity

In terms of the effect of race and ethnicity on judicial decision-making, the argument is different: judges from minority groups, as compared

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43. See Ilse Cornelis et al., *Age Differences in Conservatism: Evidence on the Mediating Effects of Personality and Cognitive Style*, 77 J. PERSONALITY 51 (2009).

44. See Martha A. Myers, *Social Background and the Sentencing Behavior of Judges*, 26 CRIMINOLOGY 649, 653 (1988); Ulmer, *Indicator*, *supra* note 23, at 625.

45. See Sheldon Goldman, *Voting Behavior on the United States Courts of Appeals Revisited*, 69 AM. POL. SCI. REV. 491, 498–99, 500–01 (1975).

46. See George, *supra* note 35, at 16–18.

47. See Ulmer, *Indicator*, *supra* note 23, at 628.

48. See Ashenfelter et al., *supra* note 11; Sheldon Goldman, *Voting Behavior on the United States Courts of Appeals, 1961–1964*, 60 AM. POL. SCI. REV. 374 (1966); Stuart S. Nagel, *Multiple Correlation of Judicial Backgrounds and Decisions*, 2 FLA. ST. U. L. REV. 258 (1974); Sisk et al., *supra* note 27, at 1459–60; Tate, *supra* note 23, at 358–63.

49. See Gerard S. Gryski et al., *Models of State High Court Decision Making in Sex Discrimination Cases*, 48 J. POL. 143, 150 (1986).

with white judges, sympathize with disadvantaged parties.<sup>50</sup> The prediction was that minority judges would have more liberal views than their colleagues. Therefore, they will rule in favor of weaker parties in legal disputes.<sup>51</sup> The empirical findings about this attribute, however, are not consistent.<sup>52</sup> In his book, Uhlman did not observe a difference between sentencing decisions that were made by African American and white judges. However, he found that African American defendants were punished more strictly than white defendants.<sup>53</sup> Abrams et al., who investigated whether there is a racial gap in sentencing, reached comparable results. They found statistically significant inter-judge variation in incarceration rates, although the variation was smaller among African American judges. However, the sentence-length gap was not statistically significant.<sup>54</sup> In the context of voting rights, Cox and Miles found that minority judges favored minority plaintiffs.<sup>55</sup> Along with these findings, Kastellec found that African American judges are significantly more likely to support affirmative action programs. Moreover, he showed that assigning an African American judge to a panel has resulted in more votes in favor of such programs.<sup>56</sup>

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50. See Howard Schuman & John Harding, *Sympathetic Identification with the Underdog*, 27 PUB. OPINION Q. 230, 239–41 (1963).

51. See MICHAEL DAVID SMITH, RACE VERSUS THE ROBE: THE DILEMMA OF BLACK JUDGES 1–6 (1983); George W. Crockett, Jr., *The Role of the Black Judge*, 20 J. PUB. L. 391, 398 (1971); CROSS, *supra* note 1.

52. See Sheldon Goldman, *Should There Be Affirmative Action for the Judiciary?*, 62 JUDICATURE 488, 494 (1979); Steffensmeier & Britt, *supra* note 34, at 761.

53. See THOMAS M. UHLMAN, RACIAL JUSTICE, BLACK JUDGES AND DEFENDANTS IN AN URBAN TRIAL COURT 63–100 (1979).

54. Compare David S. Abrams et al., *Do Judges Vary in Their Treatment of Race?*, 41 J. LEGAL STUD. 347, 347–84 (2012), with Sisk et al., *supra* note 27, and Andrew P. Morriss et al., *Signaling and Precedent in Federal District Court Opinions*, 13 SUP. CT. ECON. REV. 63 (2005) (finding that race explains the justification judges relied on when deciding on the constitutional debate over the Sentencing Guidelines but not the decision itself).

55. Adam B. Cox & Thomas J. Miles, *Judging the Voting Rights Act*, 108 COLUM. L. REV. 1 (2008).

56. Kastellec, *supra* note 37, at 167–68.



#### 4. Religious Beliefs

Religious beliefs align with personal values in a comparable way to political ideology.<sup>57</sup> Therefore, judges who belong to a religious minority group will prefer the weaker party. While several previous studies detected no effect, or rather a limited one,<sup>58</sup> Goldman found that Catholic judges favor disadvantaged parties.<sup>59</sup> Along those lines, Shahshahani and Liu found that Jewish judges are inclined to favor claimants in religious liberties cases compared with their non-Jewish colleagues.<sup>60</sup>

#### C. Professional Background Parameters of Judges

##### 1. Previous Occupation

The socialization theory pertains to the process of acquiring the values, views, and behavioral patterns of the society or institution to which one belongs.<sup>61</sup> Professional experiences that the judges encountered at an early stage of their careers, before ascending to the bench, influence their views on legal questions.<sup>62</sup> These affect the way that judges decide in legal disputes.<sup>63</sup> The impact that these experiences have on judges' decision-making processes tends to be fixed. For example, judges who worked in the public sector, e.g., the tax authority or the criminal prosecution office, will favor the government when it is one of the disputing parties.<sup>64</sup>

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57. See CROSS, *supra* note 1, at 71–72.

58. See Brudney et al., *supra* note 26, at 1715; Tate, *supra* note 23, at 362–63. However, this might be a result of methodological difficulties. See George, *supra* note 35, at 26.

59. See Goldman, *supra* note 45; Weinshall-Margel, *supra* note 6, at 556, who found that religious Israeli Supreme Court judges approved freedom of religion claims more than non-religious judges. This finding relates to the theory because 85% of the cases in the database were administrative cases, where the government was a party.

60. See Shahshahani & Liu, *supra* note 13.

61. See Robert Carp & Russell Wheeler, *Sink or Swim: The Socialization of a Federal District Judge*, 21 J. PUB. L. 359, 359 n.1 (1972).

62. See POSNER, *supra* note 1, at 95.

63. See SEGAL & SPAETH 1993, *supra* note 13, at 231.

64. See CROSS, *supra* note 1, at 72; Robinson, *supra* note 18, at 145.

Empirical evidence supports this claim.<sup>65</sup> For example, Gazal-Ayal and Politis found that magistrate court judges who had previous experience as prosecutors decided to detain suspects for longer periods.<sup>66</sup> In contrast, in his research, Robinson did not find a statistically significant effect of prosecutorial background on judicial decision-making in criminal cases heard by appellate courts.<sup>67</sup> In her study, Myers found that judges who were former prosecutors imposed longer sentences in violent criminal cases, and shorter sentences in property and drugs cases.<sup>68</sup> Such an effect was not found in other studies.<sup>69</sup>

Another argument is that judges who were former prosecutors are more aware of any potential prosecutorial abuse and will favor the defendants.<sup>70</sup> The same argument applies with judges that gained their professional experience from private practice. Because they are aware of potential manipulations made by private lawyers, they will favor the governmental authorities. A different claim is that judges in higher courts, who were judges in lower courts in the past, will approve lower courts' decisions when deciding cases on appeal.<sup>71</sup>

## 2. Seniority

Seniority is determined by the length of time since the judge's appointment. Seniority affects judicial decision-making because judges

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65. See generally Amy L. Anderson & Cassia Spohn, *Lawlessness in the Federal Sentencing Process: A Test for Uniformity and Consistency in Sentence Outcomes*, 27 JUST. Q. 362 (2010); James L. Gibson, *Race as a Determinant of Criminal Sentences: A Methodological Critique and a Case Study*, 12 L. & SOC'Y REV. 455 (1978); Stuart S. Nagel, *Judicial Backgrounds and Criminal Cases*, 53 J. CRIM. L. & CRIMINOLOGY 333 (1962); Sisk et al., *supra* note 27, at 1377; Steffensmeier & Hebert, *supra* note 32; Tate, *supra* note 23; Tate & Handberg, *supra* note 22.

66. See Oren Gazal-Ayal & Nochi (Nechama) Politis, *Specialization or Generalization, the Effect of Judicial Specialization on Proceedings and Decisions*, 44 HEBREW U. L. REV. 891, 918, 924 (2015), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2571865](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2571865).

67. See Robinson, *supra* note 18, at 158–59.

68. See Myers, *supra* note 44, at 660–62.

69. See, e.g., Susan Welch et al., *Do Black Judges Make a Difference?*, 32 AM. J. POL. SCI. 126 (1988).

70. See CROSS, *supra* note 1, at 72.

71. *Id.*

specialize over time during their judicial term. Per the socialization theory, the longer judges are part of the judiciary, the more they are affected by its values and goals and will decide in favor of the government.<sup>72</sup> On the other hand, it might be the case that senior judges are more familiar with any wrongful conduct by the government, and if the senior judges notice it, they will reject the government's claims.

The empirical findings are inconsistent. A study on criminal cases found that senior judges impose lighter sentences on defendants.<sup>73</sup> Other studies reached the opposite conclusion.<sup>74</sup> In their study, Gazal-Ayal and Politis did not find a connection between seniority and the binary decision to detain a suspect or not.<sup>75</sup> Nonetheless, they found that senior judges imposed longer detention periods. They also found that the parties reached more settlements when the judge was senior.<sup>76</sup>

#### D. Ideology

As aforementioned, proponents of the attitudinal model claim that judges' decisions are guided by their ideology and values.<sup>77</sup> According to the social background model, ideology is only one of many variables that might affect judicial outcomes, alongside personal and professional attributes.<sup>78</sup> Therefore, empirical scholars included it in their analysis when there was a theoretical ground for doing so.

Many empirical studies discuss the effect of ideology on judicial decisions where the law is ambiguous and does not lead to a clear outcome. Still, this does not mean that ideology can replace legal reasoning. It was especially difficult to detect such an effect on judicial decision-making in economic-related cases. Richards claims that judges do not have ideological preferences when it comes to financial

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72. See Robinson, *supra* note 18.

73. See Steffensmeier & Hebert, *supra* note 32, at 1179.

74. See Gibson, *supra* note 65, at 455; Welch et al., *supra* note 69.

75. See Gazal-Ayal & Politis, *supra* note 66, at 921, 918, 924.

76. See *id.*

77. See Howard Gillman, *What's Law Got to Do with It? Judicial Behavioralists Test the "Legal Model" of Judicial Decision Making*, 26 L. & SOC. INQUIRY 465, 467 (2001); see also CROSS, *supra* note 1, at 12.

78. Compare Gillman, *supra* note 77, with George & Weaver, *supra* note 2 (stating that ideology can be perceived as not being part of the social background model due to it being an unobserved characteristic).

issues<sup>79</sup> and that other variables mitigate any economic preferences they might have.<sup>80</sup> In contrast to this explanation, Staudt et al. argued that this claim is not reasonable because economic issues receive a lot of attention from the other governmental branches and that there is no reason the judiciary is different.<sup>81</sup> Staudt et al. stated that there might have been methodological difficulties in measuring ideology when categorizing liberal and conservative decisions in economic-related cases, and found that liberal judges decided in favor of the tax authority in cases where the taxpayers were businesses.<sup>82</sup> They did not find any such effect when the taxpayers were individuals or when individual and business taxpayers were combined in their model.<sup>83</sup> Along with these findings, in a separate study, Schneider did not find that liberal judges favor the taxpayers, regardless of classification.<sup>84</sup>

*E. Complementing the Empirical Background: Judges' Backgrounds and Tax Judicial Decision-Making*

Schneider's empirical studies focused on the effect of social background variables on judicial decision-making in tax litigation. In one of the studies, about tax cases of first instance, Schneider investigated whether judges' gender, race, previous occupation, law school's rank, and seniority at the time of decision, as well as the political party of the president who appointed the judge, affect judicial decision-making. Schneider found that junior female judges who studied in prestigious law schools and had prior private practice experience ruled in favor of taxpayers.<sup>85</sup> Ideology was not a statistically significant predictor of judicial outcomes.<sup>86</sup> In contrast, in his tax appeals study, Schneider found that only

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79. See generally Neil M. Richards, *The Supreme Court Justice & "Boring" Cases*, 4 GREEN BAG 2D 401, 401–08 (2001).

80. See Schneider, *Statutory Interpretation*, *supra* note 16, at 351.

81. See Staudt et al., *supra* note 16, at 1799, 1812.

82. *Id.* at 1815–17.

83. *Id.*

84. See Schneider, *Appeals*, *supra* note 16, at 229–30. However, Schneider did find a statistically significant effect of the political affiliation of the appointing president—liberal judges favoring taxpayers—in the presence of specific background variables. See *id.* at 237.

85. See Schneider, *Trial*, *supra* note 16, at 493–96.

86. *Id.*

the judge's law school's rank approached statistical significance, and none of the other variables were statistically significant.<sup>87</sup>

### III. METHODOLOGY

The legal community perceives tax law as a specialized and even technical area of the law. Therefore, we should presumably expect little to no influence of non-legal parameters on judicial decision-making, especially at the trial level where creating binding precedent is less of a focus. In theoretical terms, we expect judicial decision-making to follow the law, legislative intent, legal precedent, and logic, in line with the legal reasoning model, rather than any non-legal variable.

#### A. *The Legal Process*

This study focuses on judicial decisions in income tax cases decided by Israeli district court judges. These disputes are between taxpayers and the Israeli Tax Authority. The procedure for Israeli taxpayers is as follows:

According to the Israeli Income Tax Ordinance, a taxpayer files an annual tax report in which she states her income for the preceding tax year and attaches other tax information, such as income sources, tax status, etc.<sup>88</sup> A tax assessor can affirm the taxpayer's report or prepare a tax report on the Tax Authority's behalf in certain circumstances.<sup>89</sup> If the taxpayer does not agree with the assessor's report, she can challenge it, at which point her case will be examined by another assessor.<sup>90</sup> If the taxpayer disagrees with the second assessor's decision, she can turn, as a matter of right, to an Israeli district court,<sup>91</sup> which is a court of first

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87. See Schneider, *Appeals*, *supra* note 16, at 229–30; see also Hwong, *supra* note 16.

88. See Israeli Income Tax Ordinance [New Version] 5721-1961, Unofficial English Translation, § 131, <http://www.icnl.org/research/library/files/Israel/Ordinance.pdf>. It should be noted, that this section deals with self-employed taxpayers and not wage earners that are subject to a different tax-reporting regime. For rules dictating wage earners, see *id.* § 164.

89. See *id.* § 145.

90. See *id.* §§ 150, 150A.

91. According to local jurisdiction rules.

instance in these disputes.<sup>92</sup> The cases—referred to as “tax appeals”—are heard and decided by one judge, unless the Chief District Court Judge orders otherwise.<sup>93</sup> The taxpayer and the Tax Authority can both appeal the district court’s decision, as a matter of right, to the Israeli Supreme Court.<sup>94</sup>

Three characteristics of the legal process make it an ideal setup for quantitative empirical analysis. First, individual judges—and not panels—hear and decide cases, so controls to mitigate the impact of panels are not necessary. Second, only the taxpayer can file the initial appeal to the district court. This means that the current dataset of district court decisions has a practical advantage over other datasets that include appeals filed by the tax authorities. Third, the nomination process of judges in Israel is not as political as it is in the United States.<sup>95</sup>

### B. Collecting Data

The sample consists of 276 first-instance income tax cases—civil cases called income tax appeals—that I collected from the most comprehensive Israeli electronic database of tax cases.<sup>96</sup>

After retrieving a computed list of all income tax appeals that were decided in the district courts,<sup>97</sup> I sampled every fifth case<sup>98</sup> to

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92. See Israeli Income Tax Ordinance, *supra* note 88, § 153.

93. See *id.* § 154.

94. See *id.* § 157.

95. Israeli judges are appointed by a committee that consists of nine members: three Supreme Court judges, two lawyers representing the Israeli Bar Association, two parliament members, and two ministers (one of them is the Minister of Justice). This committee composition is meant to neutralize, as much as possible, any political influence on the appointment process. The practical empirical implication of such an appointment process is that it is difficult to specify a good proxy for ideology or for political opinions of Israeli judges. However, this is less significant in the Israeli judiciary context.

96. The database is called “Misim On-Line,” and it includes cases from 1987 and onwards.

97. The search proceeded as follow: for each year 1993-2012, I chose the options: Court=“District Court”; Legal Area=“Civil Cases”; Tax Area=“Income Tax”; search word=“Tax”.

98. In previous studies, 7–15% of the cases were sampled.

minimize selection bias.<sup>99</sup> Twenty-four judges decided the 276 decisions in the sample over a period of 20 years, between January 1, 1993, and December 31, 2012. This lengthy period enabled me to include more judges in the sample, especially female judges. Moreover, a longer period can “smooth out” the effects of extreme events that might have occurred during this timeframe.

The variables I observed in the sample include case data and judges’ personal and professional attributes.<sup>100</sup> I collected data such as the winning party, taxpayer type, taxpayer legal representation, length of decisions (measured by word count), year the case started, date of decision, length of proceedings, and so on. I also collected the judge’s name, age at the time of appointment, gender, seniority at the time of the decision, age at the time of the decision, previous professional occupation, specialization in tax if any, law school, place of birth, religious tendencies, etc.<sup>101</sup>

### *C. The Regression Variables*

The regression model includes the following explanatory variables: gender, previous occupation, seniority, age at the time of appointment, and age at the time of the decision.<sup>102</sup> The model also includes the following control variables: the macroeconomic environment, the taxpayer type, the court’s district, and whether the judge is specialized in tax decision-making. The macroeconomic environment is captured through a proxy of the stage of the business cycle at any given time covered in the study.

#### *1. The Dependent Variable: The Acceptance Level of the Taxpayer’s Claim*

The dependent variable is an ordinal variable that was measured by the court’s acceptance level of the taxpayer’s claim. I divided this variable

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99. Three appeals that were filed by partnerships were excluded from the list because of the low and negligible frequency.

100. *The Israeli Judicial Authority—Israeli Judges*, <https://judgescv.court.gov.il/> (last visited June 17, 2019) (search engine, information about current and former judges, in Hebrew).

101. See *infra* Tables 1, 2, and 5.

102. Race and nationality of judges were not included in the model because all the judges in the dataset share the same race and nationality.

into three categories with a legally meaningful order: (1) taxpayer claims that the court fully accepted, (2) taxpayer claims that the court partly accepted, and (3) taxpayer claims that the court fully rejected.

This coding manner better reflects the legal reality of non-binary outcomes. It distinguishes my study from most of the previous empirical literature that assessed the prevailing party. It allows for an intermediate category that stands for cases where the court accepted at least one of the taxpayer's claims. Another way of describing this intermediate category is a place for cases where the court did not decide in a binary way. Further, this coding manner considers the ordinal feature of potential legal outcomes, while binary division does not. The distribution of case outcomes demonstrates that over one-third of the cases were not decided completely in favor of one of the opposing parties. This emphasizes the importance of including at least one intermediate category when analyzing the prevailing party so that relevant empirical information is not lost. In this regard, I show that a three-category ordinal model yields different and more statistically significant predictions than the common binary model.

## *2. Explanatory Variables*

The following explanatory variables were included in the analysis:

- Gender of judge, a dummy variable, was coded as either “Male” or “Female”.
- Previous occupation, a categorical variable, was coded as (1) former private practice experience with no public sector experience,<sup>103</sup> (2) combined private practice and public sector experience, or (3) former public sector experience with no private practice experience.<sup>104</sup>
- Seniority, a continuous variable, was measured as the number of months a judge had served in the position when she or he decided the case.

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103. At least, most of the former practice is private rather than public.

104. At least, most of the former practice is public rather than private.



- Age at the time of appointment, a continuous variable, was measured as the judge's age, in years, when she or he took the bench.
- Age at the time of decision, a continuous variable, was measured as the judge's age, in years, when the case was decided.

### 3. Control Variables

The following control variables were used:

- Business cycle stage, a categorical variable, considering the way judges identify the changes in the cycle.<sup>105</sup>
- Taxpayer type, a categorical variable, was coded as (1) individual taxpayer, (2) company taxpayer, or (3) combined individual and company taxpayer.
- The district where the court sits, a categorical variable, was coded as (1) Jerusalem, (2) Tel-Aviv, (3) Haifa, (4) North, or (5) South.
- Judicial specialization, a categorical variable, was coded as (1) judge gained specialization in tax cases, (2) judge gained partial-specialization in tax cases, or (3) judge gained no specialization in tax cases, i.e., was a generalist.

In this study, I coded a judge as a specialized tax judge if she decided at least 12 income tax cases during the sample period because the average number of cases per judge in the sample was 11.5.<sup>106</sup> Because of this

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105. A full-length explanation of this variable, and the coding scheme I developed for it, are available in my working paper, Orli Oren-Kolbinger, *The Effect of the Macroeconomic Environment on Judicial Behavior: The (Surprising) Case of Israeli Tax Litigation* (2019) (available on SSRN: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3427957](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3427957)).

106. The median is 4.5 cases per judge, and the standard deviation is 15.23 cases per judge, because there are several judges that each decided many cases. The list of the judges that were coded as judicial specialists according to

division, I coded 9 out of 24 judges as specialists in deciding tax cases. I divided the other 15 judges to 2 groups: 10 judges, who decided only 1 case each during the sample period, were coded as generalists, and the remaining 5 judges, who decided 2 to 11 cases each, were coded as partly specialized judges.

#### *D. Hypotheses*

##### *1. Gender*

Two alternative predictions can be derived from the theories discussed above regarding decision-making in income tax cases. One hypothesis is that female judges decide in favor of taxpayers more often than male judges. As per the different voice theory, female judges rule in favor of the taxpayer, who is generally perceived as the weaker party in comparison to the Tax Authority. This is because female judges see themselves as part of the community more so than male judges. In comparison, male judges favor the Tax Authority because they are more rule-oriented than female judges.

The alternative hypothesis is that the judge's gender is inconsequential. Based on the organizational theory, female and male judges do not differ in the way they decide income tax cases because their professional experiences are of the same kind. One could argue that the second hypothesis is more plausible for two reasons. First, income tax cases do not focus on gender issues. Second, these cases usually focus on disputing facts and implementing existing law, rather than developing the law. Only in cases where new law is being developed is it reasonable to expect a connection between a judge's background and the case outcome.

##### *2. Previous Occupation*

Two alternative predictions can be derived from the theories discussed above. First, a judge's previous private, rather than public, practice is beneficial to taxpayers. Specifically, judges with previous legal experience in the public sector favor the Tax Authority as compared with judges with previous legal experience in private practice. This is because

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this coding method were also considered "Tax Judges" in the Israeli Court system as well.

professional attitudes acquired early in legal careers, before judicial nomination, tend to be sticky.

Alternatively, a judge's previous public, rather than private, practice is beneficial to taxpayers. Former private practice judges are aware of the taxpayer's representative's litigation tactics. Therefore, they are more suspicious of taxpayers and favor the government.

### 3. Seniority

Two alternative predictions are derived from the theory. First, a judge's seniority is detrimental to taxpayers. Senior judges favor the Tax Authority, the repeat player, as compared with junior judges.

On the other hand, junior judges rely more on the Tax Authority's claims because they consider them to be non-interested experts in tax law. Senior judges are more familiar with any missteps made by the Tax Authority, including their potential mistakes or any "prosecutorial abuses."<sup>107</sup> Therefore, the senior judges favor taxpayers.

### 4. Age at the Time of the Decision

Because judges become more conservative over time, older judges will decide in favor of the Tax Authority when compared with their younger colleagues.

### 5. Age at the Time of Appointment

Judges who are appointed to the bench at a younger age have systemic tendencies. They favor the Tax Authority as compared with judges appointed at an older age.

## IV. RESULTS

### A. Descriptive Statistics

Judges fully accepted only 18.5% of taxpayers' claims in the sample and fully rejected 44.5% of the claims. Interestingly, judges partly

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107. See CROSS, *supra* note 1, at 72 (discussing the effect of personal experience background of judges on decision-making).

**Table 1: Distribution of Taxpayers' Appeals by Levels of Acceptance (N = 276)**

<b>Court's Acceptance Level of the Taxpayer's Claim</b>	<b>No. of Cases</b>	<b>% of Cases</b>
The taxpayer's claim was fully accepted = 0	51	18.48%
The taxpayer's claim was partly accepted = 1	102	36.96%
The taxpayer's claim was fully rejected = 2	123	44.56%

accepted 37% of the claims. This means they accepted at least one of the taxpayer's claims and deviated, at least in part, from the original Tax Authority's decision (see Table 1).<sup>108</sup>

Female judges decided 36.6% of the claims. Judges who worked in the public sector before being appointed to the judiciary decided almost 60% of all cases. The average seniority of judges at the time of decision was 15.4 years; the average age at the time of appointment was 44 years; and the average age at the time of the decision was 59.5 years (see Table 2).

Table 3 notes the distribution of the acceptance level of the taxpayer's claim by the judge's gender. As shown, both male and female judges tended to decide in favor of the Tax Authority, with 45% of male judges and 45% of female judges ruling in favor the Tax Authority.

Table 4 notes the distribution of case outcomes by the judge's legal experience prior to joining the bench. Judges in all three categories tended to rule in favor of the Tax Authority. For instance, 52% of judges with prior private practice experience, 51% of judges with prior both private and public experience, and 40% of judges with prior public practice experience ruled in favor of the Tax Authority.

Table 5 shows that 75% of taxpayers were individuals. In 86% of the cases, taxpayers were represented. In 60% of the cases, taxpayers paid the Tax Authority's legal expenses, and in 25% of the cases, the

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108. The low win rate of taxpayers can be generally explained by the taxpayers' stakes, meaning the expected value of the case to the taxpayer. Hence, in cases where the amount of money at stake is high, the taxpayer will file the claim even if the chance of winning is low. Also, filing the claim allows the taxpayer to defer the tax that she owes.

**Table 2: Descriptive Statistics: Judges' Personal and Professional Background Characteristics (N = 276)**

<b>Discrete Variable Characteristic</b>	<b>Category's Name (Category's Code No.)</b>	<b>No. of Cases (% of Cases)</b>
Prior work experience (N=276)	Private practice (=0)	76 (27.54%)
	Both private & public (=1)	39 (14.14%)
	Public sector (=2)	161 (58.32%)
Gender (N=276)	Male (=0)	175 (63.42%)
	Female (=1)	101 (36.58%)
Judicial tax specialization (N=276)	Specialist (=0)	235 (85.15%)
	Partly-specialist (=1)	31 (11.23%)
	Non-specialist (=2)	10 (3.62%)
Place of birth (N=276)	Israel (=0)	238 (86.2%)
	Abroad (=1)	38 (13.8%)
Religious educational background (N=276)	Yes (=0)	86 (31.2%)
	No (=1)	190 (68.8%)
Law school (N=276)	Hebrew Uni. (=0)	184 (66.7%)
	Tel-Aviv Uni. (=1)	60 (21.7%)
	School for Law & Econ., Tel-Aviv (=2)	32 (11.6%)

Continuous Variable Characteristic	Range	Mean (Standard Deviation)
Seniority, in months (N = 276)	20–390	185.16 (91.3)
Age at appointment, in years (N = 276)	34–58	44 (5.78)
Age at decision, in Years (N = 276)	48–69	59.54 (5.192)
Year of birth (N = 276)	1927–1959	1942 (8.87)

**Table 3: Distribution of Taxpayers' Appeals by Levels of Acceptance and by Judges' Gender (N = 276)**

Court's Acceptance Level of the Taxpayer's Claim	Male (= 0) No. of Cases (% of Cases in Sample)	Female (= 1) No. of Cases (% of Cases in Sample)	Total No. of Cases (% of Cases in Sample)
The taxpayer's claim was fully accepted = 0	33 (11.96%)	18 (6.52%)	51 (18.48%)
The taxpayer's claim was partly accepted = 1	64 (23.2%)	38 (13.76%)	102 (36.96%)
The taxpayer's claim was fully rejected = 2	78 (28.26%)	45 (16.3%)	123 (44.56%)
Total	175 (63.42%)	101 (36.58%)	276 (100%)

court did not rule on the distribution of legal expenses.<sup>109</sup> Over 40% of cases were decided in the Tel Aviv district, followed by the Haifa district with 30% of cases. The average length of the legal process was approximately three years.

109. As a rule, litigation expenses in Israel are borne by the losing party.

**Table 4: Taxpayers' Appeals by Levels of Acceptance & by Judges' Previous Occupation (N = 276)**

<b>Court's Acceptance Level of the Taxpayer's Claim</b>	<b>Former Private Practice Experience (= 0) No. of Cases (% of Cases in Sample)</b>	<b>Both Private Practice and Public Sector Experience (= 1) No. of Cases (% of Cases in Sample)</b>	<b>Former Public Sector Experience (= 2) No. of Cases (% of Cases in Sample)</b>	<b>Total No. of Cases (% of Cases in Sample)</b>
The taxpayer's claim was fully accepted=0	9 (3.26%)	6 (2.18%)	36 (13.04%)	51 (18.48%)
The taxpayer's claim was partly accepted=1	28 (10.15%)	13 (4.71%)	61 (22.1%)	102 (36.96%)
The taxpayer's claim was fully rejected=2	39 (14.13%)	20 (7.25%)	64 (23.18%)	123 (44.56%)
Total	76 (27.54%)	39 (14.14%)	161 (58.32)	276 (100%)

## *B. Econometric Analysis—Ordinal Regression*

### *1. General*

Many scholars perceive the judicial decision of a prevailing party in a case as binary. Scholars have adopted this binary approach in their empirical studies on judicial decision-making, for some have measured the connection between a judge's background and her or his decisions mostly by coding the dependent variable—the prevailing party—in a binary way. This allowed them to use binary outcome regression models, such as logistic regression. But because deciding who won the case encompasses more than two possible outcomes, researchers had to arbitrarily transform them into a binary set of outcomes. While this allows them to use tools like a logistic regression model, for example, this approach often results in a loss of empirical information.

**Table 5: Descriptive Statistics—Cases' and Litigation's Characteristics (N = 276)**

<b>Discrete Variable Characteristic</b>	<b>Category's Name</b>	<b>No. of Cases (% of Cases)</b>
Type of taxpayer (N = 276)	Individual (= 0)	207 (75%)
	Individual + business (= 2)	12 (4.3%)
	Business (= 1)	57 (20.7%)
Representation (N = 276)	By lawyer (= 0)	237 (85.9%)
	Pro se (= 1)	39 (14.1%)
District (N = 276)	Jerusalem (= 0)	27 (9.8%)
	Tel-Aviv (= 1)	115 (41.7%)
	Haifa (= 2)	77 (27.9%)
	North (= 3)	30 (10.9%)
	South (= 4)	27 (9.8%)
Litigation Expenses—paid to: (N = 276)	The taxpayer (= 0)	40 (14.5%)
	The Tax Authority (= 1)	164 (59.4%)
	No legal expenses (= 2)	72 (26.1%)
<b>Continuous Variable Characteristic</b>	<b>Range</b>	<b>Mean (Standard Deviation)</b>
Length of proceedings, in years (N = 276)	0–12	3.05 (1.895)



Two exceptions are Robinson,<sup>110</sup> and Shayo and Zussman,<sup>111</sup> who coded the prevailing party as an ordinal variable, and in turn used ordinal regression to analyze the data. Other scholars pointed out the complexity of classifying cases' outcomes as binary. To address this complexity, they coded the dependent variable to more than two possible categories but used a multinomial regression model instead.<sup>112</sup> Moreover, the use of multinomial regression can result in a convoluted analysis of the relations between the different categories.<sup>113</sup>

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110. See Robinson, *supra* note 18. In his study, Robinson examined whether judges' backgrounds affect their decisions in criminal cases and coded the dependent variable into three categories as I do in this research. *Id.* at 155–56. However, his database consists of appellate court cases, compared with my database of district court cases. This means that Robinson had to account for deference given to district court judges by the appellate judges and for panel effects, while my use of district court cases makes it unnecessary.

111. See Shayo & Zussman, *supra* note 18. In their study, Shayo and Zussman examined judicial ingroup bias, using data from Israeli small claim courts, where cases are randomly assigned to an Arab or Jewish judge. *Id.* at 1447. They found evidence that judicial ingroup bias is strongly associated with terrorism intensity. *Id.* Shayo and Zussman used an ordinal dependent variable that takes three categories but mentioned that in 60% of the cases they did not know the sum that was claimed by the plaintiffs. *Id.* at 1457. This reflects on the accuracy of the dependent variable's categories and therefore the analysis.

112. Hofnung and Weinshall-Margel used a multinomial regression for a categorical dependent variable: Final Decision. The authors mention that they did not want to assume a specific order in advance. See Menachem Hofnung & Keren Weinshall-Margel, *Judicial Setbacks, Material Gains: Terror Litigation at the Israeli High Court of Justice*, 7 J. EMPIRICAL LEGAL STUD. 664, 664–92, & 681.n30 (2010). They did, however, use ordered logit regression to verify some of their results, in the case where one of the categories of the dependent variable was identified as a middle category between the two other (extreme) ones. The ordered logit regression was a better fit compared with the multinomial model for one variation of the analysis but was not when compared with a different one. *Id.* at 686. Another example is Lavie, who coded the case's outcomes as a binary and as a categorical variable but did not assume a specific order of the categories. See Shai Lavie, *Are Judges Tied to the Past? Evidence from Jurisdiction Cases*, 43 HOFSTRA L. REV. 337, 337–375 (2014).

113. On the other hand, when the categories cannot be ordered in a meaningful way, a multinomial regression is the proper model. See Schneider, *Effect*, *supra* note 16. It should be noted that the dependent variable in Schneider's analysis was not the prevailing party but rather the interpretation method

This study was designed to accommodate these two methodological obstacles: the non-binary and the ordinal features of deciding on the prevailing party. It does so by using an ordinal regression model to measure the influence of social background parameters on the acceptance level of the taxpayers' claims. This type of regression is feasible only when the dependent variable is ordinal, or in other words, has more than two discrete categories that are ordered in a meaningful way.<sup>114</sup> In this Article, the categorical dependent variable is coded to three categories that are ordered in a legally meaningful way. Using an ordinal regression model allows the researcher to summarize the relations between the multiple outcome categories in a single and unified model.

The notion that legal decisions of the prevailing party are not binary and require adding at least one intermediate category has a direct implication on the current research. This is because, as mentioned above, more than one-third of the cases were not decided solely in favor of or against the taxpayer. This fact emphasizes how important it is to choose an adequate empirical model, which in this case is an ordinal regression. In this Part V.B, I compare the ordinal regression results with the results of both a logistic and a multinomial model. The results show that the coefficients' statistical significance is improved when using an ordinal regression model.

## *2. Regression Model Results*

A summary of the results is presented in Table 6.

The Chi-Square value, which is used to test the significance of the ordinal regression model, was statistically significant at the

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the court used to justify decision-making in tax cases. In this case, given that the different interpretation methods are not ordinal, a multinomial regression is an appropriate method of analysis.

114. More specifically, given the number of judges in the sample, and the possibility that the observations within-judge are correlated, I apply a Generalized Estimating Equations (GEE) model when running the ordinal regression. This way I report the robust standard errors, clustered by judge, and the *p*-values associated with them. Note, that the coefficients—meaning the size and direction of the effect of each independent variable—are not affected by this more accurate form of regression analysis. The only measure that might change is the statistical significance of the variables, which can potentially increase, decrease, or remain the same.

**Table 6: Ordinal Regression Model—Results**

<b>Independent Variable</b>	<b>Coefficient (Std. Errors)</b>	<b>Odds Ratio<sup>15</sup></b>	<b>Sig.</b>	<b>Hypothesized Effect Direction</b>	<b>Measured Effect Direction in Ordinal Regression</b>
Previous occupation	0.547 (0.729)	$\frac{\text{Odds private practice}}{\text{Odds public service}} = 1.73$	0.453	+/-	Non-significant
	1.365*** (0.493)	$\frac{\text{Odds private \& public}}{\text{Odds public service}} = 3.92$	0.006	+/-	+
Gender	-0.831*** (0.273)	$\frac{\text{Odds male}}{\text{Odds female}} = 0.43$	0.000	+/0	-
Age at appointment	-0.804* (0.451)		0.075	-	-
Age at decision	0.825* (0.456)		0.070	+	+
Seniority	-0.068* (0.037)		0.070	+	-
Judicial specialization in tax cases <sup>16</sup>	0.238 (0.333)	$\frac{\text{Odds specialized}}{\text{Odds non-specialized}} = 1.27$	0.475		Non-significant
Business cycle	1.033*** (0.229)	$\frac{\text{Odds recession}}{\text{Odds peak}} = 2.81$	0.000		+

	0.776** (0.264)	$\frac{\text{Odds trough}}{\text{Odds peak}} = 2.17$	0.003	+
	0.451 (0.299)	$\frac{\text{Odds expansion}}{\text{Odds peak}} = 1.57$	0.132	Non-significant
District				Non-Significant
Taxpayer type				Non-Significant

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Link Function: Cauchit<sup>17</sup> N=276 Chi-Square=28.385\*\*, df=16 Pseudo R-square=0.124 Model Predictability= 50.6% \*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01.

Standard errors, clustered by judges, in parentheses.

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115. The odds of one category of an independent variable over the odds of another category to choose higher categories of the dependent variable.

116. Two other coding options of judicial specialization were considered: a binary division between the 9 specialized judges described above (= 0), and the other 15 judges that were coded as non-specialists (= 1); and dividing the 24 judges to 3 groups of 8, according to a descending order of the number of cases they decided in. The significance level of judicial specialization when using these two alternative coding methods was lower than the one reported in Table 7.

117. The Link Function was chosen according to the distribution of the dependent variable observations.

0.028 level.<sup>118</sup> The predictability level of the model was 50.6%, meaning that over half of the dependent variable values, the level of acceptance of the taxpayer's claim, can be predicted by the explanatory variables, e.g., gender, age, seniority, etc. This is an improvement from a model with no explanatory variables. In addition, four out of five of the explanatory variables' coefficients were statistically significant. The Pseudo R-squared value was 0.124, which means that the explanatory variables can explain 12.4% of the variance in the dependent variable.

These findings fit the theoretical discussion of not rejecting the legal reasoning model but rather of determining which non-legal variables, in addition to the law, affect judicial decision-making.

## V. ANALYZING THE RESULTS

### A. *Interpreting the Results*

In general, the coefficients and the odds ratio values indicate that, among the social background variables, the judge's gender, seniority, age at the time of appointment, and age at the time of the decision, affect the court's acceptance level of the taxpayer's claim in a statistically significant manner. The previous occupation coefficient was not statistically significant when comparing judges with previous experience from private practice with those with previous experience from the public sector.<sup>119</sup>

The first important explanatory variable is the judge's gender. The odds ratio shows that male judges chose lower categories, i.e., partly accepted or fully accepted the taxpayer's claim, of the dependent variable more than female judges ( $p < 0.001$ ). This means that female judges favored the Tax Authority more than male judges, and this difference is statistically significant.

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118. This means that there is only a 2.8% chance that the specific combination of explanatory variables, and controls, explains the dependent variable by chance.

119. The results, however, show in a statistically significant way that judges with combined private and public previous experience were more inclined to decide in favor of the government compared with judges who previously worked in the public sector. Only two judges in the sample had such combined experience, therefore this finding is relatively limited.

This finding is contrary to Schneider's finding on the same subject. According to Schneider, female judges are more inclined towards taxpayers.<sup>120</sup> Even more surprising is the fact that my findings do not support any of the two theoretical hypotheses proposed by the literature.<sup>121</sup>

The judge's seniority is also a meaningful explanatory variable. The odds ratio of seniority indicates that senior judges favor the taxpayer as compared with their junior colleagues ( $p < 0.1$ ). This result differs from Schneider's finding that senior judges favor the tax authorities.<sup>122</sup> In comparison, Gazal-Ayal and Politis focused their research on a different type of cases: detention cases in Israeli Magistrate Courts. Along with my finding, they found a seniority effect on the length of detention ordered, as junior judges ordered longer detention periods than senior judges. Moreover, the parties reached more agreements as to the length of detention or whether to order detention at all when a senior judge was assigned to the case. Even so, they did not find a seniority effect on the decision to detain the suspect.<sup>123</sup>

The judge's age at the time of appointment and age at the time of the decision had opposite effects. As hypothesized, judges who were appointed at an older age favored the taxpayer as compared with judges appointed at a younger age ( $p < 0.1$ ). Judges who decided the case at an older age favored the Tax Authority as compared with judges who decided the case at a younger age ( $p < 0.1$ ), as hypothesized.

The judge's previous occupation was not statistically significant. This means that we cannot reject the null hypothesis, according to which there is not a difference in the way former private practice experience and public sector experience affects judges' decisions.<sup>124</sup> This finding

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120. Schneider, *Trial*, *supra* note 16, at 495–96, 514.

121. One potential explanation for my findings was introduced in a single empirical study about judicial decision-making in economic regulation cases. The study found that female judges decided in favor of the government in economic regulation cases. The authors reasoned that female judges wish to justify their nomination to the ones who nominated them to the bench. I am not convinced by this explanation because it has no theoretical grounds. See Walker & Barrow, *supra* note 41.

122. Schneider, *Trial*, *supra* note 16, at 513–14.

123. Gazal-Ayal & Politis, *supra* note 66, at 921.

124. As described in note 119, *supra*, there is a statistically significant difference between the way judges with combined private and public previous experience and those with experience from the public sector decide.

does not support any of the hypotheses regarding the previous occupation variable.

In contrast, Schneider found that judges with former private practice experience favored taxpayers. But when he ran the regression on the sub-group of cases that were decided only by U.S. Tax Court judges, he found that judges with former private practice experience and top law school education were more inclined towards the IRS.

My current finding might be compared with the aforementioned result of Gazal-Ayal and Politis. They found that judges who had served formerly as criminal prosecutors tend to approve the police's request for detention more frequently as compared with judges without such prior professional experience. Even so, Gazal-Ayal and Politis did not find a statistically significant effect of previous prosecutorial experience of judges on the length of detention ordered, or on any agreement between the parties as to length of detention or whether to order detention at all.<sup>125</sup>

To contrast with Gazal-Ayal and Politis's findings, one could point to Robinson's study that measured the effect of prosecutorial background of U.S. Supreme Court and appellate court judges on their decisions in criminal appeals. Robinson did not find any such effect, and the only statistically significant variable in his regression model was the judge's ideology.

*B. Comparing the Results of the Ordinal Regression Model with the Results of a Logistic Model and a Multinomial Model*

As stated above, in this research, I used a different coding manner of the dependent variable than many previous studies. I coded the acceptance level of the taxpayer's claim as an ordinal variable, which allowed for the use of ordinal regression. To show the relative advantage of the ordinal regression over the logistic and the multinomial models, I compared the findings from the ordinal regression with the potential findings of a logistic or a multinomial regression. Right away, I noted that the statistical significance of the variables was at its highest when I used ordinal regression and the lowest when I used logistic regression. The multinomial regression model provided mixed results.

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125. Gazal-Ayal & Politis, *supra* note 66, at 918, 921, 924.

First, I compared the aforementioned results with the ones from the analogous logistic regression. Because 102 out of 276 cases were classified to the intermediate category of the dependent variable, i.e., the taxpayer's claim was partly accepted, I had to recode them to 1 of the 2 extreme categories in order to use a logistic regression. This is, of course, an arbitrary recoding. To do so, I divided the 102 intermediate category cases into 3 groups: (1) cases that were decided mostly in favor of the taxpayer, (2) cases that were decided mostly in favor of the Tax Authority, and (3) cases where the taxpayer won about half of the claims. This way I created three intermediate categories of the dependent variable from the original intermediate category. In other words, I had five categories of the dependent variable, meaningfully ordered according to the acceptance level of the taxpayer's claim. Next, I combined each of the two extreme categories with the new intermediate category that was closest to it. This step lowered the number of cases I had to arbitrarily recode to 33 cases, in which the taxpayer won about half of the claims. I randomly divided this group of cases between the two extreme categories in proportion to the categories' size.

At the end of the recoding process to binary categories, I used a logistic regression that included the same explanatory variables and controls from the ordinal regression.<sup>126</sup> The odds ratio of seniority, age at the time of the decision, and age at the time of the nomination were not statistically significant ( $p < 0.1$ ) in the binary model, while in the ordinal regression model they were ( $p = 0.543$ ,  $p = 0.497$ , and  $p = 0.549$ , in comparison with  $p = 0.070$ ,  $p = 0.070$ , and  $p = 0.075$ , respectively). The significance of the odds ratio, between the categories of the previous occupation variable, changed in both directions ( $p = 0.453$  and  $p = 0.006$ , in comparison with  $p = 0.020$  and  $p = 0.432$ , respectively). In contrast to these results, the statistical significance of gender changed only slightly ( $p = 0.008$  in comparison with  $p = 0.000$  in the ordinal regression). The model was no longer significant ( $p = 0.388$ ) and the R-Square value was lower than the one calculated in the ordinal regression (0.066 as opposed to 0.124 in the ordinal regression).

The conclusion from this comparison is that the ordinal regression model provides a meaningful improvement over using a logistic regression model. Furthermore, the use of a logistic regression model

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126. As in the main analysis, I used a GEE model when running the logistic and multinomial regressions.



required an arbitrary division of more than 10% of the cases in the sample and most likely have led to less accurate findings.

Second, I analyzed the data by using a multinomial regression model. In practice, the multinomial regression model creates a set of logistic regressions equal to the number of pairs of the dependent variable's categories. The use of this model is more cumbersome, but it is an adequate model for analysis if the categories of the dependent variable are not ordered in a meaningful way.

The comparison between the significance values is demonstrated in the following table:

**Table 7: Explanatory Variables' Significance Values: Ordinal Regression vs. Multinomial Regression**

Variable	Ordinal Regression	Multinomial Regression		
		Logistic Regression: The Taxpayer's Claim was Fully Accepted in Comparison with the Taxpayer's Claim was Fully Rejected	Logistic Regression: The Taxpayer's Claim was Partly Accepted in Comparison with the Taxpayer's Claim was Fully Rejected	Logistic Regression: The Taxpayer's Claim was Partly Accepted in Comparison with the Taxpayer's Claim was Fully Accepted
Previous Occupation	0.453	<b>0.053</b>	<b>0.005</b>	0.203
Gender	<b>0.006</b>	0.951	<b>0.022</b>	0.487
Age at Time of Decision	<b>0.000</b>	<b>0.059</b>	<b>0.029</b>	0.495
Age at Time of Nomination	<b>0.070</b>	0.247	0.466	0.102
Seniority	<b>0.075</b>	0.330	0.689	0.102
	<b>0.070</b>	0.273	0.664	<b>0.087</b>

Comparing the coefficients' significance levels show that two of the explanatory variables were statistically significant in the first and second logistic regressions (gender and previous occupation), and one

was statistically significant in the third logistic regression (seniority). These results, however, are inferior to those in the ordinal regression. Further, this analysis required running and interpreting three independent logistic regressions while the regressions' results did not reveal more accurate results than those that were received in the unified ordinal regression. This means that, in a case where the ordinal feature of the dependent variable's categories is clear and obvious, choosing an ordinal regression model will be sufficient and efficient in terms of researcher's resources. It should also be noted that the multinomial model was significant, and the Pseudo R-square was higher in this model (0.245) rather than the value in the ordinal model (0.124).

## VI. SUMMARY

Empirical research of judicial decision-making is important both socially and legally. Positive findings, which can be extracted from the empirical model, have normative implications. They offer information that will enable decision-makers to design the law and the legal institutions in a more socially desired manner.

This empirical research contributes to the existing literature regarding judicial decision-making in tax law by using an original Israeli dataset. Furthermore, in this research, I used an ordinal regression model to analyze the effect of judges' characteristics on the prevailing party, in contrast to many earlier empirical studies that took a binary approach to analyze this effect. The use of ordinal regression was possible due to coding the dependent variable—the acceptance level of the taxpayer's claim—in an ordinal manner that better reflects legal reality. Therefore, this study also offers a methodological improvement, as evident after comparing its results with the models that were used more frequently in previous literature—logistic regression and multinomial regression.

The main results of the study are that senior judges were more inclined towards the Tax Authority than less senior judges; female judges were more inclined towards the Tax Authority than male judges; judges that were appointed to the judiciary at an older age were more inclined towards the taxpayer; judges that decided the case at an older age were more inclined towards the Tax Authority; and previous occupation was inconsequential to case outcomes.

Despite the level of statistical significance of the explanatory variables' coefficients, the pseudo R-square value, meaning the percent

of the explained variance between the observations, was not high. This means that there are possibly other variables—mainly, a measurement of the “law”—that were not included in this regression model that may explain the dependent variable. Therefore, the legal reasoning model that was not represented in this model cannot be rejected.<sup>127</sup>

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127. Moreover, following legal precedent is probably the other influential variable that affects judicial decision-making in income tax cases.