

RESEARCH ARTICLE

High Economic Inequality Makes Us Feel Less Wealthy

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Given that people evaluate their own income and that of their group by comparing it with that of others, economic inequality (i.e., the gap between the poor and the wealthy) may affect how people perceive their ingroup wealth. Additional analyses of data of six previously conducted studies ($n = 747$) provided initial evidence that individuals with average levels of affluence felt that their income group was less wealthy when inequality was high than when it was low. The seventh study consisted of a preregistered experiment to independently test our hypothesis ($n = 222$). As predicted, compared to participants in the low inequality condition, those in the high inequality condition perceived their own group as less wealthy. The discussion focuses on the importance of considering self-perceived wealth in research on economic inequality.

Keywords: economic inequality; objective wealth; perceived wealth; middle-class; social comparison

In most countries over the world, economic inequality has increased in recent decades (Alvaredo et al., 2018; Piketty, 2014). A large body of research has explored how economic inequality affects social and psychological responses (Jetten, 2019; Lynch et al., 2004; Moreno-Bella, Willis, & Moya, 2019; Petkanopoulou, et al., 2018; Snowden, 2010; Wilkinson & Pickett, 2006). It has been shown that economic inequality may affect those higher and lower in wealth albeit in different ways. For example, when inequality increases, people with lower incomes may be more likely than their higher income counterparts to experience psychological health problems (Sommet, Morselli, & Spini, 2018), whereas top income earners are more likely to experience collective angst (Jetten, Mols, Healy, & Spears, 2017). However, except for some exceptions (e.g., Frank, 2013; Winkelmann & Winkelmann, 2010), less is known about how economic inequality affects the middle class.

Here, we aim to contribute to the literature on middle class considering whether economic inequality affects the perceived absolute wealth and income of those who are in the middle of the income distribution. According to Wilkinson (1999), inequality should affect how we appraise our wealth because the degree of economic inequality—operationalized as the gap between the richest and the poorest in a society—provides a frame of reference that people use to assess their own level of income and their relative standing in society. However, it remains unclear what the effect of inequality is on perceived

ingroup wealth: does inequality make us feel poorer (because inequality makes us aware of people who have so much more than us)? or does it make us feel wealthier (because inequality makes us aware of those who have so much less than us)?

Initial evidence suggest that economic inequality reduces one's perceived relative income and wealth—i.e., one's own perceived income and wealth compared to that of others (Osborne, Sibley, & Sengupta, 2015; Payne, Brown-iannuzzi, & Hannay, 2017; Schneider, 2019). However, from this research it is not clear whether inequality makes people focus on their own wealth and income (which they judged as lower the more unequal the context) or whether inequality leads them to focus on how much more other people have compared to them (i.e., the gap with others is greater or smaller as a result of inequality). Here, we keep ingroup income constant and we advance knowledge by exploring how high or low economic inequality influences people's perceptions of their ingroup wealth. To answer this question, we first examined data from previous experiments in which we manipulated the economic inequality (high vs. low) in a fictitious society and then measured perceived ingroup wealth. We then followed up these efforts by conducting a preregistered experiment. Before outlining our studies, we provide a background to our predictions.

Economic inequality and relative wealth

Economic inequality affects how people appraise the importance of money and wealth. In particular it has been argued that economic inequality enhances the importance of socioeconomic status (SES; Jetten et al., 2017; Layte & Whelan, 2014; Wilkinson & Pickett, 2009) because, among others, inequality enhances the likelihood that people compare their own wealth to others (Adler et al.

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2000; Boyce, Brown, & Moore, 2010; Ferrer-i-Carbonell, 2005; Wilkinson, 1999). For example, Cheung and Lucas (2016) found evidence that relative income—i.e., own income in relation to others—had a stronger effect on life satisfaction when economic inequality was higher. Along similar lines, presumably because inequality enhances competition (Sánchez-Rodríguez et al., 2019; Sommet, Elliot, Jamieson, & Butera, 2018), research has shown that people made more of an effort to increase their status by acquiring positional goods (Walasek, Bhatia, & Brown, 2018; Walasek & Brown, 2015), or by expending money in the lottery (Bol, Lancee, & Steijn, 2014; Freund & Morris, 2006), in contexts of higher compared to lower economic inequality. Consistent with the enhanced importance of wealth, research has found that property crime is more prevalent in countries with higher economic inequality (Hsieh & Pugh, 1993; Rufrancos et al., 2013).

The fact that higher levels of inequality increases social comparisons might explain initial evidence that shows that economic inequality also impacts on how people feel about their ingroup income and wealth when it is compared with others. Frank (2013) suggests that when the wealthiest people buy more luxurious cars and mansions they create “expenditure cascades” whereby middle-class families feel pressured to spend more money on expensive houses and cars. He argued that the rise of economic inequality harms the middle class because it changes the frame of reference about what is essential or necessary for people to get by. This reasoning was tested empirically by Winkelmann and Winkelmann (2010), who showed that for middle-class individuals, economic inequality was negatively correlated with income satisfaction and positively correlated with the income that households heads deemed necessary to make ends meet. Therefore, in contexts with high economic inequality people feel more deprived because the gap between their resources and the resources available to those who are wealthier is larger and this makes them less satisfied with what they have (Osborne et al., 2015). Consistent with this reasoning, Schneider (2019) found that economic inequality predicts more dissatisfaction because it reduces the perceived social status.

Improving on the largely correlational nature of this work, Payne, Brown-iannuzzi and Hannay (2017) manipulated the level of economic inequality as the gap between the top and bottom earners and assigned participants to the middle position. Their results showed that participants in the high (vs. low) economic inequality condition felt more relative deprivation and they reported that more material needs needed to be met to feel satisfied. This research suggests that economic inequality made people feel less satisfied with their wealth and income because they focus on how much more the wealthy have compared to them. What remains to be examined however is whether, when income and wealth is kept constant, economic inequality also affects how people perceive and estimate their ingroup income and wealth—does the same level of wealth and income make them feel poorer or wealthier in contexts of high compared to low economic inequality? It is worth noting that perceived wealth might

reflect individual as well as ingroup wealth. In the current research we focus on perceived ingroup wealth.

Economic inequality and social comparison

Does economic inequality make people feel that their ingroup is poorer or wealthier or does it not affect ingroup wealth perceptions? On the one hand, one might predict that economic inequality should not affect perceived ingroup wealth because objective wealth might be the only predictor of perceived wealth. Alternatively, when economic inequality is high, people may become more aware that the wealthiest are much richer than people are in their own social class, but at the same time they may notice that the poorest are much poorer than themselves. Therefore, people should perceive a greater gap between wealth groups when engaging in upward comparisons, but at the same time also more of a gap between wealth groups when engaging in downward comparisons. According to this reasoning, these effects may cancel each other out, and, as a result, economic inequality should not affect perceived ingroup wealth.

However, previous research has also shown that there is a psychological asymmetry between upward and downward comparisons: upward comparisons prevail over downward ones (Boyce et al., 2010; Festinger, 1954; Payne et al., 2017). This asymmetry helps to explain why contexts with high (vs. low) economic inequality are associated with more perceived relative deprivation than relative gratification (Osborne et al., 2015; Payne et al., 2017). Similarly, this asymmetry also helps to explain why it is not absolute income, but relative income that is a better predictor of well-being and satisfaction (Boyce et al., 2010; Easterlin, 1995; Ferrer-i-Carbonell, 2005; Gasiórowska, 2014; Tang, Luna-Arocas, & Sutarso, 2005; von Stumm, Fenton O’Creevy, & Furnham, 2013). That is, if upward comparisons prevail over downward comparisons, economic inequality should lead people to focus more on wealthier groups and less on poorer groups. Consequently, compared to lower economic inequality, high economic inequality should make individuals estimate the wealth of the own group to be lower.

Nonetheless, there is a third possibility. Even though people may be more inclined to engage in upward than in downward comparisons, economic inequality may reduce the extent to which other wealth groups are seen as relevant for comparisons with the ingroup (Jetten, Spears, & Manstead, 1998). That is, the more unequal society is perceived to be, both wealthy and poor groups may be perceived as more different than the middle class. As a result of a reduced likelihood of engaging in social comparisons in contexts of higher compared to lower inequality, perceived wealth of the ingroup should be relatively unaffected by the perceived wealth of these other groups. However, in more equal contexts, other wealth groups might be seen as more relevant to judge the ingroup’s wealth because they are more similar, and upward comparisons still prevail over downward ones. Therefore, one could predict that low economic inequality should make individuals estimate the wealth of the own group to be lower.

The present research

In the present research we explored whether the degree of current economic inequality—operationalized as the gap between the richest and poorest wealth groups in a society—influences the perceived wealth of the middle class. Thus, we manipulated economic inequality but maintained objective ingroup wealth constant. We first re-examined data from six experiments in which we manipulated economic inequality and measured perceived ingroup wealth ($n = 747$). Given the explorative nature of these analyses, we conducted another experiment in which we preregistered our hypotheses ($n = 222$). It is worth noting that we reported all studies conducted by the first author up to the date of the pre-registration of Experiment 7 that tested this prediction. We also explored possible mediators of the effect of economic inequality on perceived ingroup wealth focusing on relative deprivation, social comparison and social similarity. All materials, data, and the syntax files to reproduce the analyses can be found at <https://osf.io/hu9wm/>.

Experiments 1–6

Method

Participants

The final sample consisted of 747 participants (527 women, 218 men, and 2 unknown) aged between 16 and 67 years ($M = 23.72$, $SD = 8.24$, see **Table 1** for descriptive details for each of the samples). In total, 383 participants were randomly assigned to the high economic inequality condition, and 364 participants were assigned to the low economic inequality condition (for more details about the sample of each experiment see supplementary material <https://osf.io/hu9wm/>).

Procedure

The manipulation of economic inequality and the measure of perceived wealth were identical in all the experiments. Economic inequality was manipulated using an adaptation of the Bimboola Paradigm (Jetten et al., 2015; Sánchez-Rodríguez, Willis, & Rodríguez-Bailón, 2019). In the first part of the experiment we invited participants to imagine they were going to live in a new society. This society was organized hierarchically into three income groups (the wealthiest, the middle-income, and the poorest group). We manipulated economic inequality by

changing the gap between the wealthiest and the poorest group: in the high economic inequality condition, the wealthiest group earned 13,500 Bimboolan coins (BC) and the poorest earned only 500 BC; in the low economic inequality condition, the wealthiest group earned 8,000 BC and the poorest earned 6,000 BC¹ (Sánchez-Rodríguez et al., 2019). We assigned all participants to the middle-income group, which earned 7,000 BC. Once participants had been allocated to this income group, they were told that in order to start their life in Bimboola they had to purchase essentials such as a house and car. They were also invited to choose among different holiday destinations. In the high economic inequality condition, the houses that participants could choose from ranged from run-down dwellings to luxurious mansions; in the low economic inequality condition, the differences between the cheapest and the most expensive houses were smaller. However, the houses available to the middle class, the group to which all the participants were assigned, remained constant. Participants were presented with the most expensive houses first, followed by the middle-income houses and finally with the cheapest ones. Once the three categories of houses had been presented, participants were asked to select their preferred house. Importantly, although participants could see all houses they could only buy one out of the six they could afford (i.e., the middle-income and the cheapest houses). A similar procedure was used when purchasing a car and choosing a holiday destination.

After the manipulation, participants were asked to respond to two manipulation checks. In the first one, participants had to report which group they were assigned to. Those who did not correctly identified the middle-income group were excluded from the analyses. Next, participants were asked about economic inequality in Bimboola: “To what extent is Bimboola unequal?” and “To what extent is Bimboola equal?” (reversed); responses ranged from 1 = somewhat (un)equal to 9 = very (un)equal.² Finally, the question used to measure perceived ingroup wealth was “How wealthy is your group?” (1 = *Not at all*, 9 = *Very much*).³

Results

In line with the manipulation, there were significant differences in perceived inequality in Bimboola in all experiments, suggesting that participants in the high

Table 1: Origin of the sample, type of sample, sample size, number of women, mean years and SD, number of participants assigned to the high and low economic inequality (EI) in experiments 1–6.

	Sample origin	Type of sample	Sample size	Women	Mean years (SD)	Sample High EI	Sample Low EI
Exp. 1	Spain	Students (lab)	94	72	21.55 (3.89)	48	46
Exp. 2	Spain	Students (lab)	206	170	19.99 (2.81)	104	102
Exp. 3	Australia	Students (lab)	60	37	18.45 (1.25)	34	26
Exp. 4	USA	General population (online)	198	88	33.6 (10.10)	101	97
Exp. 5	Spain	Students (lab)	98	82	20.20 (1.42)	50	48
Exp. 6	Spain	Students (lab)	91	78	20.38 (3.39)	46	45

economic inequality condition perceived greater inequality than those in the low economic inequality condition did (see **Table 2**).

To test the hypotheses about the effect of inequality on subjective ingroup wealth, we performed an independent samples t-test between high and low-economic inequality conditions using perceived ingroup wealth as the dependent variable separately for each experiment (see **Figure 1**).

In addition, we conducted a mini-meta-analysis across the six experiments using ESCI (Cumming, 2012) to test the overall effect. We report the results of the random effects model. Results showed that the overall effect size of high versus low economic inequality on perceived ingroup wealth was significant, $t = 3.417$, $p = .0006$, $d = 0.3497$, $CI_{95\%} [0.1491, 0.5503]$. This result suggests that participants in the high economic inequality condition perceived their ingroup as less wealthy than did participants in the low economic inequality condition (see **Figure 1**).

Discussion

Across the six experiments, we find evidence that, although their actual wealth was the same in both

Table 2: Means and SD of perceived EI in high and low EI conditions and t-test in experiments 1–6.

	Mean (SD) perceived EI (High EI)	Mean (SD) perceived EI (Low EI)	t-test perceived EI
Exp. 1	8.40 (0.89)	3.76 (1.85)	$F(1, 92) = 504.61^{***}$
Exp. 2	8.18 (1.22)	4.58 (1.86)	$F(1, 204) = 270.55^{***}$
Exp. 3	7.76 (1.21)	4.62 (1.31)	$F(1, 58) = 92.35^{***}$
Exp. 4	7.97 (1.37)	3.97 (1.77)	$F(1, 196) = 317.06^{***}$
Exp. 5	8.35 (0.88)	3.09 (1.42)	$F(1, 96) = 486.72^{***}$
Exp. 6	8.54 (0.63)	3.74 (1.80)	$F(1, 89) = 291.92^{***}$

EI = economic inequality. *** $p < .001$.

conditions, participants in the high economic inequality condition perceived their group as less wealthy than did those in a low economic inequality condition. These results provide initial evidence supporting the hypothesis that a higher gap between the wealthiest and the poorest reduces perceived ingroup wealth.

Despite the robustness of the findings, two limitations in particular should be kept in mind. First, we cannot rule out that the effect may be an artifact of the order in which the three Bimboola wealth groups were presented to participants. In all six experiments, the houses of the richest group were presented first, followed by those of the middle-income group and finally those of the poorest group. The presentation of cars and holidays of the three income groups also showed the cars and holidays available to the wealthiest group first. It may be the case that this order caused an anchoring effect, whereby all options were judged against the choices open to the wealthiest groups. This may have encouraged upward comparisons and suppressed the likelihood of participants making downward comparisons. To rule out this alternative explanation for our findings, in Experiment 7 we counterbalanced the order in which houses, cars and holidays were presented by presenting either the options open to the wealthiest group first (followed by the middle group and then the poorest group) or the options open to the poorest group first (followed by the middle group and then the wealthiest group).

A second limitation of the first six experiments is that we focused on asking participants how wealthy they thought their group was. But the questions about how poor they felt their ingroup to be was not included in all the experiments and when was included was written in different ways (see supplementary material for details in <https://osf.io/hu9wm/>). Previous studies have shown that the consequences of inequality are different when focusing on those who have more versus those who have less (Bruckmüller, Reese, & Martiny, 2017). In particular, asking participants how wealthy they felt may have triggered a

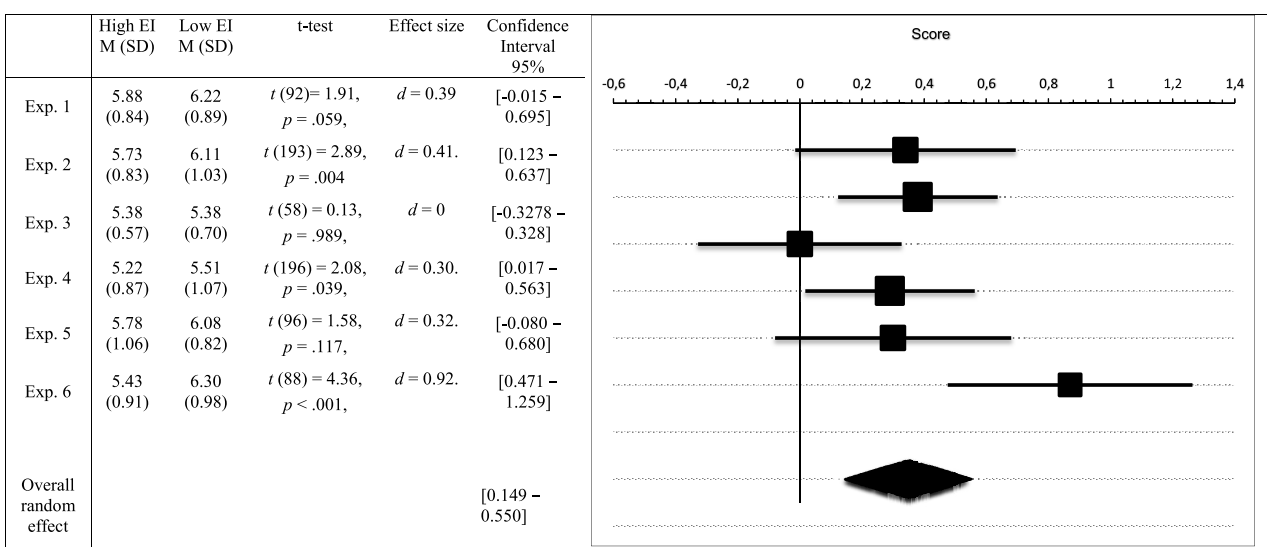


Figure 1: Mini-Meta-analysis of economic inequality's effect on perceived wealth.

Note: EI = Economic inequality.

comparison with the richest group. However, asking them how poor they felt their group was, comparisons with the poorest group would have been more salient and this may have triggered downward comparisons, enhancing the perceived wealth of the ingroup. To explore this possibility, in Experiment 7, we focused on measuring both perceived ingroup wealth and poverty.

Additionally, we explored the extent to which theoretically relevant potential mediators may explain the relationship between the economic inequality condition and perceived ingroup wealth. Specifically, we measured social comparisons to test whether economic inequality reduces perceived ingroup wealth because upward comparisons prevail over downward comparisons. In order to probe social comparisons in another way, we also assessed whether inequality affected perceived similarity with the poorest and the wealthiest group. Lastly, consistent with previous research findings that economic inequality triggers feelings of deprivation (Osborne et al., 2015; Payne et al., 2017), we explored whether inequality enhances perceptions of relative deprivation which, in turn, enhances feelings that the ingroup is less wealthy.

Experiment 7

Method

Sample size calculation

We conducted an a priori sample size analysis using G*Power (Faul et al., 2009) for a fixed-effect ANOVA. We estimated a medium effect size ($f = 0.25$) to obtain an a priori power of 90% and an alpha error probability of 5%. The optimal sample size was 232 participants and we aimed to recruit this number.⁴ We planned to exclude from data analyses participants who were not native English speakers and those who did not correctly answer the manipulation check question (i.e., ‘Which group were you assigned to?’).

Participants

Two hundred and twenty-eight individuals from the United States participated in this experiment via Amazon’s Mechanical Turk. Six participants were excluded because they failed our manipulation check. The final sample was composed of 222 participants (89 women, 132 men, 1 reported as ‘no binary gender’) aged between 20 and 67 years ($M = 33.72$, $SD = 1.00$).

Design and pre-registered hypotheses

Our design consisted of a 2 (Economic inequality: High vs. Low) x 2 (Group order: Wealthiest group first vs. Poorest group first) between-participants design. We predicted a significant effect of economic inequality (High vs. Low) on perceived ingroup wealth. Specifically, we expected participants in the high economic inequality condition to perceive their ingroup as less wealthy than did those assigned to the low economic inequality condition (Hypothesis 1). Similarly, we predicted that participants in the high economic inequality condition would perceive their ingroup as being poorer than those assigned to the low economic inequality condition (Hypothesis 2). We expected these two effects to be independent of the order

in which the income groups were presented. Thus, we predicted no interaction between the order of groups and economic inequality, nor a main effect of the order of the groups (see preregistration <https://osf.io/hu9wm/>).

Procedure and measures

The manipulation of economic inequality was identical as used in the previous experiments. We also manipulated the order of presentation of the houses, cars and holidays. In one order condition, participants first saw the houses, cars and holidays that were exclusively available to the wealthiest group; next, they were shown the houses, cars and holidays that their own group could afford, and finally they were presented with the cheapest houses, cars and holidays. In the other condition, participants first saw the cheapest houses, cars and holidays; this was followed by the houses, cars and holidays that their ingroup could afford and finally they saw the options reserved for the wealthiest group. We report all measures, manipulations and exclusions.

Manipulation check

After the manipulations, we asked participants which income level they were assigned to. Failing this check was taken as an exclusion criterion. Perceived economic inequality was measured using two items: ‘To what extent is Bimboola’s economic distribution unequal/equal (reversed)?’ ($\rho = .895$; Eisinga, Grotenhuis, & Pelzer, 2013); responses ranged on a scale from 1 (*Not at all*) to 9 (*Very much*). Perceived wealth of the wealthiest group was measured using a combination of two items: ‘Consider the wealthiest group in Bimboola; how wealthy/poor (reversed) is this group?’ ($\rho = .607$); responses ranged from 1 (*Not at all wealthy/poor*) to 9 (*Very wealthy/poor*). Finally, perceived wealth of the poorest group was measured using a combination of two items: ‘Consider the poorest group in Bimboola; how wealthy/poor (reversed) is this group?’ ($\rho = .818$); responses ranged from 1 (*Not at all wealthy/poor*) to 9 (*Very wealthy/poor*).

Perceived wealth

A single question measured perceived wealth: ‘How wealthy is your group?’ (1 = *Not at all*, 9 = *Very much*).

Perceived poverty

A single question measured perceived poverty: ‘How poor is your group?’ (1 = *Not at all*, 9 = *Very much*).

Relative deprivation

We used a scale developed by Callan, Ellard, Shead, and Hodgins (2008) to measure relative deprivation (e.g., ‘When I think about what I have compared to others, I feel deprived’, with responses ranging from -3 , *Strongly disagree*, to $+3$, *Strongly agree*, four items, $\alpha = .804$).

Social comparison

We measured upward comparison using a single item: ‘To what extent do you compare your group to the richest group (Group 1)?’ and downward comparison: ‘To what extent do you compare your group to the poorest

group (Group 3)? Responses were recorded on a scale ranging from 1 (*Not at all*) to 7 (*Very much*).

Social similarity

To measure this construct, we used single items: 'To what extent do you feel similar to the richest group (Group 1)?' and 'To what extent do you feel similar to the poorest group (Group 3)?' Responses were recorded on a scale ranging from 1 (*Not at all*) to 7 (*Very much*).

Sociodemographic characteristics

Finally, participants were asked about their personal subjective social class using the subjective SES scale (Adler et al., 2000), level of education, employment status, personal annual income, ethnicity, age, gender, political orientation—Republican, Democrat, Independent or 'no preference'—, language and country of residence.

Results

Manipulation check

We performed three 2 (Economic inequality: High vs. low) \times 2 (Order: Wealthiest group first vs. Poorest group first) ANOVAs with perceived economic inequality, perceived wealth of the wealthiest group, and perceived wealth of the poorest group as dependent variables. Participants in the high economic inequality condition perceived more inequality ($M = 7.85$, $SD = 1.44$) than did those in the low economic inequality condition ($M = 3.65$, $SD = 1.79$), $F(1,218) = 375.97$, $p < .001$, $\eta^2 = .633$. We did not find a significant interaction between economic inequality and order, $F(1,218) = 0.36$, $p = .550$, nor a main effect of order, $F(1,218) = .841$, $p = .360$.

Likewise, although the means were in the expected directions, we did not find differences between how wealthy the wealthiest groups were perceived in the high economic inequality condition ($M = 6.98$, $SD = 2.05$) and in the low economic inequality condition ($M = 6.55$, $SD = 1.39$), $F(1,218) = 3.39$, $p = .067$, $\eta^2 = .015$. We did not find a significant interaction either, $F(1,218) = 0.42$, $p = .517$, nor a main effect of order, $F(1,218) = .116$, $p = .734$.

Finally, participants in the high economic inequality condition perceived that the poorest group was less wealthy ($M = 3.30$, $SD = 2.87$) than did those in the low economic inequality condition ($M = 5.00$, $SD = 1.70$) $F(1,218) = 27.49$, $p < .001$, $\eta^2 = .112$. There was no significant interaction, $F(1,218) = 0.52$, $p = .473$, nor a main effect of order, $F(1,218) = .875$, $p = .351$.

Preregistered analysis

We performed two (Economic inequality: High vs. low) \times 2 (Order: Wealthiest group first vs. Poorest group first) ANOVAs with our two main variables as dependent variables: perceived ingroup wealth and perceived ingroup poverty.

Corroborating Hypothesis 1, results showed that participants in the high economic inequality condition perceived that their ingroup was less wealthy ($M = 5.02$, $SD = 0.79$) than did those in the low economic inequality condition ($M = 5.33$, $SD = 0.82$) $F(1,218) = 7.16$, $p = .008$, $\eta^2 = .032$. There was no significant interaction

effect between economic inequality and order, $F(1,218) = 0.86$, $p = .355$, nor a main effect of order, $F(1,218) = 1.12$, $p = .291$, $\eta^2 = .005$.⁵

Hypothesis 2 was not corroborated, as there were no significant differences in the perceived poverty of the ingroup between the high economic inequality condition ($M = 3.77$, $SD = 1.63$) and the low economic inequality condition ($M = 3.53$, $SD = 1.52$) $F(1,218) = 1.12$, $p = .292$, $\eta^2 = .005$. The interaction between economic inequality and order, $F(1,218) = 0.13$, $p = .716$, and the main effect of order, $F(1,218) = 0.14$, $p = .707$, were not significant.

Additional analysis

We performed five (Economic inequality: High vs. Low) \times 2 (Order: Wealthiest group first vs. Poorest group first) ANOVAs with relative deprivation, upward and downward social comparison, and upward and downward social similarity as dependent variables. Order did not qualify any of these effects so we just present the main effects of economic inequality.

Results showed that participants in the high economic inequality condition felt more relatively deprived ($M = -0.49$, $SD = 1.49$) than did those in the low economic inequality condition ($M = -0.97$, $SD = 1.35$) $F(1,218) = 6.10$, $p = .014$, $\eta^2 = .027$. Regarding social comparisons, participants compared their group less with the wealthiest group in the high economic inequality condition ($M = 2.79$, $SD = 1.63$) than in the low economic inequality condition ($M = 3.74$, $SD = 1.54$), $F(1,218) = 19.92$, $p < .001$, $\eta^2 = .084$. However, we did not find any difference between high ($M = 3.23$, $SD = 1.67$) and low ($M = 3.44$, $SD = 1.53$) economic inequality in the comparison with the poorest group, $F(1,218) = 0.93$, $p = .335$. Finally, participants felt less similar to the wealthiest group in the high economic inequality condition ($M = 2.60$, $SD = 1.53$) than in the low economic inequality condition ($M = 3.73$, $SD = 1.54$), $F(1,218) = 31.70$, $p < .001$, $\eta^2 = .127$. Furthermore, participants felt less similar to the poorest group in the high economic inequality condition ($M = 3.04$, $SD = 1.72$) than in the low economic inequality condition ($M = 3.66$, $SD = 1.57$), $F(1,218) = 7.97$, $p = .005$, $\eta^2 = .035$.

Finally, we conducted several mediational analyses to check if the effect of economic inequality on perceived wealth was mediated by (1) relative deprivation, (2) upward and downward comparisons, and/or (3) upward and downward similarity. However, results suggest that there were no mediation effects (see supplementary material for details in <https://osf.io/hu9wm/>).

Discussion

Our results supported Hypothesis 1, showing that a context of high economic inequality leads people to perceive that their group is less wealthy compared to a context with low economic inequality. Importantly, our results suggest that this effect was not affected by the order of presentation of the groups. Exploring possible mechanisms, we did not find evidence that relative deprivation, social comparison, or social similarity mediated the effect of economic inequality on subjective ingroup wealth.

The second aim of this experiment was to explore if the effect of economic inequality on perceived wealth can be generalized to affect perceived ingroup poverty. Specifically, we hypothesized that participants in the high economic inequality condition would perceive their group as poorer than those assigned to the low economic inequality condition regardless of the order of presentation of the wealth groups (Hypothesis 2). Our results did not support this hypothesis, as we did not find any significant differences between high and low economic inequality and subjective ingroup poverty. These results suggest that economic inequality may have an effect on perceived wealth but not on perceived poverty. However, given that the effect of economic inequality on perceived poverty was only tested in this study we should be cautious in drawing conclusions.

General discussion

Our results suggest that judgments of ingroup income and wealth are not formed in a social vacuum. Rather people judge their income and wealth taking account of features of the broader economic context. Here, among middle class individuals, perceptions of the magnitude of the wealth gap between those groups at the wealthier end of the spectrum versus the poorer groups proved to be important. In a context where the objective wealth of the participants' wealth group was constant, participants nevertheless perceived their group as being less wealthy in a context of higher compared to lower economic inequality.

We followed an exploratory-confirmatory strategic that ensure the replicability of our results (Lakens & Etz, 2017, Świątkowski & Dompnier, 2017). Therefore, our results were supported by the combined results of six preliminary experiments and confirmed by a preregistered experiment.

Importantly, in the preregistered final experiment we did not find evidence that this finding was an artifact caused by the order of presentation of the groups based on their wealth. Indeed, the effect of economic inequality on perceived ingroup wealth remained significant regardless of whether we presented the most or least wealthy group first. Interestingly too, this effect was not explained by measures tapping relative deprivation, social comparison, or social similarity.

Additionally, we explored whether economic inequality not only makes people feel their group is less wealthy, but also poorer. However, we did not find any evidence that this is the case. Nevertheless, mediation analyses are suggestive of the possibility that some suppressor variables such as downward similarity hides the effect (see supplementary material in <https://osf.io/hu9wm/>). Future research should explore these processes in greater detail focusing in particular on the conditions under which high (vs. low) economic inequality may affect perceived ingroup poverty. Future research should also explore the various psychological mechanisms that may be triggered when we ask individuals about perceived ingroup wealth and perceived ingroup poverty. For instance, the words themselves might foster a particular direction in the social comparison: 'wealth' is likely to facilitate an upward

comparison whereas 'poverty' may facilitate a downward comparison. Although our measures of social comparison did not mediate the effects of economic inequality on subjective ingroup wealth or poverty, it would be worth including other measures of social comparison to shed light on this issue.

Implications, limitations and future research

The most important antecedent of perceptions of wealth is likely to be actual ingroup wealth. People evaluate ingroup wealth looking at their actual resources. However, several researchers have showed that the relation between subjective and objective wealth is modest (Gasiorowska, 2014; Tang et al., 2005). Additionally, research in psychology has shown that subjective SES is a stronger predictor of psychological and health outcomes than objective SES (Adler et al., 2000; Nobles et al., 2013). In spite of the revealed importance of subjective SES, little attention has been paid to the factors that determine it. Typically, objective SES is conceptualized and measured as a combination of occupational prestige, educational attainment, income and wealth (Diemer et al., 2013). Moreover, level of income/wealth, education, and occupational status are typically used as parameters that participants use to decide how they rank in society (Adler et al., 2000). Therefore, people should think about a combination of these parameters when they have to judge their subjective SES, although nowadays income seems to be more important than education and occupational prestige to define SES (Cohen et al., 2017). In this research, we focused on perceived ingroup wealth as one of the key aspects that people consider when they think about their subjective SES. Our results suggest that subjective ingroup wealth depends partly on the groups placed at the extremes of the SES hierarchy (i.e., the wealthiest and poorest). This result leads us to conclude that subjectively perceived group wealth does not only depend on objective wealth but also on contextual economic inequality. The current research has the limitation of using the same paradigm in all studies to manipulate economic inequality. However, our results are in line with the research conducted by Schneider (2019) who showed that the degree of economic inequality among European countries negatively predicts subjective SES. Therefore, our result together with Schneider's results provide strong evidence that economic inequality and subjective SES are related. It worth noting that although the focus of the current research was on the middle class or average income groups, future research should explore the support for our hypotheses for low or high wealth groups. Building on cross-sectional research (Schneider, 2019), we predict that our findings should generalise to other wealth groups. The effect of contextual economic inequality on perceived wealth and SES is important because, in most research, the psychological consequences of SES and of economic inequality are treated independently (Neckerman & Torche, 2007).

Another question that arises from the current research is whether other elements of subjective SES (i.e., education and occupational status) may be affected by contextual variables as well. If so, what are the reference points used

to judge occupational prestige or educational attainment? Research has typically focused on the consequences of subjective SES, but turning our attention to the antecedents of subjective SES and how people build their perception of subjective SES could help us better understand why subjective SES predicts health and some other psychological effects more strongly and consistently than objective SES.

Regarding the possible underlying mechanisms of the effect of economic inequality on subjective group wealth, we proposed that social comparison processes may underlie the effect of economic inequality on subjectively perceived wealth. We tested this possibility in the last experiment. However, results did not unequivocally support our hypothesis. In the high (vs. low) economic inequality condition, participants felt more relatively deprived, felt less similar to the wealthiest group, but also compared their group less with the wealthiest group. However, we have to be cautious in the conclusions we draw from these results. First, because many of these constructs were measured using single items, measurement error may be high reducing the reliability of the findings. Second, we are mindful of the fact that social comparison processes may play a different role in the two conditions. On the one hand, as a direct result of the way that inequality was manipulated, participants' wealth in the high inequality condition was less similar to the other two wealth groups than in the low inequality condition. It is therefore not surprising that participants indicated to be less likely to compare themselves to the wealthiest group in the high compared to the low inequality condition, because the wealthiest group may no longer be a relevant comparison group in the high inequality condition. It thus appears that the inequality manipulation presents inherent problems in the extent to which one can measure social comparison processes and we suggest that future research should avoid this confusion either by studying the proposed mediating process with other experimental paradigms or by directly manipulating social comparison process.

Future research should also make a clear distinction between individual and group perceived wealth. Although we did not find evidence that relative deprivation mediates the effect of economic inequality on subjective wealth, a limitation should be noted regarding these two measures. We measured subjective group wealth but relative deprivation was measured at the individual level. Previous research has shown the importance of distinguishing group and individual relative deprivation when analyzing the consequences of economic inequality (e.g., Ruffancos et al., 2013). Therefore, although individual relative deprivation did not, group relative deprivation may mediate the effect of economic inequality on perceived wealth. In a similar vein, studies should explore whether economic inequality affects perceived individual wealth instead of perceived ingroup wealth, and assess the role of individual relative deprivation.

More generally, in future research, it would be prudent to include multi-item measures of our main variable dependent (i.e., perceived wealth). Even though single-item measure have been found to be reliable (e.g.,

Cheung & Lucas, 2016; Postmes, Haslam, & Jans, 2013), some researchers have argued against their use (e.g., Spector, 1992), and it would therefore be important to replicate the current results with multi-item measures.

Conclusions

Our results show that the subjective perception of ingroup wealth depends, at least partly, on economic inequality. Specifically, the current research revealed that contexts with high economic inequality leads participants assigned to the middle class to estimate that their ingroup is less wealthy than when they find themselves in more equal contexts. Given the role of subjective income and wealth as predictors of important psychological outcomes, this effect may be key to understand the consequences of economic inequality.

Data Accessibility Statement

All materials, data, and the syntax files to reproduce the analyses can be found at <https://osf.io/hu9wm/>.

Notes

- ¹ The specific income was changed in the American and Australian sample to make it closer to the currency used by the sample (i.e., High economic inequality: 77,000–40,000–3,000 B.C.; and Low economic inequality: 50,000–40,000–30,000 B.C.).
- ² In experiments 1 and 2 the only one item was included as manipulation check ('To what extent is Bimboola unequal?'); and in experiments 3 and 4 the answers were ranging from 1 (*very poor*) to 9 (*very wealthy*).
- ³ In experiments 3 and 4 the answers were ranging from 1 (*very poor*) to 9 (*very wealthy*).
- ⁴ Using the overall effect of the mini-meta-analyses ($d = .35$ or $f = 0.175$) the sample size for get 80% of power should be 259.
- ⁵ Additionally, to check that this effect is not confounded with the effect of economic inequality on relative deprivation, we conducted the same analyses including relative deprivation as a covariate. Results were identical: participants in the high economic inequality condition perceived that the ingroup was less wealthy ($M = 5.02$, $SD = 0.79$) than did those in the low economic inequality condition ($M = 5.33$, $SD = 0.82$) $F(1,218) = 5.84$, $p = .016$, $\eta^2 = .026$. There was not a significant main effect of order, $F(1,217) = 1.09$, $p = .298$, $\eta^2 = .005$, nor an interaction between economic inequality and order, $F(1,217) = 0.70$, $p = .405$, $\eta^2 = .003$.

Additional File

The additional file for this article can be found as follows:

- **Supplementary Materials.** Pertaining to High economic inequality makes us feel less wealthy. DOI: <https://doi.org/10.5334/irsp.333.s1>

Competing Interests

The authors have no competing interests to declare.

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