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Disparities on the Basis of Nationality, Ethnicity, and gender in Road Accident Compensation in Israel

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Abstract

This study documents disparities on the basis of nationality, ethnicity, and gender in court awards regarding the loss of future earnings in road accident cases in Israel. We analyze a random selection of 236 court decisions in road accident cases that reached final decisions on their merits between 1978 and 2018 in which the nationality, ethnicity, and gender of victims were identifiable (via first and last names). We show that, although in Israel the reliance on sex- and race-based statistical data to calculate damages in tort cases is a prohibited practice, courts tend to reach lower estimates of future lost earnings for Mizrahi Jews, Arabs, and women than those of otherwise similarly situated Ashkenazi Jewish men. In the analyses, we hold injured persons' earnings at the time of the accident and occupations constant. The effects we observe are significant in magnitude. The results of our study are particularly noteworthy given the fact that we document disparities that correspond with the already existing labor force inequalities and discrimination in hiring, salary, and promotion on the basis of nationality, ethnicity, and gender in Israel.

Keywords: Judicial bias; road accidents; damages

Introduction

This study documents disparities on the basis of nationality, ethnicity, and gender in court awards regarding the loss of future earnings in road accident cases in Israel. A large number of survey studies have documented differences in case outcomes by ethnicity, race, and gender (Fazio and Dunton 1997; Mustard 2001; Kang et al. 2012; Clemons 2014; Starr 2015; Avery and Cooper 2020). These studies demonstrate that racial and ethnic minorities fare worse in the justice system compared to their counterparts. Yet, it is empirically challenging to use survey data to prove judicial bias: it is difficult to refute the argument that other unmeasured factors correlated with race, ethnicity, or gender are responsible for generating the observed differences

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in court decisions. Thus, while disparities in case outcomes based on litigants' characteristics, such as their race, ethnicity, and gender, have been shown in many studies, inferring judicial bias from these disparities is not straightforward, and in most cases unfeasible.

Our study seeks to contribute to the existing literature on disparities in litigation outcomes by focusing on court awards for damages for loss of future earnings in road accident cases in Israel. We exploit the ostensibly standardized method of calculating such awards, and show that even when all relevant factors are held constant, disparities between different groups of litigants are observable. Although loss of future earnings is a potential head for damages in all personal injury tort cases, we narrowed our sample to road accident cases.

Compensation for victims who have sustained personal injuries as a result of a car accident in Israel comprises of two components: an award for non-economic damages, such as the plaintiff's pain and suffering, and an award for economic damages, such as medical expenses, loss of mobility, and projected loss of future earnings. The objective of the second component is financial restoration. In practice, compensation for the victim's loss of future earnings accounts for the lion's share of the compensation received by victims for bodily injuries. The amount of compensation for this head of damages is estimated by the difference between the amount of money that the plaintiff was capable of earning before the injury and the amount that they are capable of earning thereafter (Porat 2006).

In estimating the amount of money that the plaintiff would have been capable of earning but for the injury (baseline for future earnings), courts try to predict the realities that the victim would have experienced in their working life had they not been injured. This estimation involves a two-stage procedure. First, the court evaluates the plaintiff's average current monthly wage based on their actual average wage in the months or years preceding the accident. Second, relying on the evaluation of the present wage as the baseline for the assessment, the court may consider any additional evidence that would shed light on the possibility that the plaintiff's earning capacity would have increased in the future had they not been injured. Such additional evidence might include evidence regarding the plaintiff's educational attainment, age, occupation, career trajectory, and opportunities for advancement. Finally, the estimated rate of future earnings growth is applied to the evaluation of the present wage. In practice, the evaluation of the plaintiff's earnings at the time of the accident is the most important (and often times the only) piece of direct evidence used by courts when evaluating the second element.

Israeli law limits the sum that can be used as the baseline for future earnings by capping the sum at three times the average wage in Israel. Once the court determines the baseline for future earnings, the baseline is multiplied by the number of time units that the damage will bear, which is the period beginning on the day of the judgment and ending with the victim's retirement. Of note, Israeli tort law is paradigmatically common law, reflecting and embracing many Anglo-American general conceptions and specific legal doctrines (Mautner 1998). Specifically, for loss of future earnings, the determinants of this head of damages and the ways in which damages are calculated are almost identical to those used in Anglo-American tort systems.

Various scholars have addressed inequalities associated with the loss of earning capacity doctrine in tort law. Herein, we take a different approach. Instead of focusing on the doctrine itself, we focus on the disparities evoked when applying the doctrine. We show that, despite the seemingly arithmetic and standardized way of gauging a

victim's loss of future earnings, courts tend to estimate the future lost earnings of Mizrahi Jews, Arabs, and women lower than those of otherwise similarly situated Ashkenazi Jewish men. In the analyses, we hold injured persons' earnings at the time of the accident and occupations constant.

The issue of race- and sex-based disparities in the calculation of damages in tort cases has been addressed by tort scholars who have argued against the reliance of courts on race- and sex-based statistical data (Avraham and Yuracko 2017; Yuracko and Avraham 2018). Thus it was argued that the reliance on such race- and sex-based data is unfair, unconstitutional (in U.S. context; Yuracko and Avraham 2018), and cannot be justified on efficiency grounds (Avraham and Yuracko 2017). It is important to note however that in Israel, unlike in the UK and in the USA, the reliance of courts on race- and sex-based statistical tables on projections for lifetime earnings, life expectancy, and work–life expectancy to calculate damages in tort cases is prohibited practice. Thus, the disparities we observe cannot be attributed to any formal reliance of courts on race- and sex-based statistical data.

The effects we observed are significant in magnitude. For example, the gaps between Arabs/Mizrahi Jews and Ashkenazi Jews, who are otherwise similar (including their current wages and occupations), equal about 2/7 of the median monthly wage in Israel. When such monthly estimates are used to determine compensation for years of lost earnings, these disparities generate great differences in the total amount of compensation received by plaintiffs, and will ultimately generate substantial socioeconomic disparities between types of plaintiffs. The results of our study are particularly noteworthy considering the fact that we document disparities that correspond with existing labor force inequalities and discrimination in hiring, salary, and promotion on the basis of nationality, ethnicity, and gender.

The article is organized as follows: **Section I** provides a brief overview of nationality, ethnicity, and gender inequalities in Israel with an emphasis on the labor market and judicial bias. In **Section II**, we explain how the loss of earning capacity is determined under Israeli law. **Section III** presents the data, methods, and results of our study. In the last section, we present our conclusions.

Discriminated groups in Israel: Arabs and Jews, Ashkenazi and Mizrahi Jews, men and women

Israeli society is comprised of two major national groups. Jews account for 75 percent of the population and Arabs constitute 21 percent (the rest are non-Arab Christians and religiously unclassified residents). Both large groups are internally fragmented along religious and ethnic lines. Arabs include Muslims (16.5 percent), Christians (2.1 percent), and Druze (1.7 percent), whereas Jews subdivide into two large ethnic groups: Ashkenazi Jews of European ancestry and Mizrahi Jews of North African and Middle Eastern ancestry. It is difficult to estimate the exact ethnic composition of Jews in Israel, especially because there is no accurate official data about mixed ethnicity. Studies and official statistics suggest that first and second generation immigrants from Asia and Africa (≥ 15 years) constitute 47% of the Jewish population (Table 2.6).

Similar to other Western countries, Israeli society and its labor market are stratified along the lines of ethnicity, nationality, gender, bodily ability, sexual

orientation, and other factors. Herein, we focus on nationality, ethnicity, and gender for reasons of greater prevalence and identifiability.

Arabs and Jews

Arabs in Israel tend to be poorer than other segments of the population. Studies have found that Arabs in Israel face labor market disadvantages compared to the Jewish population, as well as a wage penalty of approximately 34 percent and discrimination in hiring (The Income of Employees in the 2014 Household Expenditure Survey). In a 2015 survey, 39 percent of Arabs reported feeling discriminated against (Feelings and Experiences of Discrimination of Arab Employees 2015). In a similar survey, 42 percent of employers sampled reported that they would prefer not to (or are less eager to) employ Arabs (Ethnic Discrimination 2014). Arab citizens tend to live and work in areas with limited industrial and occupational opportunities (Lewin-Epstein and Semyonov 1992). In high-skilled occupations, where cultural beliefs and stereotypes about skill and competence tend to be salient, many Arabs are unable to get jobs in their profession. Only 20 percent of Arab scientists and engineers and 51 percent of Arab lawyers and economists have managed to secure employment in their occupation, which is significantly less than their Jewish counterparts (Soen 2012). Indeed, Jewish lawyers were found to be four times more likely to be invited to a job interview compared to Arab lawyers (Ariel et al. 2015).

By all measures, discrimination against Arabs is the most pervasive form of labor force discrimination in Israel, but nonetheless, only eight percent of cases brought to the Equal Employment Opportunity Commission relate to Israel's Arab population. This gap may be the result of a lack of trust in the judicial system by the Arab population or a result of the lack of resources necessary to pursue such claims.

Several studies have documented judicial bias against Arabs by Jewish judges in Israel. In one study, Shayo and Jussman (2011) analyzed Israeli small-claims court decisions between 2000 and 2004, and found evidence of judicial in-group bias by both Jewish and Arab judges. Claims were more likely to be accepted if the judge and plaintiff were of the same ethnicity. The judicial in-group bias observed was strongly associated with the intensity of terrorism-related activity in the vicinity of the court in the year preceding the ruling. Similar evidence was provided by Gazal-Ayal and Sulitzeanu-Kenan (2010) who focused on decisions of Arab and Jewish judges in the first bail hearings of Arab and Jewish suspects in cases where judges were randomly assigned, and found evidence of in-group bias in detention decisions. However, in cases where the decision was to detain, no ethnic bias was found in the length of the detention.

Finally, Grossman et al. (2016) showed that, where appeal outcomes for Jewish defendants tended to be independent of the judges' nationalities, appeal outcomes for Arab defendants varied in line with the nationality of the judges on the appellate panel. When there is at least one Arab judge on the panel of judges, Arab defendants received more lenient punishments compared to when all judges are Jewish.

Ashkenazi and Mizrahi Jews

One of the main fractures of the Jewish population in Israel lies between the two ethnic groups of Ashkenazi and Mizrahi Jews, which roughly comprise equal shares of Israel's veteran Jewish society (Bitton 2012). Mizrahi Jews have suffered from unequal treatment by the State of Israel from the inception of the state in 1948. While

their fellow Ashkenazi immigrants were given preference in public services and land distribution, Mizrahi immigrants were subject to economic and cultural disadvantages (Segev and Weinstein 1998).

Many forms of inequality still persist today between Ashkenazi and Mizrahi Jews (Yiftachel 1997; Bitton 2012). Although Mizrahi and Ashkenazi students are not formally segregated from one another, a study in integrative schools revealed a clear ethnic division by which Ashkenazi students are overrepresented in prestigious science programs while Mizrahis are overrepresented in the lower and middle tracks of education, which offer limited potential for social mobility (Mizrachi et al. 2009). These patterns of segregation permeate into higher education. Upon finishing high school, Ashkenazis are almost 100 percent more likely to qualify for matriculation certificates and significantly more likely to be admitted to universities (Tzfadia and Yiftachel 2004). In the labor force, Mizrahi Jews are disadvantaged relative to their Ashkenazi counterparts in terms of hiring and wages, especially in high-status occupations.

In the late 1990s, the wage gap between Mizrahi and Ashkenazi Jews in Israel stood at approximately 12 percent after controlling for education, experience, and other demographic characteristics. In order to provide evidence for labor force discrimination, Rubinstein and Brenner (2014) examined the wages of people born to inter-ethnic couples (i.e., Mizrahi and Ashkenazi), and showed that people bearing a stereotypically Mizrahi surname received significantly lower wages, implying the causal effect of perceived ethnicity. In one hiring field experiment, fictitious job applicants with Mizrahi-sounding last names received significantly fewer call backs for interviews compared to their Ashkenazi counterparts (Sasson 2005). Finally, in a laboratory experiment, Fershtman and Gneezy (2001) showed that Jewish men (both Mizrahi and Ashkenazi) tend to trust Ashkenazi men more than Mizrahi men.

Whereas many studies have documented inequalities in various arenas of life, no systematic study has addressed disparities in litigation outcomes in Israel on the basis of ethnicity.

Women and men

Israeli women face gender inequality in the Israeli labor force. In recent years, Israeli women have entered more high-skilled and hitherto male-dominated positions in the professional and managerial sectors. Yet, many women in Israel still work in different occupations than men, and tend to earn less than men when employed in the same occupation (Mandel and Birgier 2016). Israeli women experience a gender wage gap of about 20 percent, which is similar in magnitude to the corresponding gap in the United States (Swirski et al. 2015).

In 2019, only 43 percent of the top-level positions in Israel's public sector were occupied by women, even though women tend to be overrepresented in lower-level positions in the public sector (Tzameret-Kertcher et al. 2020).

One recent study documented gender disparities in litigation—cost rulings in civil cases in Israel. It was shown that courts tend to order losing male plaintiffs to pay the winners' legal fees more often than they order women to do so. Likewise, the legal fees that women plaintiffs who had lost their case were obliged to pay tend to be lower than that required of losing men. Finally, women defendants who win cases tend to receive higher fee awards compared to similarly situated men (Fisher et al. 2016).

To sum up, our current study focuses on disparities on the basis of nationality, ethnicity, and gender in court awards regarding the loss of future earnings in road accident cases in Israel. By doing so, this study contributes to the existing literature in three important ways. First, whereas most studies on judicial biases in Israel have focused on criminal cases, this study focuses on civil cases. Relatedly, this study highlights an important mechanism by which labor force inequalities (wage gaps) are reflected and perpetuated in court (even after the already existing wage gaps are held constant). Finally, whereas previous studies have focused on gender and nationality, this study is the first to explore disparities in court decisions between Ashkenazi and Mizrahi Jews in Israel.

Loss of future earnings

The head of damages for loss of future earnings compensates for the future stream of earnings that would have been available to the claimant but for the injury, and is calculated using the following equation (Lewis et al. 2002):

$$(W1-W2) \times T \times C$$

In this equation, W1 represents the expected future monthly salary of the plaintiff, but for the accident; W2 represents the expected monthly salary given the injuries resulting from the accident (including cost of providing pensions and annuities, as determined by the plaintiff's estimated life expectancy); T stands for the time period that this effect on the wage is expected to last (in months); and C stands for capitalization rate, which is the current value of wages the plaintiff would have otherwise obtained only later in life (Lewis et al. 2002).

In evaluating W1, which is our main interest in this paper, courts try to predict the realities that the plaintiff would have experienced in their working life had they not been injured. The benchmark for the W1 calculus is the plaintiff's pre-injury monthly earnings, based on their actual average income for the previous years or months, directly provable through salary documents. Then, the courts consider any evidence that tends to prove the probability of an increase in the plaintiff's earning capacity in the future. This evidence includes a wide set of personal characteristics, such as educational attainment, age, occupation, career trajectory, and opportunities for advancement. Next, a rate of future earnings growth is applied to these base earnings. In practice, the plaintiff's earnings at the time of the accident is the most important (and often times the only) piece of evidence used.

In some cases, to support their assessments of the projected salary of the plaintiff, attorneys for both parties present actuarial tables of the Central Bureau of Statistics or other averages, along with the plaintiff's historical earnings, education, and experience. Race, gender, ethnicity, and other potentially discriminatory factors are always excluded. Thus, except for the heavy reliance on the victim's salary before the accident (which could be viewed, in fact, as a discriminatory tort doctrine in itself), the calculation of W1 is allegedly free from considerations of nationality, ethnicity, and gender.

Data and methods

Our data set contains a random selection of District Court decisions in road accident cases where final decisions were reached on the merits of the case for the years 1978 to 2018 in Israel. District Courts in Israel are the middle-level courts of the judiciary. In road accident cases, as well as in all other civil cases, District Courts only hear cases in which relatively high amounts of money are in dispute. Currently, the jurisdiction of Israeli District Courts extends to cases in which more than 2.5 million shekels (approximately U.S. \$850,000) are in dispute. We restricted our analyses to District Court decisions, because lower court decisions do not tend to involve cases with lingering and substantial harms to the plaintiffs' future earnings.

The vast majority of road accident cases in Israel are not decided on merits. Because we wish to observe disparities in the decisions judges make, the sample includes only cases that were decided on merits, and excludes cases terminated via settlement, dismissal, or judgment by way of settlement under section 79A of the Courts Law that does not have to be reasoned. Our sample therefore does not represent all road accident cases in Israel, but rather only those in which decisions are given by District Court judges on merits. Given this background, we would expect a selection bias in terms of the quality of cases and the ability of victims to afford waiting for their cases to be decided on merits. Such possible selection would suggest that the effects we observe indeed reflect disparities in court decisions.

Data were extracted from the highly regarded online legal data set of Nevo, which is maintained by a private company that provides access to case information to paying clients. Altogether, the Nevo data set includes 1,194 district court cases where final decisions were reached on the merits of the case for the years of 1978 to 2018 and in which the word "earnings" is mentioned in the decision. We randomly selected approximately 100 cases per decade from all six state district courts in the country to substantiate maximum diversity. Law student research assistants coded the cases. The authors designed a data form to structure the coding, and the students used this form to code the cases under the supervision of the authors. The research assistants coded the cases for case and party characteristics. To ensure credibility and systematic encoding, 10 percent of the decision sample was coded simultaneously by two trained jurists in the field. Checks were performed to ascertain the representativeness of the sample.

While some cases manifested clear and plain references to discrete characteristics, such as gender and age, others warranted a more nuanced exploration, mostly regarding the plaintiff's ethnicity and nationality. Nationality (Arab vs. Jewish) was coded according to first and last name, and ethnicity (Mizrahi vs. Ashkenazi) was coded by surname. While coding nationality was straightforward, ethnicity was coded using the state database of Jewish Family Names, which includes details on almost every surname of Jewish origin. In cases of inconclusive origin (typically referring to surnames with both Ashkenazi and Mizrahi origins), these were inferred by further identity trait proxies, such as plaintiff's place of residence, or otherwise were excluded (residential segregation between Arab and Jewish residents in Israel is highly prevalent).

It is important to note that for the purpose of our analysis, the perceived (and not actual) nationality and ethnicity matter. Ideally, we would have wanted to know how judges perceived the nationality and ethnicity of the victims. Because recovering this information is impossible, we followed the prominent methodology for researching

ethnicity in Israel, and used first and last names as proxies for perceptions (Rubinstein and Dror 2014). It should be noted, however, that first and last names tend to be highly indicative of nationality in Israel and less indicative of ethnicity. Our ethnicity proxies of perception are therefore more noisy than our nationality proxies. This suggests that the effects we observe for ethnicity might be even greater in reality.

Relatedly, when Jewish women get married, they tend to use their husbands' last names. Thus, inferring the perceived ethnicity of Jewish women is even harder than inferring Jewish men's (Rubinstein and Dror 2014). We therefore predicted that the effects in our analysis would be stronger for Mizrahi men compared to Mizrahi women. It would be impossible to tell, however, whether smaller effects are generated by difficulties in categorizing the ethnicity of injured Jewish women or by differences in the evaluations of claims made by Mizrahi women compared to Mizrahi men.

The victim's future monthly earnings as assessed by the court is our variable of interest. We tried to rule out all other factors that could potentially generate such disparities, most notably differences in the actual competence of the individual plaintiffs. We did so by coding (and holding constant in all regression models) the victim's average monthly earnings before the accident, which is the figure that provides the benchmark for future monthly earnings. In addition, we coded all other pieces of evidence formally defined as comprising a particular claimant's future income profile, including the victim's educational attainment and occupation. Occupations were coded according to the 2018 standard occupational classification system. We also coded all court decisions in our data set for two additional variables, indicating whether additional pieces of evidence (positive or negative) were mentioned by the judges in their assessment of loss of future earnings. Often times in road accident cases, the injured party tries to support their argument for a future wage improvement with positive evidence, whereas the other party (in Israel's no-fault regime, the insurance company) presents negative evidence to refute the prospect of a future improvement.

The positive evidence typically used by plaintiffs in the data set tended to be evidence showing that the plaintiff was an ambitious or excellent student or that they were a highly evaluated employee. The negative evidence in the data set tended to be evidence of the plaintiff's low motivation or evidence suggesting that the plaintiff was a drug addict, had dropped out of school, was a bad student, or had not been a committed employee (and had switched jobs frequently). In addition to the victim's future monthly earnings, we also coded the compensation sums awarded under all other main heads of damage, including medical expenses, pension, non-economic damages, mobility, accessibility, and third-party assistance.

Finally, following studies that have shown that different aspects of an injury are not compensated independently of each other (Laurent Carnis et al. 2013), we also coded all other estimates used to determine a plaintiff's monthly future earnings (e.g., their functional disability). To negate a potential allegation of anchoring bias, we also coded the amount requested by the victim. Indeed, several studies have demonstrated that plaintiffs' requests for damages (even when absurdly high) tend to significantly influence the amount awarded. Specifically, in the context of damages for car accidents, Wistrich, Guthrie, and Rachlinski (2005) have empirically shown that the amount requested by the injured party anchors the judge's assessment of the appropriate quantum of damages to award. The higher the estimate by the plaintiff, the larger the amount ordered by the court in favor of the plaintiff, and vice versa.

Since the study focuses on identity-based differences in evaluating damages, court decisions that did not reveal these pieces of information about the plaintiffs were excluded from the data set. Because data about victims' current and future earnings are crucial for our analysis, we also excluded cases where these data were missing, as well as partial compensation decisions that do not include loss of future earnings awards. Finally, decisions concerning deceased plaintiffs were also excluded since they discuss only past earnings.

Altogether, our final sample includes 236 cases (account for approximately 20 percent of total reported cases in the field), of which only three cases were decided before 1988 (only 1.27 percent of cases in our data set). We did not exclude these three cases from our analyses, but for robustness, we tested each and every model on a subsample that excludes them. The results remained similar in magnitude and statistical significance. Our analysis therefore practically focuses on 30 years of data, from 1988 to 2018.

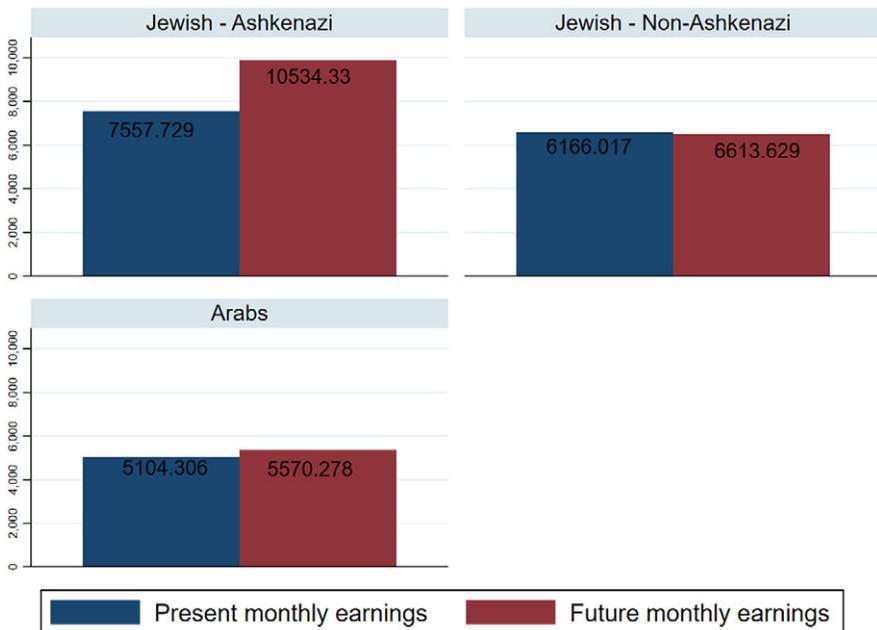
Results

Table 1 reports the descriptive statistics (means and standard deviations) for the variables used in the analysis. All sums we report are in NIS (approximately \$3.5), and converted to their 2019 value. The median gross monthly income in Israel in 2019 was approximately 7500 NIS. The nationality, ethnicity, and gender variables are sets of dummy variables denoting whether the plaintiff is Arab, Jewish-Ashkenazi, Jewish-Mizrachi, Jewish-Other, and female. Therefore, for example, the mean of the variable female (0.186) indicates that 18.6% of the plaintiffs in our data set are coded as female (and the rest as male).

The variable current monthly wage denotes the wage of the plaintiff at the time of the accident. Its range starts at zero, because the wages of two plaintiffs in our sample were zero at the time of the accident. The variable future monthly wage represent the court's estimation of the monthly wage the plaintiff would have been capable of earning but for the injury. We use this variable as the dependent variable in our regression analyses. In the data, the average functional disability was 54.75 percent (i.e., average plaintiff in our sample lost more than half of their functional capability to work).

Table 1. Descriptive Statistics ($N = 236$)

	Mean	Standard deviation	Minimum	Maximum
Future monthly wage (estimate)	7,092.75	5,568.8	0	68,697
Current monthly wage	6,125.17	5,373.2	0	68,697
Jewish-Mizrachi	0.45			
Jewish-Ashkenazi	0.2			
Jewish-Other	0.04			
Arab	0.31			
Female	0.19			
Age, year (at time of accident)	33.82	9.78	11	63.5
Functional disability	54.75	25.53	8	100
Medical disability	53.93	26.8	8	100
Year	2003.82	6.42	1981	2018
Higher education	0.13			
Additional evidence used	0.3			



Graph 1. Present versus future monthly wage estimates by ethnicity and nationality.

Interestingly, of the 236 decisions covered by the database, in only 70 cases (approximately 30 percent) the court had used additional pieces of evidence (other than the plaintiff's current wages) when assessing the plaintiff's future earnings. The variable additional evidence used indicates whether the court was mentioning additional evidence to the plaintiff's current wages when estimating their future earnings. The variable higher education indicates whether the court had addressed the plaintiff's higher education when assessing their future earnings (only in 13 percent of cases).

In [Graph 1](#), we show the average monthly loss of future earnings of Ashkenazi Jews, Mizrahi Jews, and Arabs compared to the average monthly earnings of each group prior to the accident. The gap between those two elements (red and blue columns, respectively) represents the average rate of future wage improvement as assessed by the court. In [Graph 2](#), we present the comparable scheme for gender differences.

In [Table 2](#), we present ordinary least squares regression models predicting the monthly future earnings estimates. In all models, the omitted category is male Ashkenazi Jews. In model 1, we account for the effects of the plaintiffs' current wages on their future earnings estimates. As required by law, we expect the monthly earnings to have a positive effect on the future earnings estimates. In model 2, we add victims' nationality, ethnicity, and gender to test for our research hypotheses. We expect being female, an Arab victim, or a Jewish Mizrahi victim to positively/negatively affect the future earnings estimates, even when the current wages are held constant. Age is also included in model 2 as a control, as we expect the ages of victims to have a negative effect on the future earnings of individuals because the older a person is, the smaller the gap between their current and future earnings.



Graph 2. Present versus future monthly wage estimates by gender.

In model 3, we hold constant the year of the accident to control for time trends and test whether our hypotheses regarding victims' nationality, ethnicity, and gender hold. Although formally the functional and medical disabilities of victims should not affect the future monthly earnings estimates, we include them in model 4 to make sure that the nationality, ethnicity, and gender effects we observe are not generated by biases associated with victims' disabilities. In model 5, plaintiffs' occupations are controlled for to test whether the effects of nationality, ethnicity, and gender occur even within occupation.

In model 6, we also control for whether the court was mentioning additional pieces of evidence or the plaintiff's higher education (other than current wages) when estimating future earnings to rule out the possibility that this evidence generated the nationality, ethnicity, and gender effects we observe in the data. In model 7, therefore, we include two interaction terms (female \times Mizrahi; female \times other [Jewish]) to test whether the effects of being Mizrahi are different for Jewish women compared to Jewish men. Finally, the sample of the analysis in model 8 includes only cases in which victims were age >35 years at the time of their accident. We do so to test whether inequalities persist even for victims who have already completed their schooling and training years and have absorbed the existing labor force inequalities on the basis of their identity traits.

As predicted, in all models, plaintiffs' monthly wages at the time of the accidents determine at least 88 percent of their future monthly wage estimates. Yet, we see that future monthly wage estimates are also affected by plaintiffs' nationality, ethnicity, and gender. In model 4, we see, for example, that, on average, the future monthly wage estimates of Mizrahi Jews are 2556 NIS lower than those of Ashkenazi Jews ($p < 0.001$). The future monthly wage estimates of Arabs are 2751 NIS lower than those of Ashkenazi Jews ($p < 0.001$). Finally, women's future monthly wage estimates are 693 NIS lower than those of men's ($p < 0.001$).

Table 2. Ordinary Least Squares Regression Models Predicting Future Earnings Estimates

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Current monthly wage	0.970*** (0.024)	0.950*** (0.021)	0.948*** (0.020)	0.880*** (0.034)	0.837*** (0.039)	0.831*** (0.039)	0.948*** (0.020)	0.891*** (0.058)
Jewish–Mizrachi		-2562.743*** (288.462)	-2519.812*** (276.897)	-2555.581*** (290.894)	-2276.144*** (330.143)	-2196.447*** (331.682)	-2757.111*** (304.802)	-2680.618*** (634.896)
Jewish–Other		-2378.484*** (595.845)	-2394.091*** (571.637)	-2460.152*** (574.214)	-2549.618*** (633.727)	-2497.241*** (630.542)	-2821.225*** (644.646)	-2853.323*** (933.812)
Arab		-2750.894*** (313.136)	-2679.384*** (300.817)	-2751.124*** (316.405)	-2450.948*** (368.217)	-2428.765*** (367.353)	-2776.62*** (303.678)	-2818.36*** (687.429)
Female		-666.168** (279.678)	-590.023** (268.829)	-693.969** (282.594)	-1156.031*** (354.900)	-1188.987*** (353.195)	-1155.214** (394.625)	-1043.702* (565.280)
Age, year (at time of accident)		-32.607*** (11.371)	-27.796** (10.959)	-15.204 (12.301)	-10.562 (13.796)	-3.318 (14.228)	-27.005** (10.949)	-9.314 (39.596)
Functional disability				-14.377** (7.094)	17.382** (8.397)	18.427** (8.365)		21.022 (14.561)
Medical disability				20.725*** (7.548)	-10.187 (7.712)	-12.147 (7.735)		-7.744 (13.361)
Year			73.162*** (16.036)	93.683*** (18.632)	108.676*** (20.234)	108.735*** (20.118)	74.064*** (16.004)	96.424** (44.815)
Additional evidence used					448.015* (260.067)			
Indicator of higher education					329.976 (398.826)			
Female × Mizrachi						968.084* (540.812)		
Female × Jewish (other)						1780.296 (1317.450)		
Occupation (fixed effects)				Y	Y			
Control	1153.407***	4590.175***	-142216.9***	-183650.3***	-213746.9***	-214235.7***	-143899.3***	-189653.5***
Total, N	236	236	236	212	196	196	236	84

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The results remain very similar even when we control in the models for occupations in which plaintiffs are employed (models 5 and 6), which suggests that the differences we observe in the estimates of future earnings by nationality, ethnicity, and gender are not generated by differences in occupations in which plaintiffs were employed at the time of the accident. Finally, the results hold even when we account for the additional pieces of evidence mentioned by the court when estimating plaintiffs' future earnings (model 6), which suggests that differences were not generated by dissimilarities in the additional evidence presented to the court regarding plaintiffs' career trajectories. In fact, even when we analyze only cases in which no additional pieces of evidence were mentioned by the court (and the court relies only on plaintiffs' current wages as evidence), very similar effects are observed. The results also reveal that additional evidence mentioned by the court increase the awards for loss of future earnings. As a complementary check, we tested the additional evidence appearance rate across both ethnicity and nationality groups, and found that positive evidence tends to be mentioned when plaintiffs are Ashkenazi Jews.

The results of model 7 suggest that disparities tend to be smaller for Mizrahi women compared to Mizrahi men, which might be because last names are better proxies for the perceived ethnicity of Jewish men compared to women (Rubinstein and Dror 2014) or because judges evaluate claims made by Mizrahi women more positively than claims made by Mizrahi men. Finally, the results of model 8 indicate that disparities are found across relatively older injured litigants (age >35 years). In other words, even when we compare the awards for loss of future earnings of Jewish Mizrahi or Arab plaintiffs whose earnings at the time of the accident already reflect labor force inequalities with the awards of otherwise similar Jewish Ashkenazi plaintiffs, disparities are found.

Interestingly, time trends (interaction terms between year and between race and ethnicity) and interaction terms between judge's traits and plaintiff's traits are statistically non-significant (e.g., interaction term female plaintiff \times female judge). The latter may be explained by the relatively small sample and/or tendency of judges from disadvantaged group to behave in a similar way to the way in which judges of advantages group behave (Abrams 2006). As predicted, the awards for all other heads of damages, where court evaluations of plaintiffs' self and capabilities are not required, such as medical expenses and non-economic harm, did not vary by ethnicity, gender, or nationality. The effects we observe are of great magnitude. Gaps between Arabs/Mizrahi Jews and Ashkenazi Jews who are otherwise similar (including in their current wages and occupations) sum up to approximately 2/7 of the median monthly wage in Israel.

Summary and discussion

Our study documents ethnic, national, and gender disparities in awards of damages in road accident cases in Israel. The effects we observed hold even when we compared the estimates for individuals with the same current earnings and occupations, or when no additional pieces of evidence were mentioned when the courts estimated the loss of future earnings. We find great disparities for Mizrahi Jews, Arabs, and women. Our study has some limitations. Most notably, the sample of cases is relatively small. Although we started with a large sample of cases, data about some of the important variables were missing in many of the cases.

Unlike the criminal justice system (Blume and Eisenberg 1999; Stolzenberg and D'Alession 2004; Wooldredge et al. 2011; Kang 2012; Starr 2015), relatively little attention has been given to disparities and judicial bias in the civil justice realm. Studies that do explore these issues tend to focus on employment discrimination cases (Hamilton Krieger 1995; Begenstos 2006; Hamilton Krieger and Fiske 2006; Fisher et al. 2016). Employment discrimination cases nonetheless differ from other civil cases because these are specifically targeted at protecting devalued groups in society.

Although in our analysis, we hold constant the victims' average monthly earnings before the accidents, the effects we observe might be generated by additional labor force differences between types of plaintiffs that are not observed in our data set. We tried to capture these differences as additional evidence when mentioned in the court decisions in the data set. Naturally we were not able to do so when not specifically addressed by the court.

Interestingly, we find national and ethnic disparities even across victims who were relatively older (age >35 years) at the time of their accident. Mizrahi and Arab plaintiffs who were relatively older at the time of their accident had already experienced labor force inequalities, and their wages at the time reflect these inequalities. Yet, even when holding these victims' earnings at the time of the accident constant, disparities are found.

Thus, another possible explanation for the disparities we observe is that cultural beliefs and perceptions about types of plaintiffs and about how well they do in the labor force have affected the future estimates made by judges. Specifically, the relevant cultural beliefs relate to the competence and success of women, Arabs, and Mizrahi workers in the labor force compared to competence of Ashkenazi men. In Israel, stereotypes and cultural beliefs are reflected both in the wage gaps between the different groups and in the compensation that they are awarded in road accident cases. Our findings indicate that the tort system perpetuates nationality, ethnicity, and gender disparities.

Whereas the common practice in the United Kingdom and United States to use race- and sex-based statistical data to calculate damages in tort cases constitutes statistical discrimination, it is impossible to determine whether the disparities we observe in road accidents cases in Israel constitute statistical discrimination or mistaken-stereotype discrimination. In other words, because the disparities we document do not result from a formal reliance on accurate sex- and race-based statistical data, it is hard to determine whether they accurately reflect labor force inequalities.

Both statistical discrimination and mistaken-stereotype discrimination (Arrow 1973; Budig and England 2001) involve beliefs about specific social groups. Yet, whereas statistical discrimination involves beliefs that are statistically supported by data on group averages, mistaken-stereotype discrimination involves beliefs that are based on mistaken expectations and evaluations. In Israel, like in many other countries, both forms of labor force discrimination on the basis of race and sex are prohibited, regardless of whether race or sex actually correlate with people's productivity. Yet, the justifications for prohibiting each of the two forms are different. Reliance on mistaken belief (mistaken-stereotype discrimination) tends to be prohibited for fairness-, efficiency-, and accuracy-related considerations, but reliance on average group characteristics (statistical discrimination) tends to be prohibited in some contexts for fairness-related considerations. In fact, because the justifications

for prohibition tend to be different, in many countries some forms of statistical discrimination in the insurance context, for example, but not of mistaken-stereotype discrimination, are not prohibited.

There are various reasons to oppose the practice of statistical discrimination by courts in tort cases in the United Kingdom and United States (formal reliance of courts on race- and sex-based statistical data; Avraham and Yuracko 2017; Yuracko and Avraham 2018). However, our findings suggest that even when such reliance on statistical data is prohibited, judges might still take into account beliefs about group averages. Yet, because they do so informally and perhaps unconsciously and inconsistently, it is hard to determine whether these beliefs are accurate or mistaken and normatively address reliance on them.

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