

**People weigh Salaries More than Ratios in Judgments of Income Inequality,
Fairness, and Demands for Redistribution¹**

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¹ The data and analyses are available for download at <https://osf.io/3ymr9/>

Abstract

Five experiments (total $n = 2422$, with U.S. American and French participants, four preregistered) show that people are more likely to use median salaries rather than CEO-median employee compensation ratios when making inequality and fairness judgments based on company compensation data. In separate evaluation of companies, we find no significant impact of compensation ratios, which express objective levels of income inequality, but a significant impact of median salaries. In joint evaluation, ratios have an impact, but median salaries have a bigger impact. Our results point to a difference between perceived and actual inequality indicators: people do not perceive inequality based on a widely-used indicator of inequality (compensation ratios), but rather use representative workers' salaries, and believe lower representative wages are connected to higher inequality. We discuss theoretical implications for the psychological understanding of economic inequality, and practical implications for the regulation of the presentation of compensation data.

Keywords: economic inequality, income inequality, fairness, evaluability theory, numerical cognition

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Economic inequality is at its highest in many industrialized countries (Mishel & Schiedler, 2017; OECD, 2015; Piketty & Saez, 2003) and is often advanced as the cause of many social and economic problems (Wilkinson & Pickett, 2009). A prime example of economic inequality are the rising ratios between salaries of CEOs and representative workers of their companies (Mishel & Schiedler, 2017). Lawmakers around the world are starting to mandate transparency about within-company income inequality. In the USA, the Dodd-Frank act of 2011 introduced transparency for public companies: CEO compensation, median employee pay, and the ratio between CEO total compensation and median employee pay are now described in quarterly reports (Security and Exchange Commission, 2017), and reported on in the media (Campbell, 2019; Rushe, 2019; Schmidt, 2019), so that the public is informed of real levels of inequality within companies. Similar measures have recently been adopted in other countries, such as the United Kingdom (Deloitte, 2018).

While these measures emphasize the communication of pay ratios, we propose that people tend to base their judgments of inequality and fairness on employees' salaries rather than ratios. For example, we propose that people infer more income inequality (and less fairness) in a company in which the CEO receives \$2 million and the median employee \$20,000 than in a company in which the CEO receives \$6 million and the median employee \$60,000, even though the CEO-worker ratio is 100:1 in both cases. Further, we expect that people are relatively insensitive to pay ratios when they are provided with median salary information. So, if the median salary is the same in two companies (e.g., \$30,000), we predict that inequality judgments will be similar, even if CEO-worker pay ratios differ dramatically (e.g., 100:1 vs. 300:1), and, therefore, CEO compensation differs dramatically, too (e.g., \$3

million and \$9 million, respectively). Inequality and fairness perceptions contribute to claims for redistribution such as support for raising employees' salaries. There may be consequences for real employees of real companies, too: perceptions of inequality (Niehues, 2014) generate demands for redistribution, which can cause problems for companies and society at large.

Inequality perceptions and preferences

There is a large literature on preferences for redistribution, for income distribution, and for inequality in general. For example, a burgeoning literature investigates the drivers of preferences for different levels of income inequality within countries (Alesina & Angeletos, 2005; Eriksson & Simpson, 2012; Norton & Ariely, 2011). One of the proposed drivers is cultural. For instance, it is possible that differences in redistribution between Western European nations and the USA are due to underlying cultural belief in social justice and fairness. A stronger "work ethic mythology" may buttress support for higher inequality in USA compared with Western Europe (Alesina & Angeletos, 2005). In fact, people living in countries with actual higher inequality tend to hold beliefs that justify it in meritocratic terms (Mijs, 2019). However, people who *perceive* higher wage inequality are *less* likely to believe in meritocratic principles as important drivers of individual wages (Kuhn, 2019).

It is important to note, however, that people's inequality perceptions are consistent in some domains and inconsistent in other domains (for instance, across inequality of opportunity and inequality of outcome; Bavetta, Li Donni, & Marino, 2020), and many factors at the individual level, including income and gender, have an important influence on perceived inequality and subsequent support for redistribution (Bavetta et al., 2019). This may indicate that laypeople do not have very precise or stable concepts of inequality – at least, they do not understand inequality in the same way that researchers do, and that even within the same country or culture there can be widely different points-of-view on the optimal inequality level.

Likewise, the way one presents inequality can change people's support for redistribution (for instance, in the form of support for higher level of taxation on the rich). People perceive bigger economic differences as less legitimate when these differences are framed as the disadvantaged group having less (Bruckmüller et al., 2017). A similar framing of the meaning of inequality interacts with political ideology (liberal vs. conservative in an U.S. American context) in determining support for redistribution (Chow & Galak, 2012), making conservatives more supportive of redistribution and increasing conservatives' external attribution for wealth, but it does not seem to affect liberals. However, perceived inequality also affects people on the left when forming their preferences on redistribution (Alesina et al., 2018).

How beliefs about inequality are measured also seems to influence the direction in which inequality can be perceived. For instance, Norton and Ariely (2011) find that U.S. Americans vastly underestimate the amount of income inequality in the USA. However, Eriksson and Simpson (2012) argue that, changing the wording of the questionnaire, one can find evidence that U.S. Americans vastly *overestimate* the amount of inequality in the USA. Further, people seem to interpret equal *relative* increases in income – equal for everyone in percentage – as increasing income inequality (Lembregts & Pandelaere, 2014). In general, people all over the world do not seem to perceive inequality correctly (Gimpelson & Treisman, 2018), nor do they seem to care about how much they know about inequality (Niehues, 2014). The social and political consequences of inequality misperceptions are quite worrying. For instance, U.S. Americans seem to believe in a “racial progress myth” in which the economic situation of Black U.S. Americans is much closer to that of White U.S. Americans than it actually is, which hinders effort at improving the economic condition of Black U.S. Americans (Kraus et al., 2017). If people's inequality perceptions are inaccurate, unstable, and easy to influence with minimal cues, it is hard to see how they can reliably drive

political and economic change. Overall, the research we reviewed poses obvious problems to a unified theory of inequality perceptions and their effects on redistribution demands.

Specifically, prior work seems to focus on how individuals respond to (changes in) one cue representing income inequality (e.g., only showing income ratios). However, in many cases, people are judging income inequality based on multiple cues (e.g., ratios, median incomes), which are often presented simultaneously. Our research aims to fill this gap by focusing on how individuals construe income inequality from several cues representing income inequality within-companies.

Income inequality within companies

The research we summarized above is mostly concerned with the inequality distribution in a society, often understood as a nation or a country. For instance, Norton and Ariely (2012) asked participants to imagine income inequality in the U.S.A. as a whole, and Bavetta et al. (2020) used data from an international survey that asked people what they thought of inequality in their own countries. However, economic inequality is an issue that is important for institutions and policymakers alike not just at the country level, but also at the company level. One important signal is that many public companies are mandated to publish a few indicators of within-company income inequality (e.g., the ratio between CEO compensation and the median worker salary). Research in consumer psychology and social psychology suggests that people believe that more unequal companies treat their employees worse (Benedetti & Chen, 2018) and that people dislike products made by more unequal companies (Mohan et al., 2018). In both of these articles, inequality is operationalized as the CEO-median salary ratio. Using such an indicator assumes that people have a good understanding of pay ratios, and that people are able to evaluate them when they are making decisions about a company. However, this work has not considered the impact of representative salaries on perceptions of inequality driven by CEO-median wage ratios, as

they have either been kept constant or omitted from presentation. Filling this gap in the literature, the present paper asks what the joint impact is of CEO-median wage ratios and median wages, and how they influence perceptions of fairness and inequality.

Prominence and evaluability of ratios vs. salaries

Why would people rely on salaries more than pay ratios to judge inequality? For our theorizing, we draw from research on judgment and decision-making. Specifically, we focus on the robust finding that, when evaluating information, people rely on cues that are relevant (i.e. prominent) but also easy to evaluate (i.e. evaluable).

When people make judgments and decisions regarding multi-attribute stimuli, they may use a *prominence* strategy. That is, they will identify what they believe to be the most important attribute (the *prominent* attribute) and choose or judge the stimulus based on the values of that specific item (Fischer & Hawkins, 1993). The concept of prominence originated in choice literature (Tversky et al., 1988). Here, participants may be judging two or more stimuli. Each stimulus has at least two attributes, and values of the attributes vary across stimuli. For instance, consumers may be presented with two TVs, which differ on price and screen resolution. People may believe that one attribute (for instance, price) is the prominent one, and therefore weigh that attribute to a larger extent when they make a choice. We apply a similar reasoning to inequality and fairness judgments. When people are confronted with the overall compensation information of a company, they are evaluating a stimulus with several attributes: the CEO compensation, the average (or median) employee compensation, and their ratio. Which is the prominent attribute when evaluating inequality and fairness? Our investigation proposes that most people believe that representative salaries, such as those by average or median employees, are more prominent when making judgments of fairness and inequality, and tend to use those when evaluating income inequality and fairness in companies.

People need to believe that information is important for the issue at hand, but such information also needs to be available to them (e.g., provided by the environment or available in memory). Drawing on evaluability theory (Hsee & Zhang, 2010), we further propose that an additional factor that determines the use of information is its evaluability. From this perspective, when provided with median salary information and pay ratio information, people may use the former more either because it is easier to evaluate than the latter, or because they find the former more important.

Most people have extensive experience with numbers in a more restricted range, especially when it comes to monetary amounts. For instance, in the USA, 73% of households have a yearly income lower than \$100,000 (US Census Bureau 2017). Further, Chamberlain (2015) reports that the median yearly salary at S&P 500 companies in 2014 was around \$77,000, with only about 5% of employees making more than \$130,000. American S&P 500 employees and average citizens should therefore better understand median pay levels that fall in the range between \$0 and \$100,000, because they are both more likely to be typical salaries and typical household incomes: median pay levels should be relatively easy to evaluate.

Even though median salary information may be easier to evaluate than CEO salaries and pay ratios, this does not necessarily imply that people find the former more prominent. In fact, it is possible that people find pay ratios more important but because they find them difficult to evaluate, they rely on median salary information instead. Alternatively, people may prefer to infer levels of inequality from median pay information, both because they find it easy to evaluate *and* important. To examine whether the proposed impact of pay ratio is due to its evaluability or prominence (that is, whether people rely more on salaries because they actually consider them more important or just because they are easier to evaluate), we compare the impact of median salary and pay ratio information in joint and separate evaluation. In separate evaluation, people confront information about a single entity (i.e., a

single company), and thus would receive only a single median salary level and a single pay ratio. In joint evaluation, people confront information about multiple entities, and thus would receive multiple median salary levels and pay ratios. A host of research has shown that joint evaluation makes information that is hard to evaluate easier to evaluate, compared to separate evaluation (Hsee, 1996; Hsee & Zhang, 2010; Sunstein, 2018). If people find median salary information *easier to evaluate* than pay ratio information, the former should impact judgments of inequality and pay fairness more than the latter in separate evaluation. Which piece of information they find *prominent* can be gauged from the results in joint evaluation. Specifically, in joint evaluation that renders all information easy to evaluate by giving at least one comparison point (Hsee, 1996), people should give more weight to the information that they find prominent.

On the face of it, other explanations could also predict results similar to ours. For instance, participants may be inclined to disregard ratios altogether because they believe that CEOs salaries do not represent adequate comparison points for their own salaries and median salaries. This would imply that people disregard CEO compensation and ratios in general. The within-subjects test (i.e., joint evaluation) also helps test this perspective. If ratios would significantly affect pay fairness judgments in joint evaluation as well as in separate evaluation, this would suggest that people rely on salary because they find them more important than ratios rather than just easier to evaluate.

How do people want to reduce inequality, if at all? People tend to prefer to increase the payoffs of the least well-off rather than decrease inequality by reducing the payoff of the most well-off (Charness & Rabin, 2002), with the exception of the one person at the very top of the distribution (Fisman et al., 2021). Importantly, people misperceive within-company income inequality and underestimate other people's salaries, and correcting this belief makes them work harder (Cullen & Perez-Truglia, 2021). If indeed perceptions of income inequality

induce demands for redistribution, it is interesting, in the context of our research, to investigate whether people prefer to reduce inequality by increasing median salary wages, and by how much, following changes in median wages or in CEO-salary ratio.

Methods and Results

Study overview

We conducted five experimental studies (total $n = 2422$). In study 1a and 1b, we established that, in single evaluation, participants from France and the USA anchored their compensation fairness and inequality judgments on median salaries rather than ratios. In study 2, we found that in joint evaluation (vs. separate evaluation), participants were more likely to consider ratios when making fairness and inequality judgments, but median salaries had a higher impact than ratios in both joint and separate evaluation. Study S1, in the supplementary materials, extends our effect to higher salary levels and to a fully within-subjects experimental design, and study S2 directly compares changes in median salary and CEO-employee compensation ratios. Raw data and analyses for all studies are available at

<https://osf.io/3ymr9/>. Additional analyses are reported in the supplementary materials.

Sensitivity power analyses are reported in Table 1. For each study, we report all measures, manipulations and exclusions. Throughout the paper, we present effect sizes such as Cohen's d and eta squares (η^2). Empirically-driven guidelines point to $d = 0.18$, $d = 0.32$, and $d = 0.64$ (converted into $\eta^2 = 0.008$, $\eta^2 = 0.025$, $\eta^2 = 0.09$) as small, medium, and large effects respectively (Bosco et al., 2014).

Table 1

Sensitivity analyses, experimental studies.

Study	Sample size (sample)	Country	Experimental design	Cohen's d detectable with 80% power, $\alpha = .05$ (two- tailed)
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1a	414 (French students)	France	Between-subjects	$d = 0.32$
1b	600 (MTurk)	U.S.A.	Between-subjects	$d = 0.28$
2	807 (MTurk)	U.S.A.	Between-subjects and within - subjects	$d = 0.34$ $d = 0.14$
S1	301 (MTurk)	U.S.A.	Within-subjects	$d = 0.19$
S2	300 (MTurk)	U.S.A.	Between-subjects	$d = 0.34$

Study 1a: Perceptions of Income Inequality in Companies

This study investigates the impact of median salary and CEO compensation information on perceptions of salary fairness, economic inequality, and willingness to sign a petition to raise employees' salaries. We expect participants that have all relevant information (CEO compensation, median employee compensation, and their ratio) to base their fairness and inequality judgments on median employee salary information rather than on CEO-to-employee salary ratio information. For example, people will think that there is less income inequality in a company with a CEO compensation of €6 million, CEO-worker ratio of 100:1 and a median salary of €60,000 compared to a company with the same CEO-worker ratio (100:1), a lower CEO compensation (€2 million), and a median salary of €20,000. Further, we expect that there will be a smaller difference between inequality judgments of a company with a CEO-worker ratio of 100:1 and a company with a CEO-worker ratio of 300:1 if they have the same median salary (e.g., €20,000), and therefore different CEO compensation (€2 million and €6 million respectively). Note that these salaries are usual: in France, a single-person household making €20,000/year is in the 41st percentile of the national income distribution, and a single-person household making €60,000/year is in the seventh percentile of the national income distribution (*World Inequality Database - France*, 2020). This study was preregistered at https://osf.io/f3srx?view_only=3a54abf924d5430fb4b62b4db226a228.

Methods

We recruited 414 students in a French business school ($M_{age} = 20.31$, $SD_{age} = 1.78$; 166 males, 245 females, 3 other), who participated for course credit. They were randomly assigned to one of three conditions. In all conditions, participants read about a fictional company with 7,000 employees named Keller, based in Rennes (France). All participants were given further information about its CEO compensation, the median employee salary, and the ratio between these two. Table 2 gives an overview of the scenarios presented in the conditions.

Table 2

Overview of information in experimental conditions, Study 1a. Participants were exposed to the three pieces of compensation information in each condition.

Condition	CEO Yearly Compensation	Employee Median Yearly Salary	Ratio
Baseline	€ 6 million	€ 20,000	300:1
Lower CEO compensation	€ 2 million	€ 20,000	100:1
Higher Median salary	€ 6 million	€ 60,000	100:1

Compared to the Baseline condition, in both the Lower CEO Salary condition and in the Higher Median Salary condition, ratio is reduced from 300:1 to 100:1. However, it is done in different ways: either by increasing median salary from € 20,000 to € 60,000 (Higher Median condition) or by decreasing CEO compensation from € 6 million to € 2 million (Lower CEO condition). We chose this design (which we employed in study 1b and 2 as well) because it allows us to compare similar changes in median salaries and in ratio. Further, this design allows us to side-step the problem one would have when manipulating either the ratio or the median salary alone, i.e., that CEO compensation would not be constant across conditions.

After they read the scenario, participants had to answer two questions regarding perceived income inequality (“Are incomes equally distributed in this company?”, and “Is there income equality at this company?”, which showed high reliability with $\alpha = .83$, and were therefore averaged), a question regarding the fairness of employee salaries (“Are median salaries fair at this company?”), and a question regarding the fairness of CEO compensation (“Is the CEO salary fair at this company?”). Finally, they were asked questions about whether they thought the minimum salary in France should be increased by law (“Do you think a law to raise minimum wage salary should be passed in France?”), and whether they thought CEO compensation in France should be capped by law (“Do you think that CEO salaries should have a fixed maximum in France?”). All questions were anchored at 1 (*Not at all*) and 7 (*Very much*). Results relative to support for a CEO maximum salary and a support for a higher minimum wage are reported in the Supplementary materials; descriptive statistics for all dependent variables are reported in Table 3.

Results

Here and in the rest of the methods section, we indicate the Lower CEO compensation condition as “Lower CEO” and the Higher median salary condition as “Higher median”.

Perceived income equality. A one-way ANOVA with condition as between-subjects factor and perceived income equality as dependent variable found an effect of Condition on perceived income equality, $F(2, 411) = 9.43, p < .001, \eta^2_p = .044$. Perceived income equality was higher in the Higher Median condition ($M = 2.80, SD = 1.31$) than in the Baseline condition ($M = 2.20, SD = 1.22$) $p < .001, d = 0.47$, and the Lower CEO condition ($M = 2.28, SD = 1.18$) $p = .001, d = 0.42$. Perceived income equality did not differ between the Baseline condition and the Lower CEO condition, $p = .58, d = 0.07$. These results show that median employee salary levels affect judgments of economic inequality more than actual indicators of economic inequality (ratios), as the same company was judged less equal in the Higher

Employee Pay condition compared to the Lower CEO condition despite them having the same ratio (100:1).

Median salary fairness. A one-way ANOVA with condition as between-subjects factor and median salary fairness as the dependent variable found a statistically significant effect, $F(2, 411) = 18.84, p < .001$, partial $\eta^2 = .079$. Median salary fairness levels were higher in the Higher Median Pay condition ($M = 3.88, SD = 1.48$), than in both the Baseline condition ($M = 2.95, SD = 1.47$), $p < .001, d = 0.63$, and the Lower CEO condition ($M = 2.95, SD = 1.38$), $p < .001, d = 0.65$. The latter two conditions, however, did not significantly differ, $p = .99, d < 0.01$. These results show that median salary fairness is much more impacted by employees' salaries, and barely by the ratios in this study.

Table 3

Results of Study 1a

Experimental Condition	Presented information	Perceived income equality M (SD)	CEO compensation fairness M (SD)	Support to limit CEO compensation in France M (SD)	Median salary fairness M (SD)	Support to increase minimum wage in France M (SD)
Baseline	CEO compensation Median salary Ratio € 6 million € 20,000 300:1	2.20 (1.22)	2.78 (1.66)	3.86 (2.14)	2.95 (1.47)	3.96 (1.84)
Lower CEO	CEO compensation Median salary Ratio € 2 million € 20,000 100:1	2.28 (1.18)	2.79 (1.64)	3.94 (2.04)	2.95 (1.38)	4.05 (1.73)
Higher median	CEO compensation Median salary Ratio € 6 million € 60,000 100:1	2.80 (1.31)	3.23 (1.60)	3.64 (1.96)	3.88 (1.48)	3.59 (1.75)

Discussion

Study 1a sheds light on how people perceive income inequality. Rather than being driven by a widely used indicator of inequality (CEO-median employee salary ratio), people's perceptions are driven by information of the economic treatment that representative employees receive (viz. median employee income). In tune with judgments of income inequality, participants' fairness judgments of employees' salaries were driven by median wage levels instead of ratios.

Study 1B – Median Employee Salaries Drive Fairness and Economic Inequality Judgments in the USA, too

Different countries may have different tolerance levels for inequality (Kiatpongsan & Norton, 2014; Wright, 2017). The objective of this study is to replicate previous results (obtained with a French sample) in a different country (USA), with higher levels of support for income inequality (Frank et al., 2015), higher levels of overall actual economic inequality (World Bank, 2019b), and overall higher standards of living (World Bank, 2019a). Further, while in study 1a we found little support for the role of compensation data in modifying people's attitudes towards redistribution in a whole country, in this study we test whether they favor redistribution in the single company that they are presented information about. Overall, as in study 1a, we expected that people would judge a company with a median salary of \$30,000 as more unequal than a company with a median salary of \$75,000, even though they have the same CEO-worker median ratio (e.g., 160:1), and therefore different CEO compensation (\$4.8 million and \$12 million respectively). We also expected that fairness judgments and attitudes towards redistribution (support for raising employees' salaries) will follow similar patterns. Further, we expect smaller effects of ratio (compared to median salary) on inequality, fairness judgments, and attitudes towards redistribution.

Methods

We randomly assigned 600 Amazon Mechanical Turk participants (272 males, 328 females, $M_{age} = 38.63$, $SD_{age} = 14.05$; paid \$0.50 for their participation) to one of the following conditions: Baseline, Higher Median Salary, and Lower CEO Compensation. In all conditions, participants were given a brief description of a company, including the median employee salary, the CEO compensation, and the ratio between the CEO compensation and the median employee pay (See Table 3 for the exact levels by condition). Compared to the baseline condition (ratio: 400:1), pay ratio (an objective measure of income inequality) is lower in both the Lower CEO Compensation and Higher Median Salary conditions (160:1). This was obtained in two different ways: by raising employee salary levels in the Higher Median Salary condition (from \$30,000 to \$75,000), or by lowering CEO Compensation in the Lower CEO Compensation condition (from \$12 million to \$4.8 million). We obtained CEO compensation and median salary levels from Glassdoor.com data published by Chamberlain (2015), relative to 441 S&P companies surveyed in 2014. The \$30,000 median yearly employee salary is on the low end (5th percentile) for median salaries in the Glassdoor.com sample, while the \$75,000 median yearly salary is around the median of the Glassdoor.com sample; similarly, a \$4.8 million CEO compensation is on the low end (5th percentile) for CEO compensation in the Glassdoor.com sample, while the \$12 million CEO yearly compensation is around the CEO compensation median of the Glassdoor.com sample. All these numbers were rounded to increase participant comprehension. This study was preregistered at <http://aspredicted.org/blind.php?x=ki4at7>.

Table 4

Overview of the information in the experimental conditions of Study 1b. Participants were exposed to the three pieces of compensation information in each condition.

Condition	CEO Compensation	Median salary	Ratio
Baseline	\$ 12 million/year	\$ 30,000 /year	400:1
Lower CEO Compensation	\$ 4.8 million/year	\$ 30,000 /year	160:1
Higher Median Salary	\$ 12 million/year	\$ 75,000 /year	160:1

After they read the scenario, participants were asked to judge employee salary fairness, CEO compensation fairness, perceived income equality, and to express their willingness to sign a petition to raise salaries at the company in question, all on 7-point Likert scales anchored at 1 (*Not at all*) and 7 (*Very much*). Results relative to CEO compensation fairness are reported in the Supplementary Materials.

Results

Perceived income equality. A one-way ANOVA showed a significant overall effect of Condition, $F(2,597) = 7.84, p < .001, \eta^2_p = .026$. Post-hoc tests showed a significant difference between the Baseline ($M = 2.23, SD = 1.69$), and the Higher Median condition ($M = 2.87, SD = 1.81$), $p < .001, d = .36$, and between the Higher Median and the Lower CEO condition ($M = 2.34, SD = 1.67$), $p = .002, d = 0.30$, but not between the Baseline and the Lower CEO Compensation, $p = .51, d = 0.07$. These results indicate that participants considered the Lower CEO company less equal than the Higher median pay employee pay company, despite them having the same objective income inequality (a ratio of 160:1), and considered the Baseline and the Lower CEO compensation company similarly equal despite them having very different levels of objective income inequality (Baseline: 400:1; Lower CEO: 160:1).

Median employee pay fairness. A one-way ANOVA showed a significant overall effect of condition, $F(2,597) = 50.55, p < .001, \eta^2_p = .145$. Post-hoc tests showed a significant difference between the Baseline ($M = 2.74, SD = 1.61$), and the Higher Median condition (M

$= 4.27, SD = 1.74$), $p < .001, d = 0.91$, and between the Higher Median and the Lower CEO condition ($M = 2.87, SD = 1.68$), $p < .001, d = 0.81$, but not between the Baseline and the Lower CEO conditions, $p = .45, d = 0.08$. It appears thus that median employee fairness depends solely on median employee salary, with higher levels of median employee pay considered fairer. Interestingly, even if CEO compensation goes up, this does not seem to affect judgments of employee pay fairness.

Support for employee salary increase. A one-way ANOVA showed a significant overall effect of condition, $F(2,597) = 7.91, p < .001, \eta^2_p = .026$. Post-hoc tests showed a significant difference between the Baseline ($M = 5.43, SD = 1.58$), and the Higher median pay condition ($M = 4.76, SD = 1.91$), $p < .001, d = 0.38$, and between the Higher median pay and the Lower CEO condition ($M = 5.29, SD = 1.76$), $p = .003, d = 0.29$, but not between the Baseline and the Lower CEO conditions, $p = .41, d = 0.08$. This indicates that support for pay increases at a company is more impacted by the employee median salary levels we presented than by the ratio levels (400:1 vs. 160:1).

Table 5

Results of Study 1b

Experimental Condition	Presented information		Perceived income equality M (SD)	CEO compensation fairness M (SD)	Median salary fairness M (SD)	Support to increase median salaries M (SD)
Baseline	CEO compensation Median salary Ratio	\$ 12 million \$ 30,000 400:1	2.23 (1.69)	2.77 (1.81)	2.74 (1.64)	5.43 (1.58)
Lower CEO	CEO compensation Median salary Ratio	\$ 4.8 million \$ 30,000 160:1	2.34 (1.67)	2.82 (1.79)	2.87 (1.68)	5.29 (1.76)
Higher median	CEO compensation Median salary Ratio	\$ 12 million \$ 75,000 160:1	2.87 (1.81)	3.22 (1.86)	4.27 (1.74)	4.76 (1.91)

Discussion

This study replicates the results of our previous study in an American sample: participants make judgments of income inequality based on absolute salary levels rather than objective income inequality measures (ratios). Similarly, salary fairness judgments are based on absolute median employee salary levels rather than CEO compensation levels or ratios. Finally, we found a significant effect of median salaries – but no significant effect of ratios – on support for within-company redistribution (raising employees' salaries). These results corroborate the results of Study 1a by extending them to a different scenario, different levels of numerical information, and an American sample, and extend them to within-company redistribution.

Study 2 – Evaluation Mode Only Partially Changes Judgments of Income Inequality and Compensation Fairness

Our previous studies show that median employee salary has a bigger impact than CEO compensation and CEO-employee salary ratio on inequality judgments and compensation fairness. In this study, we test whether people rely on salaries more than ratios because of evaluability reasons or prominence reasons. The evaluability explanation proposes that CEO compensation and pay ratio are harder to evaluate than median employee pay. Joint evaluation mode typically reduces evaluation difficulty compared to single evaluation (Hsee & Zhang, 2010; Hsee, 1996), since it adds context (i.e. a comparison point), which helps people to evaluate an object. Therefore, we test the impact of joint versus separate evaluation on judgments of pay fairness and inequality, since they are both prevalent in the real world (Sunstein, 2018). We expect differences in pay ratio will have a bigger impact in joint than in separate evaluation, since that information is easier to understand in the former situation. If, however, the effect is driven by a core reliance by observers to base their inequality judgments on salaries more than on ratios, that is, median salaries are considered prominent

compared to ratios, we should observe a larger effect of median salaries on inequality and fairness judgments in joint evaluation compared to the effect of ratio.

This study is important for our argument for another reason, too, as it tests whether people completely ignore CEO income or whether people completely ignore the ratios. If this were the case, we should not observe an effect of the CEO-median wages ratios at all, even in joint evaluation mode. However, if people do care about such ratios, but are unable to evaluate them when presented singularly, we should observe a larger and statistically significant effect of ratios in joint evaluation compared with separate evaluation.

This study was preregistered at <http://aspredicted.org/blind.php?x=ca5hi9>.

Methods

We recruited 807 participants from Amazon Mechanical Turk (403 males, 404 females, $M_{age} = 38.16$, $SD_{age} = 13.52$; paid \$0.50 for their participation). This study had six total conditions (three between-subjects and three within-subjects), the wording of which was identical to the one in Study 1b. In the Separate Evaluation condition, participants were randomized across three conditions; in the Joint Evaluation condition, the conditions were also the same as in Study 1B, but participants saw them all at the same time (yielding three within-subjects conditions). This procedure is represented in Figure 3. We collected all the same measures as in Study 1B (in the joint condition, participants had to complete one of each measure per company), and an additional measure used to measure participants' willingness to sign a petition to lower CEO compensation, anchored at 1 (*Not at all*) and 7 (*Very Much*). Results relative to support to increase median salaries, CEO compensation fairness and support to reducing CEO compensation are reported in the Supplementary Materials; descriptive statistics for all dependent variables are presented in Table 6. Broadly speaking, these measures follow the same pattern of results of the income equality and fairness measures.

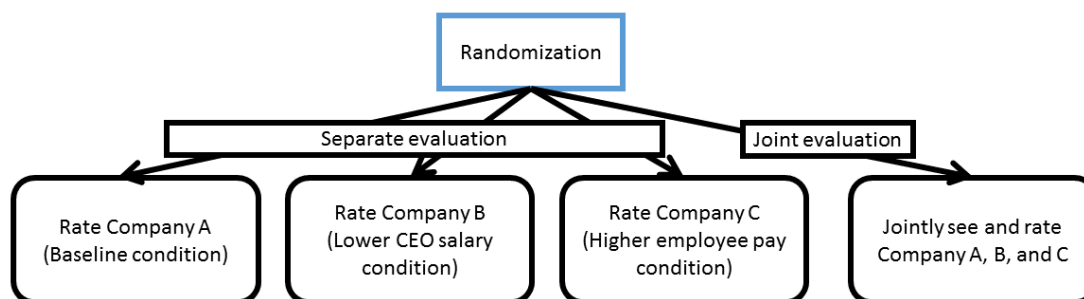


Figure 1. Experimental procedure, study 2. Note: Study 2 is composed of six total conditions, three between-subjects separate evaluation conditions and three within-subjects (nested in the joint evaluation condition).

Results

Perceived income equality. A linear mixed-model analysis with evaluation mode and condition as factors showed significant effects of condition, $F(2, 1192.93) = 22.89, p < .001$, and evaluation mode, $F(1, 833.76) = 21.77, p < .001$, and a significant interaction between them, $F(2, 1192.93) = 7.23, p = .001$.

In separate evaluation, we replicated results from Study 1a and Study 1b. The Baseline condition ($M = 2.33, SD = 1.80$) and the Lower CEO compensation condition ($M = 2.31, SD = 1.70$) were not different from each other, $p = .93, d = 0.01$. The equality judgments the Higher Median Pay condition ($M = 2.73, SD = 1.82$) tended to be higher in the Baseline condition, $p = .066, d = 0.22$, and the Lower CEO Compensation condition, $p = .054, d = 0.24$, with similar effect sizes as in our previous studies. These results replicate those of previous studies: income inequality is judged based on median salaries rather than ratio information (i.e. an objective income inequality indicator).

In joint evaluation, perceived income inequality was significantly lower in the Baseline condition ($M = 2.39, SD = 1.76$) than in the Lower CEO Compensation condition (M

= 3.12, $SD = 1.74$), $p < .001$, $d = 0.53$, and the Higher median condition ($M = 3.52$, $SD = 1.83$), $p < .001$, $d = 0.69$. Perceived income equality was significantly lower in the Lower CEO condition than the Higher Median condition, $p < .001$, $d = 0.32$. These results show that compared to separate evaluation, participants judged the Lower CEO compensation company (160:1) more equal than the Baseline company (400:1), so ratios did play a role in inequality judgments. Importantly though, participants still judged the Higher Median condition as more equal than the Lower CEO condition, despite having the same objective income inequality level (ratio of 160:1). This suggests that, even in joint evaluation, observers are still more likely to predominantly rely on median salaries rather than ratios to judge income inequality.

Median salary fairness. A linear mixed-model analysis with evaluation mode and condition as factors showed a significant effect of condition, $F(2, 1438.29) = 103.54$, $p < .001$, a significant effect of evaluation mode, $F(1, 884.81) = 8.16$, $p = .004$, and a significant interaction between condition and evaluation mode, $F(2, 1438.29) = 4.55$, $p = .011$.

In separate evaluations, there was no difference between the Baseline condition ($M = 3.03$, $SD = 1.77$) and the Lower CEO Compensation condition ($M = 3.16$, $SD = 1.89$), $p = .55$, $d = 0.07$. Median employee pay fairness was significantly higher in the Higher Median Pay condition ($M = 4.32$, $SD = 1.89$) than both the Baseline condition, $p < .001$, $d = 0.70$, and the Lower CEO condition, $p < .001$, $d = 0.61$. These results replicate those of Study 1a and Study 1b: participants judged median employee fairness based on median employee salaries rather than objective income inequality.

In joint evaluation, median employee pay fairness in the Baseline condition ($M = 2.95$, $SD = 1.84$) was lower than both the Lower CEO Compensation, ($M = 3.65$, $SD = 1.68$), $p < .001$, $d = 0.48$, and the Higher Median Pay condition ($M = 4.90$, $SD = 1.70$), $p < .001$, $d = 0.91$. The Higher Median Pay and the Lower CEO conditions were also significantly different from each other, $p < .001$, $d = 0.67$. These results show that in the joint condition, participants

took ratio information into account when judging median salary fairness. However, as the difference between the Higher Median Pay condition and the Lower CEO condition shows, participants still considered companies with higher median salaries as fairer.

Table 6

Overview of experimental results of Study 2. Results related to CEO compensation fairness are reported in further detail the Supplementary Materials.

Experimental Condition	Presented information			Perceived income equality M (SD)	CEO compensation fairness M (SD)	Support to decrease CEO compensation M (SD)	Median salary fairness M (SD)	Support to increase median salaries M (SD)
Separate evaluation	Baseline	CEO compensation Median salary Ratio	\$ 12 million \$ 30,000 400:1	2.33 (1.80)	3.14 (2.04)	5.05 (1.95)	3.03 (1.77)	5.38 (1.77)
	Lower CEO	CEO compensation Median salary Ratio	\$ 4.8 million \$ 30,000 160:1	2.31 (1.70)	3.13 (2.08)	5.21 (1.87)	3.16 (1.89)	5.44 (1.53)
	Higher median	CEO compensation Median salary Ratio	\$ 12 million \$ 75,000 160:1	2.73 (1.82)	3.26 (1.94)	4.97 (1.88)	4.32 (1.89)	4.88 (1.75)
Joint evaluation	Baseline	CEO compensation Median salary Ratio	\$ 12 million \$ 30,000 400:1	2.39 (1.76)	3.01 (2.03)	5.03 (2.13)	2.95 (1.84)	5.32 (1.88)
	Lower CEO	CEO compensation Median salary Ratio	\$ 4.8 million \$ 30,000 160:1	3.12 (1.74)	3.83 (1.83)	4.24 (2.11)	3.65 (1.68)	4.96 (1.85)
	Higher median	CEO compensation Median salary Ratio	\$ 12 million \$ 75,000 160:1	3.52 (1.83)	4.05 (1.88)	4.43 (2.12)	4.90 (1.70)	3.99 (1.96)



Figure 2. The impact of evaluation mode and changes in median salaries and CEO-worker compensation ratios on perceived income equality, salary fairness, and support for higher salaries, Study 2.

Discussion

This study lends support to the notion that people find median salaries more prominent than ratios and that is why they use them to judge inequality and fairness. Overall, in the separate condition we replicate the results of Studies 1a and 1b (no significant difference between Baseline and Lower CEO Compensation condition, higher fairness judgments in the Higher Median Salary condition), but ratio information had a stronger impact on judgments of economic equality and fairness in the joint evaluation condition. Taken together, these results show that evaluation mode critically influences how people interpret and understand salary information, and how they form equality and fairness perceptions are based on them. Surprisingly, even in the joint evaluation condition, participants tended to give more positive

judgments in the Higher Median rather than the Lower CEO condition, indicating a remaining positive impact of median salary levels. This shows that laypeople judge inequality more based on median salaries than on ratios, even when they can compare different ratios in joint evaluation. Further, this study shows that when the evaluation of CEO-median salary ratios becomes easier (as in joint evaluation), participants do take them into account to a certain extent in their judgments of fairness and perceived inequality. This suggests participants do not consider that information as irrelevant, but rather that they consider other factors as more important for fairness and inequality judgments.

General Discussion

Perceived economic inequality is strongly correlated with demands for redistribution (and weakly correlated with actual economic inequality - Engelhardt & Wagener, 2014; Niehues, 2014), but its causes are poorly understood (Gimpelson & Treisman, 2018). Five experiments show that an indicator of representative absolute compensation (median employee pay) influences perceived economic inequality more compared to an actual indicator of income inequality (CEO-to-median employee salary ratio), in both joint and in separate evaluation, lending support to the notion that median salaries are considered more important (prominent) than CEO-employee compensation ratios. This result sheds light on the role of perceived income inequality, explaining the relationship between fairness, perceptions of inequality, and support for redistribution (Gimpelson & Treisman, 2018).

Theoretical contribution

Our results contribute to the growing discussion about the psychological understanding of economic inequality by ordinary people (Barr & Miller, 2020; Chambers et al., 2014; Engel et al., 2020; Gimpelson & Treisman, 2018; Kiatpongsan & Norton, 2014; Kuziemko et al., 2017; Martinangeli, 2021). This research has mostly focused on CEO-worker pay ratios as a driver of people's perceptions of inequality (Benedetti & Chen, 2018;

Kiatpongsan & Norton, 2014; Mohan et al., 2018). We provide evidence that people actually care more about representative salaries than about pay ratios to judge income inequality, even in joint evaluation mode. The fact that people do not perceive inequality based on a widely publicly accepted indicator (pay ratio), which is used by the media and by academics, but rather use representative workers' salaries, points out a difference between normative and positive indicators of economic inequality. That is, it seems that policymakers and researchers give a lot of unwarranted weight to ratios, while ignoring salaries that are very important to laypeople, and even more important than pay ratios.

The dominant view in the psychological and economic scholarship that has investigated inequality perception is that of an ignorant public that simply does not know the real extent of inequality (Gimpelson & Treisman, 2018; Kiatpongsan & Norton, 2014). The present research suggests that when salaries of representative workers are considered too low, people voice their economic dissatisfaction by pointing to income inequality among other indicators of tangibly poor conditions, such as median salary fairness. Rather than being ignorant about inequality, laypeople are using different, indicators of economic distress, such as median salaries. Interestingly, even French business school students – who in Study 1a are exposed to a considerable amount of information about inequality and salaries showed the same effect, which suggests that it is unlikely that our results are due to participants' lack of knowledge. These participants come from a country normally considered as more inequality-averse than the U.S.A. (Alesina & Angeletos, 2005). However, we observed considerable consistency across the results of French and U.S. American participants. These results suggest that relying on median salaries rather than CEO-median wage ratios is common across different countries that are sometimes considered quite different when it comes to inequality and fairness concerns (Mijls, 2019). This consistency supports an evaluability explanation of our results, according to which participants from different countries and backgrounds find

ratios hard to evaluate and rely on median salaries to judge inequality and fairness. It renders, however, a “cultural” explanation of our results (according to which French people are more inequality-averse than U.S. Americans) unlikely. Indeed, such an explanation would predict that French people are more likely than U.S. Americans to perceive CEO-median wage ratios as contributing to unfairness.

It is possible that the results collected here also partially reflect participants’ concern for a Rawlsian conception of fairness. That is, fairness may be perceived as insurance and therefore people wish to protect that weakest members of society, maximizing the payoff to the lowest positions in an income distribution (Engelmann & Strobel, 2004; Fehr et al., 2006; Kameda et al., 2016). In the context of our studies, this would explain the negative fairness judgments that people give to companies that pay their employees lower salaries. However, while this perspective might contribute to explain our results for *fairness* judgments, it is silent on *perceptions of inequality*. A preference to maximize the minimum income would not necessarily imply that perceptions of *inequality* themselves are affected more by salaries than by CEO-employee wage ratios. In our view, the latter is perhaps the most interesting aspect of the present paper. In addition, our results suggest a tight connection between perceptions of inequality and fairness, beyond any preference for maximizing the minimum income.

The limited impact of CEO-salary ratios

We found that CEO- median salaries ratios have little impact on inequality judgments, mostly limited to joint evaluation mode. While this suggests that laypeople consider them an imperfect indicator of economic inequality, this does not mean that they have no impact at all. In fact, they are prone to be misused. Since they are hard to evaluate, companies may be tempted to choose a more favourable comparison target (e.g., a company with a CEO-salary ratio of 300:1 will look better compared to a company with a ratio of 500:1 than compared to a company with a ratio of 100:1). Most important, perhaps, ratios fail to effectively

communicate inequality, since laypeople still prefer to use median salaries even when ratios are also presented. The impact and use of ratios as an indicator of inequality should perhaps be reconsidered or regulated.

It is possible that people ignore CEO compensation and its ratio to the median wage because they do not believe that CEO compensation represents a relevant reference point for them, as CEOs are too socially distant from them. We believe that evaluability is a better explanation of our results than social distance, though. In this respect, it is important to note that, when participants see ratios and CEO compensation in joint evaluation mode, pay ratio does have a statistically significant effect, albeit a limited one. If participants were completely ignoring CEO compensation because they believed CEOs are not a relevant reference point, we should not observe this effect at all. Even in joint evaluation, participants should be ignoring both CEO compensation and its ratio to the median salary. Therefore, we do not dispute the notion that CEO-median wage ratio may be less relevant for participants than median income. Since CEO-median wage ratios *do* have a statistically significant - albeit small - effect in joint evaluation, we simply suggest that the higher evaluability of median salaries compared to ratios (and possibly CEO compensation) contributes to our results. Future research may attempt to disentangle the two reasons in the evaluation of within-company income inequality.

How to reconcile our results with those of past literature showing an effect of CEO-salary ratios on perceptions of fairness, inequality, and consumer preferences (Benedetti & Chen, 2018; Mohan et al., 2018)? We believe that, in such articles, CEO-median wage ratios have been manipulated in a way that made them easier to evaluate, for instance, by presenting it to participants in joint evaluation mode and by giving participants a benchmark (such as the average CEO-median wage ratio in the S&P500 index). Therefore, our results do not contrast with previous results showing an effect of CEO-median wages ratios on consumer

preferences, as we also show that – under conditions of high evaluability – ratios do exert a statistically significant effect on perceptions of fairness and inequality.

Practical implications

This work has several practical implications about the uses and effects of transparency policies about compensation in companies, for both policy-makers and companies. Such policies may not have the desired effect of reducing perceived inequality, because people do not seem to evaluate the latter based on pay ratio information. Transparency policies, however, may direct public opinion to sanction companies that pay median salaries that are considered too low. Both companies and regulators should also consider the way that income inequality data is presented and discussed, as the evaluation mode dramatically affects judgments of fairness and inequality. In fact, companies with high pay ratios may be tempted to present their compensation data jointly with companies that are even more unequal in order to look better to the public. The public may also get a very different picture of the same company depending on how the news media happens to present compensation data, and specifically on the comparisons used.

If regulators wish to force companies to decrease inequality by increasing low salaries, they may wish to focus on more impactful metrics that laypeople consider as better indicators of inequality: low representative salaries, such as the median salaries we studied. Shaming a company because it pays too low wages seems a better strategy to rouse public opinion than focusing on CEO-employee compensation ratios.

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