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**Unpackaging the link between economic inequality and self-construal**

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### **Abstract**

Past research has shown that economic inequality shapes individuals' self-construals. However, it has been unclear which dimensions of self-construals are associated with and affected by economic inequality. A correlational (Study 1:  $N = 264$ ) and an experimental study (Study 2:  $N = 532$ ) provided converging evidence linking perceived economic inequality with two forms of independent (vs. interdependent) self-construal: Difference from Others and Self-Reliance. In Study 3 ( $N = 12,634$ ) societal differences in objective economic inequality across 48 nations predicted feelings of Difference from Others, but not Self-Reliance. Importantly, we found no significant associations of economic inequality with the other six dimensions of self-construal. Our findings help extend previous results linking economic inequality to forms of "social distance".

*Keywords:* economic inequality, multidimensional self-construal, independence, interdependence

### **Unpackaging the link between economic inequality and self-construal**

Economic inequality is a focal topic in social sciences, with an increasing number of studies in different disciplines examining its economic (e.g., Stiglitz, 2012), political (e.g., Andersen, 2012), health-related (e.g., Wilkinson & Pickett, 2006), and psychological consequences (e.g., Rodríguez-Bailón, et al., 2020). Social psychological literature has produced considerable evidence on how economic inequality promotes a set of psychosocial tendencies through its affordance of particular socio-ecological features (Jetten & Peters, 2019). Following a socio-ecological approach (Oishi, 2014; Uskul & Oishi, 2018, 2020), we therefore reasoned that economic inequality is likely also to be reflected in patterns of independent and interdependent self-construal.

Previous research examining this very question by Sánchez-Rodríguez and colleagues (2019a) found that perceived economic inequality was negatively associated with a measure of interdependent self-construal (i.e., individuals defining themselves as connected with, versus separate from, others). However, recent research has emphasized that self-construal is a multidimensional construct and not reducible to a simple contrast between interdependent and independent forms (Vignoles et al., 2016). This raises the possibility that economic inequality may be associated with different dimensions of self-construal in non-uniform ways. Shedding light onto this possibility may be especially important given evidence from past research demonstrating that different dimensions of self-construal are likely to be differentially associated with a range of psychosocial outcomes (e.g., life satisfaction: Kryś et al., 2021; depression: Smith, Ahmad et al., 2016; communication styles: Smith, Vignoles et al., 2016; environmental values: Duff et al., 2022; cognitive, affective, and motivational tendencies: Yang, 2018), further supporting the importance of considering the multidimensional nature of this construct when examining it in relation to its socio-ecological

underpinnings. In the current research, we thus examined how different dimensions of self-construal may be associated with and impacted by economic inequality.

### **Consequences of Economic Inequality**

A growing body of research has directed attention to the psychological consequences of economic inequality, focusing on how it shapes individuals' emotions, thoughts, and behavior in intrapersonal, interpersonal, and intergroup domains. For example, economic inequality was found to be associated positively with status anxiety and relative deprivation, as well as negatively with interpersonal trust and perceived ingroup wealth (Delhey & Dragolov, 2013; Oishi et al., 2011; Osborne et al., 2015; Sánchez-Rodríguez, et al., 2019b; but see also Kim et al., 2021; Paskov et al., 2017, for contradictory results). Moreover, when a society is more unequal, its members are more likely to self-enhance their desirable qualities relative to others (Loughnan et al., 2011), are less willing to help others (Paskov & Dewilde, 2012), and behave less pleasantly towards them (de Vries et al., 2011). In this line of research, economic inequality is related with higher social distance operationalized as intergroup distance (e.g., polarization in terms of class identification; Andersen & Curtis, 2012), interpersonal distance (e.g., solidarity or the lack thereof; Paskov & Dewilde, 2012), disidentification with a superordinate identity (Petkanopoulou et al., 2018), and lack of social capital (e.g., Vilhjálmsdóttir et al., 2016).

Similar findings have been observed in experimental settings, where perceived level of economic inequality is manipulated under controlled conditions. This line of research has shown that when individuals are asked to think of themselves within contexts described as economically unequal (vs. equal), they perceived this context as more competitive (Sánchez-Rodríguez et al., 2019c), perceived values of seeking power and achievement as more normative (Sánchez-Rodríguez, et al., 2022), were more likely to engage in risk-taking

behaviors (Payne et al., 2017), increased their social vigilance (Cheng et al., 2019), and were less likely to cooperate with others (Côté et al., 2015; Nishi et al., 2015).

The psychosocial effects of economic inequality could be explained because different levels of economic inequality provide different social contexts to which individuals have to adapt their behaviors and attitudes (Wilkinson & Pickett, 2017). For instance, contexts with high levels of economic inequality are seen as competitive and individualistic contexts, whereas contexts with lower levels of economic inequality are seen as cooperative and collectivist ones (Sánchez-Rodríguez et al., 2019c). Therefore, economic inequality produces a socio-ecological environment with particular affordances (i.e., qualities of an environment that allow the performance of an action, Gibson, 1977) that shape individuals' psychological experiences in multiple ways. These experiences may shape individuals' habitual ways of being and, in turn, their sense of self, just as other contextual features of our socio-ecological environments are internalized in the self (Adam & Kurtis, 2018).

### **Economic Inequality and Self-Construal**

One of the most commonly studied aspects of the self is whether it is construed in *independent and interdependent* ways, which has been shown to have important implications for a wide range of psychological processes ranging from social interactions to visual processes (Cross et al., 2011; Markus & Kitayama, 1991). An independent self-construal is theorized to involve seeing oneself as distinct and separate from others, whereas an interdependent self-construal is theorized to involve seeing oneself as related and connected to others.

Socio-ecological features are thought to shape individuals' self-construal through promoting particular psychosocial tendencies. For instance, a high degree of market integration and spatial and residential mobility can ease interactions with strangers, which promotes an independent (vs. interdependent) form of self-construal (Henrich et al., 2005;

Oishi & Kisling, 2009). Similarly, wealth, through enabling a sense of financial independence, can result in greater likelihood of following one's preferences or living in a separate residence from the parental home (Adam & Kurtis, 2018), which can in turn promote an independent (vs. interdependent) form of self-construal (Kraus & Stephens, 2012; Stephens, et al., 2014).

We predicted that economic inequality would be an important socio-ecological factor that can play a role in the shaping of self-construal. Initial evidence for such a link was reported by Sánchez-Rodríguez and colleagues (2019a), who observed that individuals who perceived their society as more unequal tended to endorse a weaker interdependent self-construal (but there was no association between perceived societal equality and strength of independent self-construal). In an experimental study, they found that after being asked to imagine living in a more unequal (vs. equal) society individuals had stronger memory for "independent" events and weaker memory for "interdependent" events. However, these studies did not consider different ways of being independent or interdependent, nor did they examine culture-level variations in self-construal across societies with objectively differing levels of economic inequality.

### **Multidimensionality of Self-Construal**

Recent research has shown that independence and interdependence are not unitary dimensions; instead, they can be viewed as 'umbrella terms' encompassing a range of dimensions on which both individuals and cultural groups vary (Vignoles et al., 2016). Vignoles et al. (2016) identified seven discrete ways of being independent versus interdependent across different life domains: (1) defining the self (*Difference vs. Similarity*), (2) making decisions (*Self-Direction vs. Receptiveness to Influence*), (3) communicating with others (*Self-Expression vs. Harmony*), (4) experiencing the self (*Self-Containment vs. Connectedness to Others*), (5) dealing with conflicting interests (*Self-Interest vs. Commitment*

to Others), (6) moving between contexts (*Consistency vs. Variability*), and (7) looking after oneself (*Self-Reliance vs. Dependence on Others*). The latest version of their measure, used in the current studies, included an eighth dimension based on the importance of the context in understanding the self (*Decontextualized vs. Contextualized*) Self (see Kryś et al., 2020; Uskul et al., 2023; Yang, 2018). Different aspects of self-construal may be fostered by adapting to different ecological, economic, and sociopolitical factors. For instance, inhabitants of wealthy countries describe themselves as more different, self-reliant, self-directed, and self-expressive (i.e., dimensions of independence), but also more committed to others (i.e., one dimension of interdependence), compared to those of less wealthy countries (Vignoles et al., 2016).

In the current studies, we asked whether economic inequality similarly might be associated in non-uniform ways with different dimensions of self-construal. Extending previous findings (Sánchez-Rodríguez, et al. 2019a), we theorized that economic inequality might lead to certain forms of weaker interdependence or stronger independence. First, economic inequality might lead individuals to construe themselves as *Different (vs. Similar to Others)*, because it highlights their differences when compared with others in economic terms. Higher economic inequality implies more diverse living conditions of the inhabitants, which could affect their psychological experience of feeling different from others. Moreover, previous evidence suggests that in countries with higher economic inequality, inhabitants tend to exaggerate their desirable qualities relative to others' people, which might exacerbate the feeling of being different (e.g., better) from others (Loughnan et al., 2011).

Second, economic inequality might enhance perceptions of *Self-Containment (vs. Connectedness to Others)*. When economic inequality is high, people would feel more separate from others because the economic distance may be interpreted as social distance

(Pickett et al., 2015; Sánchez-Rodríguez, et al. 2019a), which might result in construing themselves as more self-contained and less connected to others.

Third, because economic inequality enhances competitiveness (Sánchez-Rodríguez et al., 2019c), individuals tend to pursue self-interest when economic inequality is high (vs. low, Nishi et al., 2015). Performing these behaviors might foster self-perceptions of *Self-Interest* (vs. *Commitment to Others*) dimension of self-construal. Relatedly, economic inequality is associated with diminished cooperation and destruction of perceptions of mutual dependence, support, and social trust among individuals in a society (Buttrick & Oishi, 2017; Paskov & Dewilde, 2012; Sánchez-Rodríguez et al., 2019c; but see also Kim et al., 2021, for a non-significant relationship between economic inequality and trust). Hence, individuals may feel that they need to rely on themselves, fostering greater self-perceptions of *Self-Reliance versus Dependence on Others*. Given that economic inequality generates a context of distrust and people usually are open to being influenced by those they trust (Rousseau et al., 1998), when economic inequality is high, individuals might also be less receptive to influence from others and thus perceive themselves as more *Self-Directed* (vs. *Receptive to Influence*).

Apart from the above dimensions, we had no specific prediction concerning the link between economic inequality and the remaining self-construal dimensions of *Self-Expression* (vs. *Harmony*), *Consistency* (vs. *Variability*), and *Decontextualized* (vs. *Contextualized*) self. Nonetheless, given the previous findings of Sánchez-Rodríguez et al. (2019a), we speculated that economic inequality might be associated with less interdependent and more independent forms of self-construal on these dimensions as well.

### **Individually Perceived Inequality and Objective Societal Inequality**

Within the socio-ecological perspective (Oishi, 2014; Uskul & Oishi, 2018, 2020), economic inequality is one of the core features of our socio-ecological environment. To succeed in a given socio-ecological context, individuals must adapt their thoughts, feelings,



and behaviors to the features of that environment. From this perspective, socio-ecological psychology focuses on the role of objective environmental features, in this case, on the objective existence of economic inequality (Oishi, 2014).

Previous research on economic inequality and self-construal has focused on perceived, rather than objective economic inequality (Sánchez-Rodríguez et al., 2019a). Considering individuals' perceptions of economic inequality is important because psychological consequences of inequality have been shown to depend on the extent to which inequality is visible to individuals (Rodríguez-Bailón et al., 2020). Indeed, previous research has found that economic inequality only has certain psychological outcomes when it is perceived (Nishi et al., 2015), which might explain why perceived, rather than objective, economic inequality is more strongly related with psychological outcomes (Gimpelson, & Treisman, 2018). Given that individuals often do not have very accurate perceptions of the objective levels of inequality in their societies (Chambers et al., 2014; Norton & Ariely, 2011), one cannot assume that objective and perceived economic inequality would necessarily have comparable implications for different self-construal dimensions. Therefore, in the current research, we focused on the role of both perceived economic inequality (as an individual-level psychological experience) and objective economic inequality (as a property of different societies) in predicting different dimensions of self-construal.

### **The Current Research**

Extending previous research into economic inequality and self-construal (Sánchez-Rodríguez et al., 2019a), we examined to what extent economic inequality would be associated with different dimensions of independence versus interdependence (Vignoles et al., 2016; Yang, 2018). In Study 1, we tested the hypothesis that individual differences in perceived levels of economic inequality would be associated with independent (vs. interdependent) forms of self-construal, examining for the first time the pattern of findings

across eight separate self-construal dimensions. In Study 2, building on the premise that economic inequality imposes a social context to which people adapt, using a commonly employed method, we asked participants to imagine themselves living in a society with a high (vs. low) level of economic inequality and to indicate how they would describe themselves on the different self-construal dimensions. This allowed us to test the causal hypothesis that perceived economic inequality leads individuals to define themselves in more independent terms. Finally, in Study 3, we investigated whether patterns of findings observed in the first two studies would emerge at a societal level of analysis by examining self-construal among participants from 48 countries with varying levels of objective economic inequality. Ethical approval for Studies 1 and 2 was secured from the Psychology Ethics Committee at the researchers' university. Ethical approval for Study 3 was secured from the Psychology Ethics Committee at one of the lead researchers' institutions. Additionally, in each country where local regulations required separate ethics approval, local teams obtained a separate approval.

### Study 1

We designed Study 1 to examine whether individual differences in perceived levels of economic inequality would be associated with independent (vs. interdependent) forms of self-construal.

#### Method

**Pre-registered hypothesis.** People who perceive higher levels of economic inequality will score higher on the independent (vs. interdependent) pole of the eight self-construal dimensions (for the preregistration see [https://osf.io/d49ta/?view\\_only=f415ccfb584848929172461b49ae7653](https://osf.io/d49ta/?view_only=f415ccfb584848929172461b49ae7653)).

**Sample size calculation.** We conducted an a priori two-tailed correlation power analysis using G\*Power (Faul et al., 2009) to calculate our sample size. Based on previous

research, we estimated medium-low effect size ( $r = 0.20$ ; Sánchez-Rodríguez et al., 2019a). To minimize the likelihood of Type I errors, we applied the Bonferroni correction to adjust for the planned multiple tests. Therefore, we established an alpha level of  $p < .006$  ( $.05/8$ ) as statistically significant. This analysis revealed that 314 participants were required to have a power of .80, and a .006 alpha level.

**Participants and procedure.** We recruited 304 students attending a British university as participants in an online study in exchange for course credit and stopped when the term for data collection had ended. We excluded 15 participants for not completing all study measures and 25 participants whose native language was not English, leaving a final sample of 264 participants (220 women, 38 men, 6 not reported) aged between 17 to 55 years ( $M = 19.64$ ;  $SD = 4.25$ ). Although the final sample size was slightly lower than the preregistered sample size, a sensitivity analysis shows that the final sample size ( $N = 264$ ) was sufficient to find a medium-low effect size ( $r = .22$ ), with an alpha at .006 and power at .80. All material and data sets can be accessed through here:

[https://osf.io/d49ta/?view\\_only=f415ccfb584848929172461b49ae7653](https://osf.io/d49ta/?view_only=f415ccfb584848929172461b49ae7653)).

### ***Measures.***

*Perceived economic inequality.* We employed the Graphic Notes Inequality Measure (GNIM) to measure perceived economic inequality (Rodríguez-Bailón et al., 2017). Participants indicated which one out of seven graphic options they regarded as most representative of the economic structure of the United Kingdom (U.K.). Higher scores corresponded to higher levels of perceived economic inequality (see Figure 1).

*Multidimensional self-construal.* We used the Culture and Identity Research Network Self Construal Scale Version 3 (CIRN-SCS-3; Kryś et al., 2020; Yang, 2018) to measure participants' endorsement of eight self-construal dimensions with 6 items for each dimension using a 9-point Likert scale from “*doesn't describe me at all*” to “*describes me exactly*”:

Difference versus Similarity (e.g., ‘You like being similar to other people’,  $\alpha = .83$ ), Self-Containment versus Connectedness to Others (e.g., ‘If someone in your family achieves something, you feel proud as if you had achieved something yourself’,  $\alpha = .70$ ), Self-Direction versus Receptiveness to Influence (e.g., ‘You usually ask your family for approval before making a decision’,  $\alpha = .74$ ), *Self-Reliance versus Dependence on Others* (e.g., ‘In difficult situations, you tend to seek help from others rather than relying only on yourself’,  $\alpha = .87$ ), Self-Expression versus Harmony (e.g., ‘You prefer to preserve harmony in your relationships, even if this means not expressing your true feelings’,  $\alpha = .81$ ), Self-Interest versus Commitment to Others (e.g., ‘You value good relations with the people close to you more than your personal achievements’,  $\alpha = .72$ ), Consistency versus Variability (e.g., ‘You act very differently at home compared to how you act in public’,  $\alpha = .89$ ), and Decontextualized versus Contextualized Self (e.g., ‘Someone could understand who you are without needing to know about your social standing’,  $\alpha = .84$ ). CIRN-SCS-3 treats the eight dimensions as bipolar scales. Interdependence items were reversed, so higher scores indicate higher independence and lower interdependence on each dimension. We adjusted items for acquiescent response style by ipsatizing raw responses before calculating reliabilities and scale scores.

*Sociodemographic variables.* Finally, participants provided information concerning their individual and familial socioeconomic status (SES), on a scale ranging from 1 (*‘The worst off’*) to 10 (*‘The best off’*) (Adler et al., 2000), education level (From *no formal education* = 1 to *Doctoral* = 8), employment status, individual and household income, ethnicity, age, gender, political orientation (from *liberal* = 1 to *conservative* = 7), native language, and nationality.

## Results

Descriptive statistics and correlations among study variables are reported in Table 1. It is important to note a divergence from the preregistered analysis plan in which we had proposed conducting eight separate regression analyses. Instead, we opted for a more parsimonious approach by first examining the correlations between variables while using a Bonferroni correction to minimize the likelihood of Type I error given the multiple tests, followed by regression analyses conducted only with those dimensions found to be associated with economic inequality in the correlational analyses.

The correlation analysis revealed that perceived economic inequality was significantly correlated with only two self-construal dimensions: *Difference versus Similarity* ( $r = .18, p = .004$ ) and *Self-Reliance versus Dependence on Others* ( $r = .21, p = .001$ ). Next, we tested the predictive power of perceived economic inequality, above and beyond the demographic variables measured in this study, for the two dimensions of self-construal that showed significant associations with perceived economic inequality. To that end, we conducted two hierarchical regression analyses, using *Difference versus Similarity* and *Self-Reliance versus Dependence on Others* as criterion variables. In both analyses, individual and familial SES, education level, individual and household income, age, and gender (0 = woman, 1 = man) were entered as predictors in Step 1, followed by perceived economic inequality in Step 2.

As shown in Table 2, demographic variables did not significantly predict *Difference versus Similarity*: Model 1,  $F(7, 239) = 1.53, p = .157$ . Perceived economic inequality, however, remained a significant predictor of this self-construal dimension ( $\beta = .18, p = .005, 95\% \text{ CI} = [.054, .306]$ ), which accounted for an additional 3.1% of variance,  $F(1, 238) = 8.00, p = .005$ . Finally, as shown in Table 3, collectively, demographic variables significantly predicted *Self-Reliance versus Dependence on Others*: Model 1,  $F(7, 239) = 2.23, p = .032$ ; perceived economic inequality continued to be a significant predictor of this self-construal dimension ( $\beta = .20, p = .002, 95\% \text{ CI} = [.076, .323]$ ), which explained an additional 3.8% of

variance,  $F(1, 238) = 10.13, p = .002$  (see Section S1 in supplementary material for details on this analysis and additional robustness checks).

## Discussion

Study 1 provided initial evidence that perceived economic inequality is significantly associated with two dimensions of self-construal: *Difference versus Similarity*, and *Self-Reliance versus Dependence on Others*—but not with the remaining six dimensions.

## Study 2

In Study 2, we examined the causal link between economic inequality and four dimensions of self-construal. Following Study 1 findings, we tested whether individuals would experience a greater sense of Difference (vs. Similarity) from others and of *Self-Reliance versus Dependence on Others* when they imagined themselves inhabiting a society that was high (vs. low) in economic inequality. Although the relationship between perceived economic inequality and Self-Direction (vs. Receptiveness to Influence) did not meet our Bonferroni adjusted significance threshold (see Table 1), we retained this dimension in Study 2 for further testing considering that it had nonetheless reached a conventional unadjusted significant threshold of  $p < .05$ . Finally, perceived economic inequality was not associated with Self-Interest (vs. Commitment to Others) in Study 1, but based on past research observing effects of economic inequality on pursuit of self-interest (e.g., Paskov & Dewilde, 2012) and our initial prediction concerning this dimension, we retained this dimension in Study 2 for further testing as well.

## Method

**Pre-registered hypotheses.** We predicted that in the high (vs. low) economic inequality condition, participants would exhibit higher scores on the independent (vs. interdependent) pole of the four measured dimensions of self-construal (see pre-registration [https://osf.io/d49ta/?view\\_only=f415ccfb584848929172461b49ae7653](https://osf.io/d49ta/?view_only=f415ccfb584848929172461b49ae7653)).

**Sample size calculation.** We conducted an a priori power analyses for a MANOVA: Global effect using G\*Power (Faul et al., 2009) to calculate our sample size. Given the data collected in our previous study and observed effect size between economic inequality and multidimensional self-construal (ranging from  $r = -.17$  to  $r = -.21$ ), we estimated a medium-low effect size,  $f^2 = 0.0323$  (equivalent to  $r = .171$ ), to obtain an a priori power of .95 and a .05 alpha level, which suggested an optimal sample size of 580 participants.

**Participants.** We recruited adult participants from the United States via Amazon's Mechanical Turk (MTurk; Buhrmester et al., 2011). Six-hundred-and-thirty-six participants completed the study. Based on our pre-registered criteria, we excluded a total of 95 participants for the following reasons: failing to pass the attention check ( $n = 61$ ); failing the comprehension check ( $n = 26$ ); failing to answer the open-ended question (see below) in line with their experimental condition ( $n = 9$ ); and not identifying English as their native language ( $n = 8$ ). The final sample included 532 participants (272 women, 2 not reported) aged 20 to 100 years ( $M = 38.63$ ;  $SD = 12.61$ ). Given the sample size ( $N = 532$ ), with alpha at .05 and power at .95, this study was powerful enough to find a medium-low effect size ( $f^2 = 0.04$ ). All material and data sets can be found online ([https://osf.io/d49ta/?view\\_only=f415ccfb584848929172461b49ae7653](https://osf.io/d49ta/?view_only=f415ccfb584848929172461b49ae7653)).

**Procedure.** We randomly assigned participants to one of two economic inequality conditions: high ( $n = 257$ ) versus low ( $n = 275$ ). We used the Bimboola Paradigm to manipulate economic inequality (see Sánchez-Rodríguez et al., 2019b; Sprong et al., 2019, for further details of this paradigm). We asked participants to imagine themselves becoming citizens of a new society, which we described as rather unequal (vs. equal), characterized by a large (vs. small) wealth gap between the poorest and wealthiest members of this society. Regardless of the experimental condition, we asked participants to imagine themselves as members of the middle class. They were then shown the distribution of resources among the

wealthiest, middle, and poorest classes, which differed as a function of condition. To reinforce the manipulation effects, we showed participants the living conditions of each income group—i.e., houses, cars, and holidays—which also differed as a function of condition. Finally, we asked participants to imagine what an average day would look like if they were in society as (un)equal as Bimboola; participants devoted 5 minutes to write down their thoughts on the question.

Participants then completed a comprehension check related to the group to which they were assigned and a manipulation check comprising questions related to the extent of economic inequality that they perceived in Bimboola (e.g., ‘To what extent is Bimboola’s economic distribution unequal/equal (reversed)?’ 1: *not at all* to 9: *very much*,  $\rho = .857$ ).

Next, participants indicated, using the same 9-point Likert scale as employed in Study 1 (CIRN-SCS-3, Kryszewski et al., 2020; Yang, 2018), how well the items making up the four dimensions of self-construal would describe them if they lived in Bimboola: *Difference versus Similarity* ( $\alpha = .72$ ), Self-Direction (vs. Receptiveness to Influence) ( $\alpha = .82$ ), Self-Reliance (vs. Dependence on Others) ( $\alpha = .83$ ), Self-Interest (vs. Commitment to Others) ( $\alpha = .69$ ). As in Study 1, we adjusted items for acquiescent response style by ipsatizing raw responses.

Finally, participants provided information on their subjective individual and familial SES, ranging from 1 (*‘The worst off’*) to 10 (*‘The best off’*) (Adler et al., 2000), education level, employment status, individual and household income, ethnicity, age, gender, political orientation, native language, and nationality.

## Results

**Manipulation check.** An ANOVA with economic inequality (high vs. low) as the between-subject variable and perceived economic inequality as the dependent variable revealed, as expected, that those assigned to the high economic inequality condition



perceived more economic inequality ( $M = 7.72$ ,  $SD = 1.68$ ) than did those assigned to the low economic inequality condition ( $M = 4.10$ ,  $SD = 1.91$ ),  $F(1, 530) = 537.35$ ,  $p < .001$ ,  $\eta^2 = .50$ .

**Multidimensional self-construal.** Following the pre-registered analysis plan, we performed a MANOVA with scores on the four self-construal dimensions as dependent variables, and economic inequality (high vs. low) as the independent variable. Results showed a significant multivariate effect,  $F(4, 527) = 4.06$ ,  $p = .003$ ,  $\eta^2 = .03$ , providing an omnibus test of significance across the four measured self-construal dimensions. An inspection of results for each of the subscales separately revealed significant univariate effects for *Difference versus Similarity*,  $F(1, 530) = 4.45$ ,  $p = .035$ ,  $\eta^2 = .01$ , 95% CI = [.008, .215], and for *Self-Reliance versus Dependence on Others*,  $F(1, 530) = 5.22$ ,  $p = .023$ ,  $\eta^2 = .01$ , 95% CI = [.020, .260]. As predicted, participants in the high economic inequality condition ( $M = 0.13$ ,  $SD = 0.59$ ) described themselves on average as more different from others—or less similar to others—than did participants in the low economic inequality condition ( $M = 0.02$ ,  $SD = 0.62$ , see Figure 2). Moreover, as predicted, participants in the high economic inequality condition ( $M = 0.44$ ,  $SD = 0.70$ ) described themselves on average as more self-reliant—or less dependent on others—than those in the low economic inequality condition ( $M = 0.30$ ,  $SD = 0.70$ , see Figure 2). In contrast, *Self-Direction versus Receptiveness to Influence*  $F(1, 530) = 0.04$ ,  $p = .848$ ,  $\eta^2 < .01$ , 95% CI = [-.124, .102]), and *Self-Interest versus Commitment to Others*  $F(1, 530) = 0.35$ ,  $p = .555$ ,  $\eta^2 < .01$ , 95% CI = [-.128, .069]), did not vary significantly as a function of economic inequality condition.

## Discussion

Study 2 conceptually replicated and expanded results obtained in Study 1. Specifically, we found a causal link between economic inequality and the same two dimensions of self-construal that were significantly associated with perceived economic

inequality in Study 1—*Difference versus Similarity* and *Self-Reliance versus Dependence on Others*—but not the other two self-construal dimensions.

### Study 3

In Study 3 we examined the relationships between national differences in objective, instead of perceived, levels of economic inequality and endorsement of the eight dimensions of self-construal among individuals in 48 countries. Based on findings of Studies 1 and 2, we hypothesized that people living in more unequal societies would construe themselves as more different from others (vs. similar to others) and as more self-reliant (vs. dependent on others). However, since effects of objective economic inequality may differ from those of perceived economic inequality (Norton & Ariely, 2011), we explored associations with all self-construal dimensions in this study.

### Method

#### *Participants and procedure*

Study 3 data were extracted from a larger cross-cultural investigation concerning cultural factors related to happiness. We reanalyzed data on self-construal that had been used as an explanatory variable in a previous study (Krys et al., 2020). Data were collected from 13,352 participants in 50 countries across Europe, North and South America, Asia, Africa, and Oceania between 2017 and 2019. Participants from Argentina, Indonesia, and the first wave of the Bulgarian sample were excluded because of low reliability coefficients in the multidimensional self-construal scale, as well as a known translation issue in one of these samples. Before conducting our planned analyses, we also excluded respondents whose answers showed evidence of careless completion (e.g., showing excessively low variance across items or showing a Christmas-tree pattern of answers) and those suspected of being duplicate cases (i.e., showing excessively similar responses across sections of the survey). The final sample after exclusions consisted of 12,634 participants (84.1% undergraduate

students, 15.7% general population and 0.2 missing values) from 48 countries; 59.7% of the participants were women, and the mean age was 25.10 years ( $SD = 9.40$ ). As the data analyzed for this study were extracted from a pre-existing dataset, we did not preregister our hypotheses.

### *Measures*

**Multicomponent self-construal.** We used the same self-construal scale as in Study 1 to measure participants' endorsement of the eight self-construal dimensions (CIRN-SCS-3; Kryś et al., 2020; Yang, 2018, see Supplemental Material for reliability coefficients for all dimensions by country). The original version of the questionnaire was prepared in English which was translated by local collaborators in each data collection site into their respective native language and checked using a back-translation method.

**Socio-demographic variables.** Participants indicated their age and gender, which we used as control variables to account for age and gender differences in the composition of our samples. In our analyses, we also controlled for whether the samples were composed of students or the general population.

**Macro-economic data.** We used the Gini coefficient as the index of economic inequality, which indicates greater economic inequality with higher scores. This coefficient has a theoretical range from 0 (every inhabitant has the same income) to 1 (one individual receives all available income). According to the World Bank, Gini indices around the world range from .24 in Slovakia to .56 in Sao Tome and Principe (World Bank, 2020a). We took the income Gini index pre-taxes relative to 2018 (or the closest earlier year available) from the World Bank (World Bank, 2020a), which was the year when most data collection took place [we used Gini index from OECD (2020) and CIA (2020) for countries where World Bank index did not exist]. Gini indices in our sample ranged from .24 in Slovakia to .54 in

Brazil, covering almost the full range of global variation reported by the World Bank (2020a).

Moreover, we included in our analyses an index of the country's wealth as a control variable measured by the GNI per capita index, taking this index relative to the year 2018 or the closest available earlier year from the World Bank (World Bank, 2020b). This index is expressed in current international dollars converted for purchasing power parity (PPP).

Moreover, we log-transformed this score (e.g., Li et al., 2019).

## Results

Means of key variables by country can be found in Table 4. In Table 5, we report the nation-level correlations between the GINI index and each of the eight self-construal dimensions. Results showed that Gini was significantly correlated with *Difference versus Similarity* ( $r = .42, p = .003, 95\% \text{ CI} = [.15, .63]$ ), demonstrating that objective economic inequality is positively related to *Difference versus Similarity* at the national level (see Figure 3). However, Gini was not significantly correlated with *Self-Reliance versus Dependence on Others* ( $r < .01, p = .980, 95\% \text{ CI} = [-.28, .29]$ ). Gini index did not significantly predict other dimensions of self-construal.

We used multilevel modeling to test whether individuals residing in more unequal countries construed themselves as significantly more different from (or less similar to) others, after controlling for differences in age, gender (0 = woman, 1 = man), sample type (students = 1 vs. general population = 2), and national affluence (GNI per capita). To account for the nested nature of our data, with individual participants (Level 1) clustered in countries (Level 2), we performed multilevel modeling using the lme4 package for R software (Bates et al., 2015). Age and country-level variables were grand mean centered. We computed a series of three models, predicting individuals' scores on the *Difference versus Similarity* dimension of self-construal. Model 0 was an intercept-only model; this model showed an intraclass

correlation of 0.07, indicating that around 7% of variance in *Difference versus Similarity* was between samples and 93% was within samples. Model 1 included age, gender, and type of sample—i.e., student or general sample—to control for these variables. Model 2 included macro-economic indices—i.e., Gini and GNI per capita—to test our main research question.

Table 6 summarizes the results of these three models. Model 2 provided a significantly better fit to the data compared to Model 1:  $\chi^2(2) = 20.96, p < .001$ . Notably, the Gini index significantly predicted the *Difference versus Similarity* dimension ( $b = .09, p = .040, 95\% \text{ CI} = [0.004, 0.183]$ ). This result indicates that an increment of 1 on the Gini coefficient (i.e., the difference between the minimum and maximum possible values) predicts an increment of .09 on the *Difference versus Similarity* dimension. Comparing the  $\tau$  statistic (residual level 2 variance) across models reveals that Model 2 accounted for an estimated 33% of country level variance in *Difference versus Similarity* (Raudenbush & Bryk, 2002) (see Section S5 in supplementary material for additional robustness checks).

## Discussion

In Study 3, we found that *objective* economic inequality was associated with only one dimension of self-construal: *Difference versus Similarity*. Findings did not replicate the previously observed positive association between perceived economic inequality and the self-construal dimension of *Self-Reliance versus Dependence on Others*.

### General Discussion

The current studies provide the most extensive examination to date of the theorized relationship between societal economic inequality and self-construal and do so by focusing on perceived (Study 1), imagined (Study 2) and objective (Study 3) economic inequality, and measuring self-construal as a multidimensional construct. Across the three studies, we found converging evidence demonstrating that greater economic inequality was associated with defining oneself as different from others (vs. similar to others). This self-construal dimension

was predicted by individuals' perceptions of economic inequality in their society (Study 1), manipulated levels of economic inequality in an imaginary society (Study 2), and differences in objective economic inequality across 48 countries (Study 3). Additionally, higher levels of perceived—but not objective—economic inequality predicted defining oneself as self-reliant (vs. dependent on others), a finding that was supported by correlational (Study 1) and experimental evidence (Study 2).

Economic inequality has previously been linked to lower levels of solidarity (Paskov & Dewilde, 2012), greater likelihood to self-enhance on desirable qualities (Loughnan et al., 2011), lower willingness to help others and behave less pleasantly toward them (de Vries et al., 2011; Paskov & Dewilde, 2012), and weaker tendency to cooperate with others (Côté et al., 2015; Nishi et al., 2015). In the current work, we examined the possibility that economic inequality might also shape individuals' self-construal using an ecocultural approach (Uskul & Oishi, 2018). Previous research has shown that economic inequality is linked with lower scores on a unidimensional measure of interdependent self-construal (Sánchez-Rodríguez et al., 2019a). Here, we found evidence that economic inequality predicts people's sense of Difference from Others (in all three studies) and their sense of Self-Reliance (in two out of three studies), whereas we did not find significant associations with six other forms of independent self-construal. These results suggest that the context of economic inequality can be internalized by individuals in shaping their view of themselves.

The fact that economic inequality was associated with the dimension of Difference versus Similarity rather than other self-construal dimensions suggests that the level of economic inequality in a society has a differential impact on the different ways in which individuals define themselves. Economic inequality causes members of the same society to live in diverse economic conditions, and becoming aware of these differences might lead individuals to start perceiving themselves as being different from others (Sánchez-Rodríguez

et al., 2019c). Beyond objective differences, individuals in unequal contexts may also be motivated to view themselves as different from others as a result of self-evaluation bias. The social rank hypothesis suggests that unequal contexts foster anxiety about comparisons with others in terms of material wealth and social dimensions (e.g., attractiveness, social skills, physical health, Walasek & Brown, 2019). Therefore, viewing oneself as different from others might have an ego-protective function in contexts with greater inequalities. People tend to compare mainly with those they perceive as similar to themselves (Festinger, 1954). If people perceive themselves as different from others, they might compare themselves less with others. Given that social comparison can be a source of anxiety in contexts with high economic inequality, feeling different from others may prevent (or lower) the anxiety produced by social comparison. Future research is needed to explore how the interplay between social comparison and *Difference versus Similarity* feelings might affect anxiety and well-being.

Moreover, the fact that perception of economic inequality affects *Self-Reliance versus Dependence on Others* suggests that economic inequality may also work as a factor that erodes social bonds, and affects how individuals look after themselves. Indeed, previous research found that economic inequality erodes trust and social capital and thereby can result in a fragmented society, which weakens social ties (Wilkinson & Pickett, 2009, 2017). Thus, where economic inequality breaks down perceptions of mutual dependence and support, individuals may start feeling that one needs to rely on oneself. These effects might provide a vicious cycle if we consider recent results showing that self-reliant individuals tend to cooperate less with others, which in turn increases economic inequality (Gross et al., 2020).

Unlike *Difference versus Similarity*, *Self-Reliance versus Dependence on Others* was only related to *perceived*, and not *objective*, economic inequality. Past literature has indeed shown that the effects of objective economic inequality are sometimes comparable to those of

perceived economic inequality (e.g., Sprong et al., 2019) and other times they are not (e.g., Chambers et al., 2014). Our results showed that feelings of *Difference versus Similarity* were associated with both objective and perceived economic inequality. In contrast, the *Self-Reliance versus Dependence on Others* dimension of self-construal was associated only with perceived and not with objective economic inequality.

Notably, in none of the studies we found a significant relationship between economic inequality and six other dimensions of self-construal. Particularly interesting was the lack of evidence for relationships with Self-Interest (vs. Commitment to Others) and Self-Containment (vs. Connectedness to Others). Previous findings showing that higher economic inequality predicts greater self-interested behaviors (Nishi et al., 2015) did not translate in the current research to individuals defining themselves as self-interested. Nonetheless, it seems plausible that self-perceptions of Self-Interest versus Commitment to Others may be more affected than other self-construal dimensions by social desirability, and so we would caution against abandoning altogether the hypothesis that economic inequality predicts greater focus on Self-Interest. The self-construal dimension of Self-Containment (vs. Connectedness to Others) is arguably the closest conceptually to definitions of social distance (“subjective perception or experience of distance from another person or other persons”, Magee & Smith, 2013, p. 2). Thus, according to the social distance hypothesis (Pickett & Wilkinson, 2015), economic inequality should have predicted experiences of Self-Containment (vs. Connectedness to Others). Again, we did not find an effect on economic inequality on this dimension of self-construal in the current studies. Our findings suggest that it is feelings of Difference (vs. Similarity)—rather than social distance (vs. closeness)—that are most prone to be impacted by actual or perceived economic inequality.

Our findings are not without limitations. First, we should note that Studies 1 and 2 were conducted in two countries with relatively similar cultural backgrounds (i.e., the U.K.



and the U.S.). Thus, evidence for the effects of *perceived* economic inequality is limited to these cultural groups, which might restrict generalizability (Simons et al., 2017), whereas Study 3 was conducted across a wide range of cultures. The absence of a link between economic inequality and *Self-Reliance versus Dependence to Others* in Study 3 might suggest either that the finding pertains to perceived, but not objective, economic inequality—as proposed above—or it might be because our findings from the first two studies originate from samples recruited in English-speaking Western cultures. Further research should explore the impact of perceived economic inequality across a more diverse range of cultures to clarify this issue. Second, we focused on the consequences of economic inequality rather than the consequences of socio-economic status. Whereas economic inequality is a context variable, socio-economic status is an individual variable (see Rodríguez-Bailón et al., 2020, for further discussion). However, given that socio-economic status is also linked to self-construal (Stephens, et al., 2014), the context of economic inequality might differentially affect differently people from higher and lower socio-economic status. Future research should explore this possibility. Third, in Study 2 we used a fictional setting to manipulate the level of economic inequality. Although this procedure allowed us to test a causal link between economic inequality and multidimensional self-construal, we should note that this method lacks ecological validity, compared to the methods used in Studies 1 and 3. Finally, we should note that some of the reported effects and relationships were small, particularly in Study 2, in which we manipulated perceived economic inequality. Nevertheless, three studies which used different methods produced converging evidence.

In sum, across three studies, which varied in terms of how economic inequality was manipulated or assessed, we found that inequality was associated with construing oneself as *different from*, rather than *similar to others* and (somewhat less consistently) as *self-reliant* rather than *dependent on others*. Thus, the current findings contribute to a burgeoning

literature on the consequences of economic inequality. Results from our correlational, experimental and multilevel studies point to how economic inequality can shape individuals' self-construal and thus provide further evidence for the important role that socio-ecological context plays in how we define ourselves.

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