

Introduction

Imagine that you work all day long laying bricks, filing paperwork, or grading exams only to find out that your employer paid someone else twice as much money for the same job. Many people in this position feel that they have been treated unfairly (Fehr and Schmidt 1999; Sweeney 1990; Sweeney et al. 1990). However, workers might be more accepting of lower pay if they judge the procedure for determining pay to be fair, such as paying higher wages to more qualified, talented, or senior employees. In contrast, people show outrage and political activism when procedures are unfair such as paying lower wages to women and minorities (Blau and Kahn 1992; Blau and Kahn 2000; Leicht 2008). People's sense of procedural justice also shapes legislation such as equal employment laws that prohibit certain types of pay discrimination. But questions remain about what makes a procedure fair or unfair, and whether some discriminatory rules are judged to be more unfair than others. Here we examine people's moral judgments about pay discrimination by using an online labor market to test what makes people perceive unequal pay as more or less unfair.

Procedural justice plays a fundamental role in how people react to distributions of resources, a leader's exertion of power, a court's determination of guilt, and other important events in our personal, economic, and political lives.(Dickson, Gordon, and Huber 2009, 2015; Gerber et al. 2012; Gibson 1989; Hibbing and Theiss-Morse 2001; Tyler and Blader 2003; Tyler, Casper, and Fisher 1989). We investigate procedural justice in the context of economic inequality, particularly pay discrimination. "Equal pay for equal work" is a popular and intuitive principle of procedural justice, and behavioral research provides ample evidence of psychological motives surrounding equality and equity (Fehr and Schmidt 1999;; Sweeney 1990; Sweeney et al. 1990). Nevertheless, inequalities in pay are common, and many people accept

unequal wages when the differences result from paying workers based on experience, longevity, effort, talent, performance, market demand, or other criteria they view as fair. At the same time, people reject other possible rules such as paying lower wages to the elderly, a practice that is prohibited by U.S. law. Hence, for some inequalities people show outrage and political activism, whereas in other cases people accept or at least tolerate unequal pay. Yet, there is no consensus about which types of inequality people view as more unfair than others. That is, holding constant the inequality in pay for the same work, why do some inequalities provoke more outrage than others?

Although considerable evidence shows that people care about procedures as well as outcomes, there is less consensus about *why* people have preferences about procedures, how they emerge, and what factors amplify or attenuate their magnitudes. One possibility is that people internalize the rules in their society, including formal laws such as equal employment rights in the United States. However, research suggests that people's preferences for fair procedures are inconsistent: People who are advantaged by a procedure view it as less unfair than those who are disadvantaged by the same procedure (Fehr and Schmidt 1999; Sweeney 1990; Sweeney et al. 1990). People's self-interested judgments likely explain why the American public is divided about redistribution, affirmative action, and other policies aimed at greater equality (Aarøe and Petersen 2014; Petersen et al. 2013; Weeden and Kurzban 2014). More generally, these observations indicate that people do not only passively adopt society's rules, but instead show selective support depending on their own interests.

Another possibility comes from the ways that people use procedures to resolve disagreements. Disagreements pose a problem of coordination in which individuals need to come to an agreement if they are to move forward but yet they disagree on what the outcome should

be. In game theory terms, coordination games are interactions between two or more individuals in which each player's best move depends on other players' decisions, leading to multiple equilibria (Camerer 2003; Chwe 2001; Cronk and Leech 2012; Schelling 1960; Thomas et al. 2014). Most relevant here, a procedure can serve as a convention for resolving the coordination problem posed by disagreement. For instance, if an employer and worker disagree about the worker's wage, then they can use conventional procedures to resolve the impasse, such as rules that scale pay based on experience, performance, longevity, or outside offers.

If procedures help people coordinate, then this idea could help us understand which procedures will be judged more or less unfair. Namely, a game theoretic analysis suggests that individuals will most resist rules for coordination when the rule consistently goes against their interests (Grafen, 1987). These *divisive rules* resolve coordination problems based on an enduring asymmetry between players that consistently disadvantages certain individuals (Grafen 1987). For this reason, disadvantaged players resist divisive rules even if this could lead to coordination failure. Grafen (1987) gives an example of a rule that benefits younger people at the expense of older people. Because the older people will never benefit from the rule, they are expected to strongly oppose it. In contrast, a rule that benefits older people at the expense of younger people will be less strongly opposed by the young because they stand to benefit from the rule in the future.

Importantly, this theory about coordination and divisiveness does not imply or require that people are deliberately and consciously managing coordination problems. Instead, the hypothesis is that the logic of coordination shapes how the underlying psychological systems work. This idea builds on a growing list of applications of coordination games in psychology, including research on language (Lewis, 1969; Pinker, 2007), emotions (Reed et al. 2014; Tybur

et al. 2013), reasoning about mental states (Thomas et al. 2014), moral judgment (DeScioli and Kurzban 2013), property rights (DeScioli and Wilson 2011; DeScioli and Karpoff 2015; Maynard Smith 1982), and leadership (Van Vugt 2006). In these and other cases, researchers have studied how the logic of coordination shape's people's psychology, independent of whether they are consciously trying to coordinate.

Finally, we consider another possible factor behind procedural justice which is based on competition between groups. In all societies, humans team up in groups and compete with outgroups for resources and status (Huddy 2013; Kurzban, Tooby, and Cosmides 2001; Pratto, Sidanius, and Levin 2006). These conflicts can be costly to everyone including neutral bystanders. People might use well-defined procedures to make decisions without the appearance of ingroup bias, which could otherwise foment group conflict. Consistent with this idea, previous research finds that impartiality and neutrality are key determinants of perceived fairness (Lind and Tyler 1988; Shaw et al. 2012; Shaw 2013; Tyler and Blader 2003). Further, people judge some procedures based on randomization—such as a coin flip—to be fair even when they generate unequal outcomes because these procedures are impartial (Blount 1995; Bolton, Brandts, and Ockenfels 2005; Offerman 2002; Falk, Fehr, and Fischbacher 2008). Impartiality and neutrality require decision-makers to avoid ingroup favoritism, which could help minimize group conflict when making decisions about pay, hiring, laws, guilt, punishment, and other benefits or costs.

The group-competition hypothesis also makes predictions about which procedures will be judged more or less unfair. Rules that discriminate against cohesive groups whose members actively cooperate—such as political parties or sports teams—will be judged as more unfair than discrimination against nominal social categories such as people who are brown-eyed or left-

handed. Cohesive groups work together against rival groups and so are those groups at greatest risk of costly competition.

The present experiment

We test these theories about unfair procedures by manipulating workers' actual wages for completing jobs in an online labor market. In different treatments, workers who did the same job received equal or unequal pay compared to other workers, and if unequal, they were either advantaged or disadvantaged by the payment rule. Workers first completed the job by transcribing text, next they learned the payment rule that determined how much money they and other workers earned for the job, and then they judged the fairness of the payment rule.

In a between-subject design, we presented workers with one of three different unequal payment rules that were either based on their choices, individual traits, or group membership. For choices, workers earned higher or lower wages depending on their previous choice of a yellow or green door. We designed this choice to be relatively arbitrary to make it distinct from stable, trait-like preferences. For traits, workers' wages depended on their previously reported eye color. We selected eye color as a stable individual trait that cannot be easily changed, making it a divisive rule for differential payment. For groups, workers' wages differed by their previously reported political affiliation as Republican or Democrat. We selected political parties as a prominent case of cohesive and competing groups.

A simple internalization hypothesis does not predict differences in opposition to these three rules because they all violate equal pay without using a procedure that is commonly accepted in society. Similarly, theories that emphasize voice and good treatment by authorities (Tyler and Blader 2003) do not predict differences because these considerations are similarly violated by all three rules.

In contrast, two other ideas suggest that people will judge some of these rules as more unfair than others. First, the coordination hypothesis predicts that discrimination based on eye color will be judged as more unfair than discrimination based on the choice of door. Pay based on eye color is a divisive rule (Grafen 1987) because it consistently disadvantages the same people, whereas a person's choice of door is easily changed. Similarly, a person's political affiliation is more stable and difficult to change than their choice of door and so is expected to be strongly opposed. Second, the group-competition hypothesis predicts that discrimination based on political party will be judged more unfair than both choice of door and eye color. Political parties are cohesive groups who actively compete, which should most strongly evoke procedural justice motives if they are especially aimed at suppressing intergroup conflict. In contrast, groups based on choice of door or eye color are nominal social categories with little risk of intergroup conflict.

Further, consistent with previous research showing self-interested fairness judgments (DeScioli et al. 2014; Fehr and Schmidt 1999; Sweeney 1990; Sweeney et al. 1990), we expect that disadvantaged participants will judge unequal rules as more unfair than advantaged participants, who in turn will judge unequal rules as more unfair than equal pay.

Methods

We recruited 541 participants (61% female; age: $M = 32.5$, $SD = 10.7$) to complete a short study (<15 min) using the online labor market MTurk (Berinsky, Margolis, and Sances 2014). Participants received a small payment (50 cents) and were informed that they could earn additional money from the task which would be paid to them as a bonus. We report all measures, manipulations, and exclusions in the experiment. Sample size—approximately 60 per condition—was determined before analysis. This sample size is sufficiently powered to detect

medium effect sizes in the key comparisons. Data collection was not continued after the analysis began.

Participants first answered demographic items, reported their political party, selected their eye color, and chose between door 1 which was yellow and door 2 which was green. The eye color item was a forced-choice question between blue/green and brown/other.

Next, participants transcribed two written paragraphs for an additional payment. They were informed that the exact nature of the payment would be shown after they finished the work. Then participants were shown the payment rule used to determine their earnings for transcription and the amount they made. Participants next answered the question “In your opinion, how fair was the Payment Rule used for the transcription task?” by rating fairness on a 7-point scale (coded as *very fair* = -3, *neither fair nor unfair* = 0, and *very unfair* = +3). Participants were debriefed and later paid their Mturk bonuses.

In a 3 (payment rule: door, eyes, or political parties) x 3 (role: advantaged, disadvantaged, or equal) between-subject design, we manipulated the payment rules that determined earnings and whether participants were disadvantaged or advantaged by the rules.

In the political party condition, participants read the payment rule:

“Participants who chose Democrat [Republican] receive 30 cents for completing the transcription task. Participants who chose Republican [Democrat] receive 60 cents for completing the transcription task.”

The survey software (Qualtrics) was programmed to automatically complete the text with the participants’ reported political party according to whether they were randomly assigned to the advantaged or disadvantaged role.

Participants in the equal conditions instead read:

“All participants receive the same payment of 30 cents for completing the transcription task.”

The door and eyes conditions were identical except that the rule used their eye color or choice of door rather than their political party to determine their pay for transcription. Accordingly, for the eyes and door conditions, Democrat/Republican was replaced with their response for eye color (blue/green or brown/other) or door (1 or 2). The equal-role condition was identical across the three payment rules and all participants received equal pay (30 cents) which was the same amount as the disadvantaged participants. We used the same payment amount for equal and disadvantaged roles so that any difference in fairness judgments can be attributed to the payment rule rather than the absolute amount of earnings.

Results

Table 1 presents the descriptive statistics for the participants' fairness ratings. Figure 1 displays these ratings by payment rule and role (disadvantaged, advantaged, or equal). In the disadvantaged role, participants rated the political party rule as less fair than the door rule, $t(119) = 4.87, p < .001, d = 0.89$. They rated the eyes rule as less fair than the door rule, $t(120) = 4.38, p < .001, d = 0.79$. The ratings of the party rule and eyes rule did not differ, $t(119) = 0.74, p = .23, d = 0.13$.

In the advantaged role, participants also rated the political party rule as less fair than the door rule, $t(117) = 1.79, p = .04, d = 0.33$, and they rated the eyes rule as less fair than the door rule, $t(115) = 5.06, p < .001, d = 0.94$. However, they rated the party rule as *more* fair than the eyes rule, $t(114) = 3.08, p = .001, d = 0.57$. This observation indicates that participants found it more acceptable to earn more money than political rivals, compared to earning more money than others with different eye color.

Table 1*Fairness rating for payment rule*

	<i>n</i>	<i>M</i>	<i>(SD)</i>
Door			
Disadvantaged	61	-1.32	(1.60)
Advantaged	60	-0.07	(2.07)
Equal	60	0.40	(1.97)
Eyes			
Disadvantaged	61	-2.36	(0.91)
Advantaged	57	-1.79	(1.56)
Equal	62	0.61	(1.88)
Party			
Disadvantaged	60	-2.48	(0.91)
Advantaged	59	-0.75	(2.06)
Equal	61	1.07	(1.85)

Note. Fairness scale from *very fair* = -3 to *very unfair* = +3.

In the equal role, participants' fairness ratings did not differ across payment rule conditions, $F(2,180) = 1.94$, $p = .15$, $\eta^2 = .02$, as expected because these were control conditions with identical stimuli.

We next look at the effects of role within each payment rule. For the door rule, participants in the disadvantaged role rated the payment rule as less fair than participants in the equal role, $t(119) = 5.31$, $p < .001$, $d = 0.96$. This difference occurred despite the fact that these two groups of participants received the same payment amount (30 cents). Participants who were advantaged rated the same rule as more fair than those who were disadvantaged by it, $t(119) = 3.75$, $p < .001$, $d = 0.68$. The advantaged participants' ratings did not differ from participants' ratings in the equal role, $t(118) = 1.26$, $p = .10$, $d = 0.23$.

For the eyes rule, participants in the disadvantaged role rated the payment rule as less fair than participants in the equal role, $t(121) = 11.10$, $p < .001$, $d = 2.00$. Advantaged participants rated the rule as more fair than those who were disadvantaged, $t(116) = 2.45$, $p = .01$, $d = 0.45$.

Participants who were advantaged rated the rule as less fair than those in the equal role, $t(117) = 7.55, p < .001, d = 1.39$.

For the political party rule, participants in the disadvantaged role rated the payment rule as less fair than participants in the equal role, $t(118) = 13.34, p < .001, d = 2.43$. Participants who were advantaged rated the same rule as more fair than those who were disadvantaged, $t(117) = 5.98, p < .001, d = 1.10$. Participants who were advantaged rated the rule as less fair than those in the equal role, $t(118) = 5.07, p < .001, d = 0.93$.

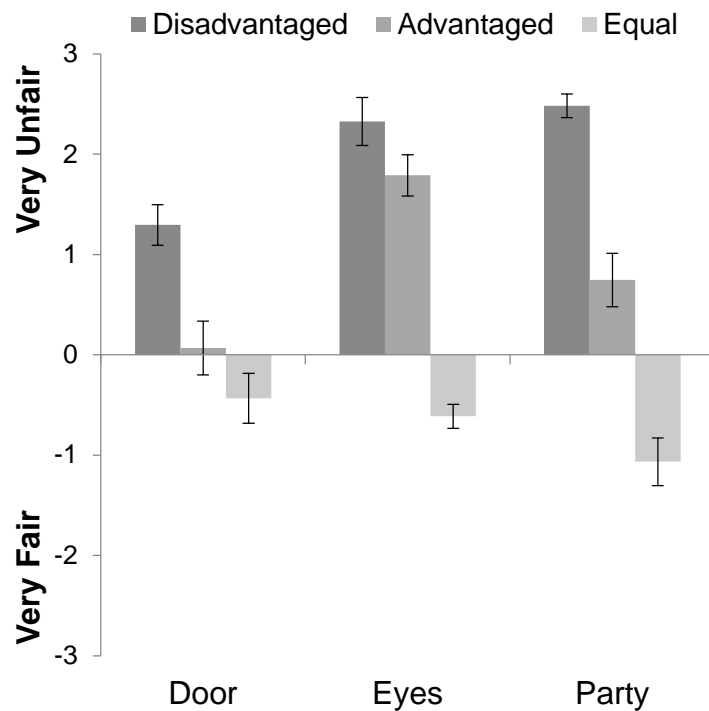


Figure 1. Mean (*SE*) unfairness ratings by payment rule (door, eyes, political party) and role (disadvantaged, advantaged, equal). Unfairness was rated on 7-point scale (-3 = *very fair*, 0 = *neither fair nor unfair*, and 3 = *very unfair*).

Discussion and Implications

Overall, participants in the disadvantaged role thought that lower pay was more unfair when it was based on their political party or eye color, compared to their (arbitrary) choice

between two doors. These results show that people judge some forms of wage discrimination as more unfair than others. This finding is consistent with the common observation that people show greater moral outrage toward particular forms of unequal pay. It is also broadly consistent with theories about procedural justice which hold that people's judgments of fairness are attuned not only to the equality of outcomes but also to the particular procedures by which those outcomes arose. In the case of wages, people do not only expect equal pay for equal work, they also apply additional distinctions and rules such as, in some cases, permitting unequal pay based on experience, longevity, seniority, outside offers, and other conventions.

The present results go beyond previous observations that certain procedures can permit unequal pay: Even among those procedures that are unacceptable and illegitimate—including all three payment rules in this experiment—people judge some rules as a more serious breach of fairness than others. We suggest that this differentiation in unfairness among rules can provide leverage for understanding how people use procedures to solve social problems such as collective choice, coordination, and costly competition between groups. Alternative theories about how people use procedures make different predictions about which illegitimate rules people will judge as the most unfair. Moreover, these theories about procedures have important implications because they point researchers to the forms of inequality that are more likely to provoke public opposition, political mobilization, and legislative action, and which forms might escape notice even if they have damaging effects.

The current experiment provides some initial evidence along these lines. The observation that disadvantaged participants thought the eye rule was more unfair than the door rule is consistent with the theory of divisive rules (Grafen, 1987) based on the logic of coordination games (Camerer 2003; Chwe 2001; Cronk and Leech 2012; Schelling 1960; Thomas et al. 2014).

In contrast, we did not find support for group competition hypothesis which predicted even greater unfairness when rules show favoritism toward one of two enduring competitive groups, in this case political parties. Participants did judge discrimination based on political party as highly unfair, but it was not significantly worse than discrimination based on eye color. Importantly, however, ratings of unfairness in these cases were close to ceiling, so it remains possible that differences would emerge with a more expansive measure of unfairness.

Importantly, these patterns of results are necessarily based on a small number of cases looking at three particular rules. We think the current experiment provides revealing tests of these theories, but we do not recommend drawing firm conclusions about them, which would ultimately depend on a large number of tests that examine a variety of rules. We hope that future research will continue to examine additional rules, motivated by these and other theories about how people use procedures to solve social challenges.

For the advantaged participants, we observed a similar pattern of relative differences across payment rules, with one exception: Participants thought it was more fair when they were advantaged over their political rivals, compared to people with different color eyes. This result suggests that tense group competition can reduce the advantaged group's sympathy for the disadvantaged group's unfair treatment. For all three rules, disadvantaged participants thought the rule was less fair than participants who received equal pay, and the advantaged participants thought the rule was more fair than disadvantaged participants. This replicates previous research finding that people's perception of fairness depends on whether they personally stand to gain or lose from the rule (DeScioli et al. 2014; Fehr and Schmidt 1999; Sweeney 1990; Sweeney et al. 1990).

The coordination theory for procedural justice could have important policy implications. Coordination may help explain why protected classes in anti-discrimination laws tend to be defined by stable, often immutable, characteristics such as race, sex, age, religion, and national origin. Discrimination based on these characteristics is divisive because it consistently disadvantages the same people. Further, the idea of divisive rules could also provide insight into why identity politics are so contentious. These issues are closely tied to a person's identity and hence stable characteristics. Witness for example the fierce debates that surround the Equal Rights Amendment, the Civil Rights Act, or, more recently, the Lilly Ledbetter Fair Pay Act of 2009. Last, the notion of divisive rules might also help understand conflicts over economic redistribution and welfare programs. Policies that increase the tax burden on the wealthy are expected to be more vigorously opposed by them when the wealthy are consistently the same people. In contrast, economic mobility and income volatility are expected to reduce these conflicts because wealth-based burdens and benefits become less divisive (Moene and Wallerstein, 2001; Rehm et al. 2012).

In sum, we found in the case of wage discrimination in a real online labor market that even among unacceptable rules, participants judged some rules as more unfair than others. We suggest that researchers can leverage this variation in unfairness to test theories about how people use procedures to solve social problems. The present results offer some initial evidence that one key factor may be a rule's divisiveness based on its connection to stable traits rather than changeable characteristics. Finally, these findings about fairness and wage discrimination may hint at deeper connections between coordination games, moral judgment, and procedural justice.

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