Article

Cultural Values Moderate the Impact of Relative Deprivation

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Abstract

Relative deprivation (RD) is the judgment that one or one's ingroup is worse off compared with some relevant standard coupled with feelings of dissatisfaction, anger, and resentment. RD predicts a wide range of outcomes, but it is unclear whether this relationship is moderated by national cultural differences. Therefore, in the first study, we used national assessments of individual-collectivism and power distance to code 303 effect sizes from 31 different countries with 200,578 participants. RD predicted outcomes ranging from life satisfaction to collective action more strongly within individualistic nations. A second survey of 6,112 undergraduate university students from 28 different countries confirmed the predictive value of RD. Again, the relationship between individual RD and different outcomes was stronger for students who lived in more individualistic countries. Group-based RD also predicted political trust more strongly for students who lived in countries marked by lower power distance. RD effects, although consistent predictors, are culturally bounded. In particular, RD is more likely to motivate reactions within individualistic countries that emphasize individual agency and achievement as a source of self-worth.

Keywords

relative deprivation, Hofstede's national values, social inequality, political trust, life satisfaction

Relative deprivation (RD) is the judgment that one or one's ingroup is worse off compared with some relevant standard coupled with feelings of dissatisfaction, anger, and resentment. The origins of RD theory began with the monumental World War II *American Soldier* studies (Pettigrew, 2015; Stouffer, 1962; Stouffer et al., 1950; Stouffer, Lumsdaine, et al., 1949; Stouffer, Suchman, DeViney, Starr, & Williams, 1949, Chapter 2). Stouffer devised RD as a post hoc explanation for

well-known anomalies from these studies. One example became especially famous. He found that the military police were more satisfied with their slow rate of promotions than were air corpsmen with their rapid promotion rate (Stouffer, Lumsdaine, et al., 1949).

The apparent puzzle of the military police's attitudes assumes the wrong referent comparisons. Local comparisons, Stouffer reasoned, were the salient referents: the military police compared their promotions with other military police—not air corpsmen whom they rarely encountered. Satisfaction is *relative* to the available comparisons that we have. RD became a major social science concept because it illustrated how social judgments are shaped not only by absolute standards but also by standards set by social and temporal comparisons (Pettigrew, 1967, 1978; Smith, Pettigrew, Pippin, & Bialosiewicz, 2012; Walker & Smith, 2002).

Although previous research documents the predictive value of RD (Smith et al., 2012), it is less clear whether these patterns are consistent across national cultures. The impact of RD on attitudes and behavior might be mitigated for cultures where inequitable distributions of power and status are accepted and expected (e.g., high power distance cultures; Hofstede, 2001), or individual achievement and autonomy are considered less important (e.g., collectivist cultures; Hofstede, 2001). In two multicountry studies, we sought to determine the extent to which the

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relationship between RD and various outcomes varies across national cultures. Furthermore, we test whether differences in two different national cultural values, individualism-collectivism and power distance, explain any variation in RD effects. We first draw upon new analyses of a previous meta-analysis of RD research (Smith et al., 2012), and then examine data from a survey of university students from 28 countries to answer these two questions.

National Values

Hofstede (2001) defines culture as shared values that distinguish one group from another. He identified four initial value differences from surveys of IBM employees living in 40 different countries during the late 1960s and early 1970s. Subsequent cross-national research yielded an accessible database with national value profiles for over 50 countries (Hofstede, 2001; Hofstede Insights, 2017). Systematic cross-national reviews of the relationship between employees' perceptions of justice and workplace relevant outcomes (Fischer, 2013; Shao, Rupp, Skarlicki, & Jones, 2013; Taras, Steel, & Kirkman, 2010) suggest that two of Hofstede's original national values, individualism-collectivism and power distance, might moderate the relationship between RD and people's reactions.

Individualism-Collectivism

The most widely researched national value distinguishes between largely individualistic and largely collectivistic cultures (Gilovich, Keltner, Chen, & Nisbett, 2013; Hofstede, 2001; Taras et al., 2010). Members of individualistic cultures tend to define their self-image in terms of their unique qualities and focus on individual achievement and autonomy. Members of collectivistic cultures tend to define their self-image in terms of their important reference groups and focus on the extent to which their goals and achievements reflect their interdependence with important others.

There are two theoretical reasons to predict that members of individualistic cultures will react more strongly to the upward comparative contrasts associated with RD. First, members of individualistic cultures might judge a wider variety of resource distributions as unfair (especially if the distribution rules are complex and unclear). Members of collectivistic cultures view tenure, relationships, and social skills as appropriate criteria for outcome distributions whereas members of individualistic cultures prefer to limit distribution criteria to performance and efficiency (Silva & Caetano, 2016). Furthermore, members of individualistic cultures prefer equal treatment and consistent justice rules, whereas members of collectivistic cultures are more willing to accept rules and hierarchies based on group attributes and particular relationships (Gilovich et al., 2013; Oyserman, Coon, & Kemmelmeier, 2002). Members of collectivistic cultures also more frequently endorse outcome distributions based on equality and need in comparison with members of individualistic cultures (Silva & Caetano, 2016). These patterns suggest that when members of more collectivistic cultures discover a comparative disadvantage, they will draw upon numerous reasons for why such a disadvantage could be fair. Differences in treatment or resources could reflect multiple different rules, criteria, or relationships. In contrast, members of individualistic cultures should focus their attention on fewer criteria and rules as reasons for any disadvantage. These different preferences suggest that members of individualistic cultures should notice and respond to perceived disadvantages more strongly in comparison with members of collectivistic cultures.

Evidence that members of individualistic cultures respond more strongly to general justice violations in comparison with members of more collectivistic cultures is mixed. One meta-analytic review of 495 unique samples from 32 different countries (Shao et al., 2013) concluded that employees' perceptions of fair treatment and outcomes predicted all but two of 15 different

organizational attitudes and behaviors more strongly in individualistic cultures in comparison with collectivistic cultures. However, a second meta-analytic review of 161 unique samples from 36 countries found that employees' perceptions of justice predicted organizational commitment more strongly in more collectivistic countries (Fischer, 2013). The justice measures covered by both reviews did not include a comparative frame of reference. Consequently, it is difficult to generalize from these data to RD experiences.

A second reason why members of individualistic cultures may react more strongly to disadvantages is that individualistic cultures emphasize personal agency (Oishi & Gilbert, 2016). Members of more individualistic cultures tend to be more competitive, see social networks as easily changed, and select group memberships based on self-interest (Oishi & Gilbert, 2016). In other words, individualistic cultures encourage sensitivity to one's personal position in local reference groups. In contrast, collectivistic cultures encourage a more inclusive mind-set built upon the assumption that group members are mutually responsible for each other (Oyserman et al., 2002; van den Bos, van Veldhuizen, & Au, 2015). Given both these reasons, we predict that *the relationship between RD measures and outcomes will be stronger for countries that score as more individualistic on Hofstede's Individualism-Collectivism Scale*. For example, in Study 2, RD should predict less life satisfaction, less perceived respect from other citizens, less political trust, and more negative attitudes toward immigrants among members of individualistic cultures.

This general hypothesis neglects an important distinction between two types of RD first described by Runciman and Bagley (1969): (a) individual relative deprivation (IRD) produced by upward comparisons between oneself and another member of one's ingroup, and (b) group relative deprivation (GRD) produced by upward comparisons between one's ingroup and a relevant outgroup. IRD should predict *individually* oriented responses for which the goal is to improve or rectify one's personal situation such as an interest in professional development (Zoogah, 2010), gambling (Callan, Ellard, Shead, & Hodgins, 2008), turnover, absenteeism, and other work behaviors (Allen et al., 2009; Osborne, Smith, & Huo, 2012). In contrast, GRD should predict *collectively* oriented responses for which the goal is to improve or rectify the situation for one's reference group such as support for political protest (Walker & Mann, 1987) and increased outgroup prejudice (Pettigrew et al., 2008; Pettigrew & Meertens, 1995). In other words, RD measures more strongly predict outcomes that match the same level of analysis (IRD with individual action, GRD with collective action; Smith et al., 2012). In both studies, we contrast RD measures that match the outcome level of analysis with those that do not.

One could hypothesize that members of more collectivistic countries should be more sensitive to GRD whereas members of more individualistic countries should be more sensitive to IRD (van den Bos et al., 2015). Given the greater importance of one's extended family and other relevant reference groups within collectivist cultures, people might notice and react to group-based disadvantages that members of individualistic cultures might interpret as irrelevant to their self-image. This difference could explain why the relationships between organizational commitment (a relatively "group" centric measure) and various justice measures were stronger for citizens of collectivistic countries (Fischer, 2013). Still, members of collectivistic cultures also emphasize the importance of fulfilling one's (group-based) obligations and "self-harmonizing" (Gilovich et al., 2013; Hofstede, 2001; Taras et al., 2010) characteristics that could reduce the importance of *any* type of comparative justice.

In an experimental investigation of national differences, university undergraduates in the Netherlands, an individualistic culture, rated an experimental manipulation of IRD as less fair in comparison with GRD (van den Bos et al., 2015). However, when they were primed to focus on their similarity to, and expectations from, friends and family, they viewed both IRD and GRD as unfair. University undergraduates in Singapore, a collectivistic culture, also viewed an experimental manipulation of IRD as less fair in comparison with GRD, but they were not

more likely to voice their opinion in response to IRD. However, when primed to focus on what made them different and unique from their friends and family, these undergraduates were more likely to voice their opinion about IRD in comparison with GRD. Although the results from this experimental investigation are mixed, they suggest that members of individualistic cultures (or those primed to think like individualists) will be more sensitive to IRD in contrast to GRD. The second study is an opportunity to compare the predictive value of an IRD and GRD measure that only differ in their focus on either the single respondent or the country. The second study's design enables us to explore the extent to which cultural values moderate the relationship between GRD and people's attitudes separately from the relationship between IRD and people's attitudes.

Power Distance

Power distance, the second most commonly researched national value (Taras et al., 2010), describes to the extent to which members of institutions and organizations within a country expect and accept that power is distributed unequally (Hofstede, 2001). In high power distance cultures, power and inequality need less legitimization (Winterich & Zhang, 2014). Members of high power distance cultures expect everyone to have a defined place within the status hierarchy; they do not expect power differences to be justified or for more powerful people to consult them about decisions (Shao et al., 2013; Winterich & Zhang, 2014).

These differences suggest that members of high power distance cultures should be more likely to tolerate comparative disadvantages because they are more likely to expect and accept hierarchical differences. In contrast, members of individualistic cultures should be less likely to accept the power and status inequities that disadvantaged comparisons reveal. For example, university students from the United States and Germany (low power distance cultures) responded more strongly to the presence or absence of the opportunity to voice their opinions, a mark of procedural justice, in comparison with university students from Mexico, Hong Kong, and the People's Republic of China (high power distance cultures; Brockner et al., 2001). A meta-analytic review of cross-national justice research that included employees' experiences with both procedural and distributive injustice confirmed that members of low power distance cultures reacted more strongly to injustice in comparison with members of high power distance cultures (Shao et al., 2013).

However, a different meta-analysis indicates that members of high power distance cultures responded more strongly to justice violations (Fischer, 2013). Fischer (2013) argues that employees from higher power distance cultures care more about hierarchical differences and, therefore, will view the relative fairness of their treatment and outcomes as more informative about their place within the hierarchy. Employees often interpret the fairness of interpersonal treatment, procedures, and distributions of resources as indicative of their value to the larger organization (Fischer, 2013; Tyler, Degoey, & Smith, 2001). It is less clear that people interpret RD in the same way. Therefore, we predict that *the relationship between RD and various outcomes should be stronger for countries that score lower in power distance on Hofstede's Power Distance Scale.* For example, in Study 2, RD should predict less life satisfaction, less perceived respect from other citizens, less political trust, and more negative attitudes toward immigrants among members of national cultures where power distance is less valued.

Although power distance clearly implicates attitudes toward status hierarchies, it does not distinguish between individual and group interests in the way that differences in individualism-collectivism does. Therefore, there is no theoretical reason to expect differences in how members of high and low power distance cultures react to IRD and GRD. Still, in the second study, we will confirm whether differences in power distance moderate the relationship between GRD and outcomes in the same way that they moderate the relationship between IRD and outcomes.

Income Inequality

It may not be national differences in cultural values that shape people's RD experiences, but actual differences in economic inequality. For example, New Zealand citizens who lived in neighborhoods marked by greater income inequality reported more RD, which, in turn, predicted lower self-esteem (Osborne, Sibley, & Sengupta, 2015). Citizens who live in countries with greater income inequality may be more concerned with their own economic situation and potential slips downward and, therefore, pay more attention to relevant comparison information and react more strongly to any disadvantage (Fischer, 2013). A cross-national study of 15 countries indicated that undergraduates who lived in countries with more economic inequality reported that they possessed more positive personality characteristics in comparison with the average person (Loughnan et al., 2011). The authors argued that if people must compete for inequitably distributed resources, they would be motivated to stress their relative superiority compared with others (Loughnan et al., 2011). Importantly, differences in economic inequality predicted these differences in self-enhancement more strongly than did Hofstede's individualism-collectivism scores. The meta-analysis of 161 samples described earlier also showed that procedural and interactional justice more strongly predicted employees' attitudes in nations with greater income inequality (as measured by the Gini coefficient; Fischer, 2013).

However, in comparison with subjective RD measures, objective measures of relative economic inequality consistently underperform as predictors of people's attitudes and behavior (Callan, Kim, & Matthews, 2015; Smith et al., 2012). In fact, RD theory and research document numerous examples in which people who should feel deprived based on their objective circumstances do not, and others who should not feel deprived based on their objective circumstances do (Smith et al., 2012). Still, given the extent to which objective income differences often correlate strongly with national value differences (Sharma, 2003), it is important to determine whether differences in national values shape RD experiences even after we consider differences in economic inequality. Therefore, we include national income inequality (as measured by the Gini coefficient) as an additional predictor. If differences in national values predict country variation beyond an index of economic inequality, we will have more confidence in their contribution.

Study 1: Meta-Analysis[1]

Method

Data collection. We drew upon the 210 RD studies that were located for the meta-analytic study by Smith et al. (2012) and an additional four studies that included high quality measures and covered nationalities not represented in the original data set. We located studies by (a) a computer search through psychological, sociological, economic, political, and dissertation abstracts; (b) personal letters and emails to researchers who have published relevant studies; (c) a review of reference lists from previously located studies and conference presentations; and (d) "list serve" requests to members of the International Society for Justice Research, Society for Personality and Social Psychology, Society for the Study of Social Issues, International Society for Political Psychology, the European Association of Social Psychology, and the Society of Australasian Social Psychology.

The search yielded 214 studies (summarizing 303 independent samples and data from 200,578 participants) written between 1961 and January 2016 that met our inclusion criteria (median year of publication = 2000). Although most of the studies were written in English, the final data set also includes studies written in French, German, and Afrikaans. Samples ranged from probability population surveys to single occupations (e.g., university faculty, female police officers,

Table 1. Descriptive Statistics for Meta-Analysis—Study 1.

Country	k	*N*	*r*	Individualism-collectivism	Power distance	Gini coefficient
Australia	16	6,463.8	.147	90	36	34.9
Belgium	6	1,466	.171	75	65	27.6
Canada	37	7,337.5	.244	80	39	33.7
Chile	1	382	.11	23	63	50.5
China	1	1,369	.039	20	80	42.1
England (Britain)	15	17,828.1	.129	89	35	32.6
France	3	916	.288	71	68	33.1
Germany	20	20,074	.103	67	35	30.1
Ghana	1	144	.2	20	77	42.8
Hong Kong	3	621	.239	25	68	53.7
Iceland	2	6,303	.105	60	30	26.9
India	5	716	.122	48	77	33.9
Iraq	4	5,567	−.075	68	62	29.5
Israel	3	1,017	−.002	54	13	42.8
Korea	2	627	.141	18	60	30.2
Kyrgyztan	2	849	−.002	60	28	27.4
Lebanon	1	652	−.06	38	80	37.0
Mexico	5	12,243	.033	30	81	48.1
Mongolia	2	472	0	7	36	33.8
The Netherlands	22	4,464	.107	80	39	28.0
Norway	2	2,321.4	.01	69	31	25.9
Poland	1	100	.14	60	68	32.4
Russia	2	610	−.02	39	95	41.6
Scotland	4	5,369	.038	89	35	32.6
South Africa	11	10,133.3	.147	65	49	63.4
Spain	1	558	.08	51	57	35.9
Sweden	2	8,177	.286	71	31	27.4
Taiwan	1	991	.15	17	58	27.6
Turkey	1	244	.17	37	65	30.2
The United States	126	75,501.1	.156	91	40	41.4
New Zealand	1	6,884	.116	79	22	33.0

Note. k = number of samples; *N* = total number of participants included in calculation for average effect size. When we averaged multiple tests from the same sample with different degrees of freedom, it led to an independent sample size that was not always a whole number. Individualism-collectivism scores could range from 1 (high collectivism) to 100 (high individualism). Power distance scores could range from 1 (low power distance) to 100 (high power distance). Income inequality could range from 0 (closer to perfect equality) to 100 (where one person earns all the income).

funeral directors, and concrete construction workers) to ethnic, religious, national, and political minority and majority groups. As shown in Table 1, the dataset includes independent samples from 31 different countries.

Inclusion criteria. We employed the same eight inclusion criteria that Smith and colleagues used in the previous meta-analysis (see Smith et al., 2012, for full details). The final dataset was limited to empirical studies in which (a) individual respondents completed the RD measure; (b) researchers operationalized RD as a comparative construct; (c) RD was defined as an "upward" comparison to another target; (d) researchers did not construct the RD measure from other

questions (e.g., as a difference score); (e) researchers treated subjective RD measures as predictors; (f) the relationship between the respondent and the comparison target was clear; (g) the relationship between the outcome measure and the respondents' attitudes and behavior was clear (e.g., observations of other people's behavior were excluded); and (h) the outcome measure was not part of the RD experience as we define it (e.g., observed acts of rioting, Sears & McConahay, 1970). We also excluded studies in which researchers defined RD as the awareness of differences in a particular domain and the dependent measure as the resulting feelings about these differences.

Coding scheme. Two coders independently read and coded each sample, RD, and outcome measures (coders did not know any effect size information associated with the measures). If at least one item in a scale met our inclusion criteria, we included it as part of the database. Coders resolved any disagreements through discussion. The coding reliabilities were consistently high—with all kappas above .90. A complete list of coding categories is included as part of the original meta-analysis (Smith et al., 2012). Below are the categories included for this analysis (i.e., RD measures, outcome measures, matched level of analysis, sample characteristics).

RD measures. For each different RD measure, we coded whether participants either (a) estimated a difference in some valued outcome (a nonevaluative measure); (b) reported how they felt about the difference (an evaluative measure); or (c) indicated whether their relative disadvantage was undeserved or unfair (treated as a second form of an evaluative measure). If measures of mood or emotions were woven into the RD measure, we coded them as evaluative measures. If researchers reported both evaluative and nonevaluative RD items, we coded the RD measure as an evaluative measure. Simply noticing a difference between one or one's ingroup situation and the situation of another person or outgroup should not predict outcomes as strongly as evaluating that difference as unfair, undeserved, or dissatisfying.

We also coded whether the comparison was between (a) the respondent's personal situation and the situation for an ingroup member; (b) the respondent's personal situation and the situation for an outgroup member; (c) the respondent's ingroup's situation and an outgroup's situation; or (d) the respondent's or their ingroup's present situation with their past, future expectations, or theoretical possibilities (e.g., the best possible life). If a measure included comparisons with both an ingroup and an outgroup referent (e.g., questions including a female and male employee referent for female employees, as in Hafer & Olson, 1992), the measure was coded as representing an outgroup comparison.

Outcome measures. We classified each dependent measure represented in the larger dataset into one of the two general categories. The first category included *individual reactions and behaviors* such as (a) stress, anxiety, depression, hopelessness, mental illness, and pessimism; (b) (personal) self-esteem, self-efficacy, and life satisfaction; (c) (poor) physical health (e.g., more obesity, heart disease, restricted sleep); (d) forms of deviance (e.g., violence, stealing, and counterproductive work behavior); (e) forms of escape (e.g., smoking, drinking, drug use, absenteeism, and social isolation); and (f) forms of achievement (e.g., moonlighting, academic performance). The second category included *intergroup attitudes and collective action* such as (a) attitudes toward the system (e.g., voting intentions, support for authorities); (b) attitudes toward outgroups (e.g., prejudice, majority group members' attitudes toward immigration, and affirmative action); and (c) support for and participation in unstructured and structured forms of collective action.

Matched levels of analysis. If the RD measure involved a comparison of one's ingroup and the outcome measure involved either intergroup attitudes or collective behavior, we coded the

predicted relationship as representing matched levels of analysis. Similarly, if the RD measures involved a comparison of the unique person and the outcome measure involved either individual reactions or behavior, we coded the predicted relationship as representing matched levels of analysis.

RD researchers often include a third ambiguous comparison in which people compare themselves (but not their ingroup) with an outgroup member. These comparisons are ambiguous because, on one hand, if perceivers are close to the outgroup comparison target and perhaps see her or him as a friend, they should experience IRD. On the other hand, if perceivers think of the comparison target as an outgroup representative and themselves as ingroup representatives, they should experience GRD. To minimize the loss of potential tests, we coded these comparisons as "matched" to either individual or collective outcomes. We coded all other comparison and outcome combinations as mismatched relationships. If researchers reported multiple mismatched outcomes (e.g., intent to protest and physical health), we coded the effect size as representing mismatched levels of analysis.

Sample characteristics. We limited the dataset to samples that could be clearly associated with a single nationality. Using Hofstede (2001) cultural value indices, we coded each sample with the appropriate individualism-collectivism and power distance scores. Because Hofstede (2001) does not report separate values for Scotland and England, we used the values for the United Kingdom for both countries. We took national values for Kyrgyzstan from independent research by Temirbekova, Latova, Latova, and Temirbekova (2014), and for Mongolia from Rarick et al. (2014). As shown in Table 1, national scores ranged from 7 (high collectivism) to 91 (high individualism, $M = 78.91$, $SD = 17.96$). For power distance, national scores ranged from 13 (low power distance) to 95 (high power distance, $M = 42.56$, $SD = 12.01$). We also coded whether the sample was intended to be a representative sample of a larger (national) population ($n = 97$) or not ($n = 205$).[2]

We measured income inequality using the Gini index of inequality of wealth distribution obtained from the World Bank (2017) with the exception of Hong Kong and Korea, which came from the CIA World Fact Book, and Lebanon (Knoema, 2018). We used the rescaled version that could range from 0 (representing perfect equality) to 100 (where one person earns all the income, $M = 37.62$, $SD = 7.58$).

Computation and analysis of effect sizes. Our primary unit of analysis is each independent sample. We combined effect sizes with Rosenthal's (1995) suggested formulas. We report Pearson's r as the principal indicator of effect size throughout the analysis (Rosenthal, 1995). All mean rs were computed with each effect size weighted by the reciprocal of its variance (which gives more weight to effect sizes that are more reliably estimated; see Borenstein, Hedges, Higgins, & Rothstein, 2009). A positive mean effect size indicates that greater RD relates to more of the particular behavior or stronger attitudes. If no correlations were reported (as was the case for 11.5% of the included effects), the effect size was derived from the results of significance tests (chi-squares, t, or F ratios) by use of the conversion formulas provided by B. T. Johnson (1993). If a particular relationship was reported as nonsignificant or the result was completely omitted (but implied by the "Method" section, as was the case for two effect sizes), we assign a value of .00 for the effect size. As indicated in the original meta-analysis (Smith et al., 2012), we found no evidence of publication bias.

Because Hofstede's national values provided continuous measures of individualism-collectivism and power distance, we used the meta-analysis approach developed by Borenstein and colleagues to test national culture as a continuous (as opposed to a dichotomous) moderator of RD effects (Borenstein et al., 2009; Lipsey & Wilson, 2001). We used the SPSS macro and syntax for random effects meta-regression models with maximum likelihood estimation developed by Lipsey and Wilson (2001).

Table 2. Correlations for All Measures—Study 1.

Variable	1	2	3	4	5	6
1. Effect size	—					
2. Matched levels of analysis	−.14*	—				
3. RD measures include evaluation or not	−.17*	−.07	—			
4. Individualism-collectivism	.12	−.06	.03	—		
5. Power distance	−.03	−.04	.004	−.59**	—	
6. Gini coefficient	.05	.08	.11†	−.01	.20**	—
7. Representative sample or not	.09	−.07	−.14*	−.07	.10	−.20*

Note. k = 303. Entries are Pearson correlations. Lower scores indicate more collectivism, less power distance, and more economic equality (as defined by the Gini coefficient). We scored RD measures that included evaluation of the disadvantage as 1 and RD measures limited to nonevaluative comparisons as 2. We scored effect sizes that matched RD and outcome levels of analysis as 1 and effects sizes that were not matches as 2. We scored representative national samples as 1 and other samples as 2. RD = relative deprivation.
†$p < .10$. *$p < .05$. **$p < .01$.

Results

As expected, the average effect size for the 304 independent samples (mean $r = .15$, 95% confidence interval [CI] = [0.13, 0.17] based on a random-effects analysis) was very similar to the average effect size reported for the original RD meta-analysis (mean $r = .14$, 95% CI = [0.13, 0.16] for 293 independent samples). And as found in the previous meta-analysis (Smith et al., 2012), independent samples with RD measures that included an evaluation of the disadvantage yielded a statistically significantly larger mean effect size (mean $r = .19$, 95% CI = [0.15, 0.23]) in comparison with independent samples with RD measures limited to simple comparisons (mean $r = .13$, 95% CI = [0.12, 0.15]); $Q_B = 17.05$, $p < .0001$. The average effect size for independent samples with RD measures that matched the outcome level also yielded a statistically significant mean effect size (mean $r = .17$, 95% CI = [0.14, 0.20]) in comparison with independent measures with RD measures that did not match the outcome level (mean $r = .14$, 95% CI = [0.11, 0.18]); $Q_B = 12.79$, $p < .0001$. Most important, these analyses show that considerable heterogeneity remains within each of the created categories (Q_W ranged from 856.05 to 1,692.34) supporting the need to investigate additional moderators.

To test whether national differences in individualism-collectivism moderated the strength of the relationship between RD and various dependent variables, we treated effect size as the outcome in a modified weighted least-square regression analysis (Lipsey & Wilson, 2001; simple bivariate correlations among predictors are presented in Table 2). Samples from more individualistic countries ($\beta = .14$, $Z = 2.48$, $p = .01$), RD measures that included an evaluative component ($\beta = –.19$, $Z = −3.37$, $p = .0007$), and RD measures that matched the outcome level of analysis ($\beta = –.14$, $Z = −2.60$, $p = .009$) reliably predicted larger effect sizes. Differences in economic inequality (as measured by the Gini coefficient, $\beta = .10$, $Z = 1.82$, $p = .07$) and whether researchers intended the sample to represent the larger population ($\beta = .10$, $Z = 1.75$, $p = .08$) were marginally reliable predictors of larger effect sizes. The regression model was statistically significant, $Q(5) = 29.27$, $p = .0001$, with a random effects variance component $v = .02$ ($SE = .002$) and an explained variance of 8.7%. As shown in Figure 1, RD measures more strongly predict people's attitudes and behavior for those countries with higher scores on the Hofstede Individualism-Collectivism Scale.

Because power distance scores were closely related to individualism and collectivism scores ($r = –.59$, see Table 2), we ran a separate regression equation in which we included power distance as a predictor of effect size. Again, samples with evaluative RD measures ($\beta = –.19$,

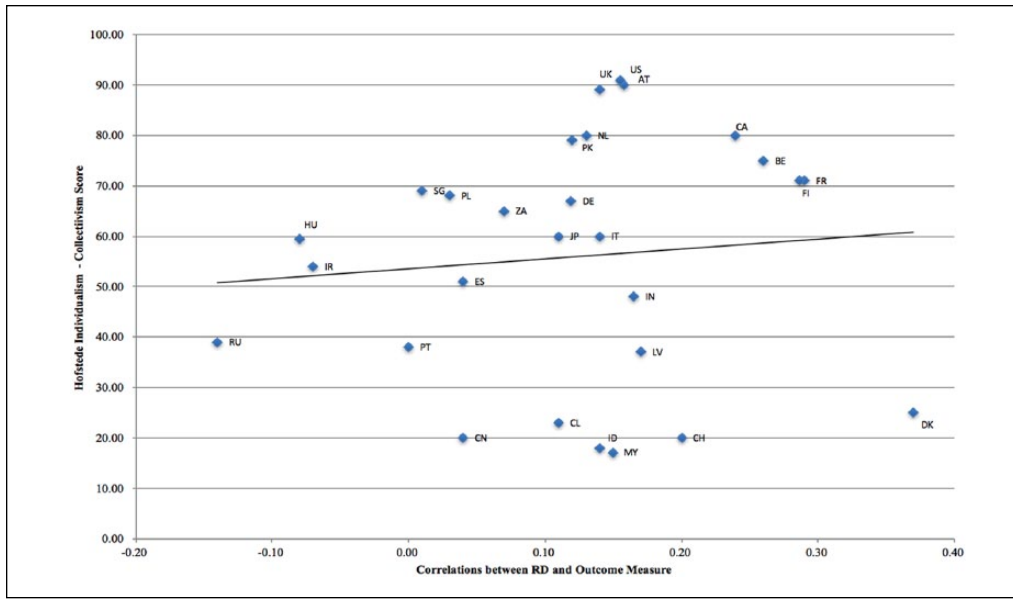

Figure 1. Correlations between RD and outcome by country and individualism score, Study 1.
Note. Correlations are coded to indicate that respondents who report more RD report more positive scores on the outcome measure (e.g., more life dissatisfaction, more deviant behavior, more distrust of the government, and more collective action). RD = relative deprivation.

$Z = 3.31$, $p = .001$) and matched the RD measure to the outcome level of analysis ($\beta = .12$, $Z = 2.04$, $p = .04$) reliably predicted larger effect sizes. In this case, economic inequality is a reliable predictor of effect size ($\beta = .12$, $Z = 3.31$, $p = .001$), whereas sample type is marginally reliable ($\beta = .10$, $Z = 1.77$, $p = .08$). However, national differences in power distance did not reliably predict larger effect sizes ($\beta = –.08$, $Z = 1.45$, $p = .15$). The regression model was statistically significant, $Q(5) = 24.91$, $p = .0001$, with a random effects variance component $v = .02$ ($SE = .002$) and an explained variance of 7.5%.

Samples designed to represent larger (and almost always national) populations offer a better test of whether national values moderate the predictive strength of RD. Therefore, we explored whether these patterns might be weaker or stronger if we limited the analysis to samples for which national value differences should be more relevant. If we limit the analyses to the 97 representative samples, individualism predicted larger effect sizes ($\beta = .25$, $Z = 2.55$, $p = .01$). However, if we limit the analysis to the 204 population or convenience samples, differences in individualism do not reliably predict larger effect sizes ($\beta = .04$, $Z = 1.06$, $p = .28$). Differences in power distance also predict larger effect sizes for representative samples ($\beta = –.21$, $Z = −2.05$, $p = .04$) but not for convenience samples ($\beta = –.03$, $Z = −0.49$, $p = .62$).[3]

Discussion

As shown in Figure 1, RD measures predicted stronger attitudes, behavioral intentions, and behaviors for members of more individualistic societies in comparison with members of more collectivistic countries. There also was some evidence that RD effects were stronger within countries marked by greater economic inequality, but this pattern was not statistically significant. There was no general evidence that national differences in power distance shaped the strength of the relationship between RD and various outcomes, although smaller analyses limited

to representative samples indicated that national differences in both individualism and power distance affected the predictive strength of RD. The fact that our predictions are clearly supported by samples designed to represent national populations in contrast to other samples gives us confidence that differences in national cultural values do moderate the relationship between RD measures and outcomes.

Given the remarkable heterogeneity of these studies in terms of age, occupations, year of publication, and measure quality, the effect of individualism is striking. However, these samples unevenly represent the world—with over 126 samples from the United States in contrast to one sample from Ghana. Moreover, the quality of the measures ranged widely with numerous single-item RD and outcome measures. Therefore, it is important to determine whether the same patterns emerge if respondents from multiple countries complete the same RD and outcome measures—an approach that would eliminate at least one source of potential error that could have occurred with the meta-analytic data.

The second study is a cross-national study of university students in which all respondents answer the same set of questions. In this study, we consider three different outcomes, life satisfaction, attitudes toward immigrants, and political trust, that were included in the previous meta-analysis. We also include a fourth outcome, the extent to which people feel respected by others (Tyler & Lind, 2001). Respect, or more often disrespect, is an especially strong outcome associated with other forms of distributive, interactional, and procedural justice and predicts a broad range of outcomes that range from cooperative behavior to interpersonal aggression and violence to personal self-esteem (Blader & Tyler, 2015; Miller, 2001; Simon, 2007; Tyler et al., 2001). Based on the meta-analysis, we hypothesize increased IRD to predict lower life satisfaction and respect from others (outcomes that target individual-level characteristics). We hypothesize that increased GRD will more strongly predict decreased trust in institutions and more negative attitudes toward immigrants (outcomes that target collective-level characteristics). Finally, we predict the relationship between the RD measures and outcomes will be stronger for university students in more individualistic and lower power distance countries.

Study 2: Cross National Survey[4]

Participants

We recruited a total of 6,112 undergraduate university students residing in 28 countries from North America (Canada, and the United States—one dataset from Tennessee and one from Northern California), South America (Chile and Brazil), Europe (the Netherlands, the United Kingdom, Spain, Italy, Germany—one dataset from former East Germany and one from former West Germany—France, Denmark, Finland, Switzerland—French speaking minority—Belgium—French speaking minority—Portugal, Poland, Hungary, and Latvia), Asia (China, Japan, Malaysia, Singapore, Indonesia, India, and Pakistan), Middle East (Iran), Africa (South Africa), and Oceania (Australia). We prepared the original version of the survey in English and translated the survey into the native languages of the respective countries if necessary using either back-translation or panel methods. We collected the data using either online platforms or hard copy versions of the questionnaires. The data collection process started in January 2014 and ended in February 2015. The mean age of the total sample was 22.48 (SD = 6.40; 65% female, see Table 3). We present means, standard deviations, and bivariate correlations for all variables in Table 4.

Person-Level Outcomes

IRD. We combined respondents' ratings of four items adapted from the Pew Research Global Attitudes Project. Respondents rated (a) their personal economic situation from very bad (1) to

Table 3. Country-Level Descriptive Statistics—Study 2.

Country	*n*	% female	*M* age	Questionnaire language	IRD	GRD	Power distance	Individualism-collectivism	Gini coefficient
Pakistan (PK)	150	0	18.92	Urdu	3.59	5.29	55	14	29.6
South Africa (ZA)	451	81	21.04	English	3.60	4.92	49	65	63.4
Poland (PL)	180	72	27.72	Polish	3.54	4.81	68	60	32.4
Hungary (HU)	160	18	24.75	Hungarian	3.38	5.12	46	80	30.6
Italy (IT)	156	62	25.87	Italian	3.78	5.02	50	76	35.2
Brazil (BR)	146	62	25.99	Portuguese	3.62	4.58	69	38	52.9
Spain (ES)	277	73	35.66	Spanish	3.72	5.46	57	51	35.9
France (FR)	150	83	19.53	French	3.87	4.68	68	71	33.1
Iran (IR)	170	54	22.49	Persian	4.56	5.19	58	41	37.4
Latvia (LV)	149	53	23.44	Latvian	3.72	4.80	44	50	35.2
Portugal (PT)	160	71	23.44	Portuguese	3.83	5.28	63	27	36.0
India (IN)	145	66	22.24	English	4.04	4.68	77	48	33.9
Chile (CL)	151	33	20.47	Spanish	2.92	3.88	63	23	50.5
Japan (JP)	382	57	20.64	Japanese	4.24	4.64	54	46	32.1
The United States (US)	319	59	21.06	English	3.19	4.26	40	91	41.1
Indonesia (ID)	557	77	23.12	Indonesian	3.31	4.58	78	14	35.6
Malaysia (MY)	112	85	21.42	Malay	3.40	4.16	100	26	46.3
Belgium (BE)	242	22	23.20	French	3.48	4.01	65	75	27.6
China (CN)	151	79	19.41	Mandarin	3.86	3.44	80	20	42.1
Germany (DE)	322	70	22.05	German	3.30	3.23	35	67	30.1
Australia (AT)	149	73	22.14	English	3.20	3.47	36	90	34.9
The United Kingdom (UK)	74	76	21.97	English	3.44	3.75	35	89	32.6
Singapore (SG)	193	66	19.5	English	3.15	2.80	74	20	46.4
Canada (CA)	233	77	21.66	English	3.29	3.23	39	80	33.7
The Netherlands (NL)	208	79	19.35	Dutch	3.26	3.81	38	80	28.0
Finland (FI)	113	77	25.58	Finnish	3.40	3.78	33	63	27.1
Denmark (DK)	164	71	22.68	Danish	3.37	2.37	18	74	29.1
Switzerland (CH)	488	64	24.13	French	2.75	3.17	34	68	31.6

Note. RD scores could range from 1 (*a lot better*) to 7 (*a lot worse*). Individualism-collectivism scores could range from 1 (*high collectivism*) to 100 (*high individualism*). Power distance scores could range from 1 (*low power distance*) to 100 (*high power distance*). Income inequality (defined by the Gini coefficient) could range from 0 (*closer to perfect equality*) to 100 (*where one person earns all the income*). IRD = individual relative deprivation; GRD = group relative deprivation; RD = relative deprivation.

very good (7); (b) whether they thought their personal economic situation in the next 3 years would be a lot worse (1) to a lot better (7); (c) the extent to which they were very dissatisfied (1) to very satisfied (7) with how things were going in their personal life today; and (d) the extent to which they would describe their personal situation, relative to other people in their country, as a lot worse (1) to a lot better (7). We reverse scored the items so that higher scores represent greater deprivation—$\alpha = .69$; lowest α(France) = .52; highest α(Iran) = .81.

GRD. We combined respondents' ratings of four items adapted from the Pew Research Global Attitudes Project. Respondents rated (a) the current economic situation in their country from very bad (1) to very good (7); (b) whether they expected their country's economic situation in the next 3 years to be a lot worse (1) to a lot better (7); (c) the extent to which they were very dissatisfied (1) to very satisfied (7) with the way things were going in their country today; and (d) the extent to which they would describe their country's current economic situation, relative to other countries, as a lot worse (1) to a lot better (7). We reverse scored the items so that higher scores represent greater deprivation—$\alpha = .76$; lowest α(Australia) = .45; highest α(Malaysia) = .85.

Table 4. Correlations for All Measures—Study 2.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. IRD	3.52	1.00	—							
2. GRD	4.21	1.19	.36**	—						
3. Life satisfaction	4.45	1.16	−.57**	−.31**	—					
4. Political trust	3.29	1.50	−.24**	−.59**	.30**	—				
5. Respect from other citizens	3.25	1.45	−.32**	−.33**	.38**	.31**	—			
6. Attitudes toward immigrants	4.92	1.25	.10**	.08**	−.06**	.05**	−.04**	—		
7. Power distance	58.87	17.22	.09**	.27**	−.14**	−.11**	−.07**	.28**	—	
8. Individualism-collectivism	55.34	24.39	−.06**	−.16**	.09**	.04**	.02	−.23**	−.75**	
9. Gini coefficient	37.16	9.41	−.003	.16**	−.05**	−.14**	−.13**	.05**	.23**	−.17**

Note. N = 6,106. Entries are Pearson correlations. Higher scores indicate more relative deprivation, life satisfaction, political trust, negative attitudes toward immigrants, greater power distance, more individualism, and more economic inequality as defined by the Gini coefficient. IRD = individual relative deprivation; GRD = group relative deprivation. *p < .05. **p < .01.

Life satisfaction. Respondents rated their agreement for all three outcome measures from 1 (*strongly disagree*) to 7 (*strongly agree*). We combined respondents' ratings of five items from Diener, Emmons, Larsen, and Griffin's (1985) Life Satisfaction Scale: (a) I am satisfied with my life; (b) In most ways my life is close to my ideal; (c) The conditions of my life are excellent; (d) So far I have gotten the important things I want in life; and (e) If I could live my life over, I would change almost nothing. In addition, we included a self-esteem item (Robins, Hendin, & Trzesniewski, 2001), (f) I have high self-esteem—α = .83; lowest α(Japan) = .70; highest α(Germany) = .93.

Attitudes toward immigrants. This scale combined respondents' responses to the following six items adapted from Jetten and Wohl (2012): (a) Immigrants take resources and employment opportunities away from the (country); (b) In schools where there are too many children of immigrants, the quality of education will suffer; (c) Immigrants abuse the system of social benefits; (d) The country's norms and values are being threatened by the presence of immigrants; (e) The cultural practices of immigrants threaten the country's way of life; and (f) Immigrants are a threat to the country's identity—α = .91; lowest α(India) = .73; highest α(Germany) = .93.

Political trust. For this measure, we combined respondents' ratings on the four items adapted from the European Social Survey (2012): (a) I trust the government of the country; (b) I trust the country's congress; (c) I trust the political parties in my country; (d) I trust the politicians in my country—α = .94; lowest α(Malaysia) = .81; highest α(Singapore) =.97.

Respect from other citizens. Included in the survey were three items that capture the extent to which students felt respected by other citizens: (a) I feel like I am an accepted and valued member of the country's society; (b) I sometimes feel as if the country's society does not value me or tries to exclude me (reversed scored); (c) I sometimes feel like I am unfairly treated as a marginal and unimportant member of the society—reverse scored, α = .76; lowest α(Iran) = .53; highest α(Finland) = .87.

Country-level outcomes. As in the first study, we assigned each country an individualism-collectivism score (M = 53.87, SD = 17.62, from 18 to 100), a power distance score (M = 55.34,

SD = 24.39, from 14 to 91), and the appropriate Gini coefficient (*M* = 36.11, *SD* = 9.83, from 17.3 to 63.4).

Results

Because individual respondents were nested within countries, we used multilevel modeling (hierarchical linear modeling [HLM]) to analyze our questions. Before HLM is applied, it first must be shown that there is sufficient variance at the higher level of analysis to warrant the use of multilevel modeling (Bryk & Raudenbush, 1992). Fully unconditioned models produced interclass correlations of .12 for life satisfaction, .23 for attitudes for immigrants, .15 for political trust, and .07 for respect from other citizens—all of which support the use of a HLM approach.

Next, we tested eight separate models to explore whether national differences in individualism-collectivism or power distance moderate the impact of RD on people's reactions. We first centered individuals' IRD and GRD scores based on the mean scores for their respective countries.[5] We chose individual countries as the appropriate reference for centering variables because one's local country seemed a more obvious reference for relative differences among RD experiences in contrast to the world at large (Albright & Marinova, 2015). We used unstructured maximum likelihood estimation variance and included the outcome variable as the Level 1 dependent variable, IRD and GRD as the Level 1 predictors, and national values and income inequality as the Level 2 predictors. We also included random effects for the slopes of all person-level predictors.[6] We chose to include random effects and intercepts for Level 1 predictors because we had no reason to expect the average level of IRD and GRD to be similar across all countries, nor for the relationship between RD and outcomes to be similar across countries. Including these random effects offer the most conservative test of our hypotheses (Albright & Marinova, 2015; Hayes, 2006). Because statistics experts recommend that researchers should not interpret simple "main effects" in the context of reliable interactions, we focus our summary on the tests of our moderation hypothesis (Maassen & Bakker, 2001).

Life satisfaction. We ran two models, one for each national value. Table 5 presents the results for models that included individualism-collectivism, and Table 6 presents the results for models that included power distance. For both models, we expected increased IRD, but not increased GRD, to predict decreased life satisfaction because life satisfaction represents an individual-level internal state. As shown in Figure 2, increased IRD predicted decreased life satisfaction more strongly for countries rated higher in individualism in comparison with countries rated lower in individualism, a pattern supported by the reliable interaction term reported in Table 5 (b = .003, SE = .001, p = .02). The inclusion of all predictors led to a better fitting model, $\chi^2(11) = 2{,}257.17$, $p < .05$, compared with an intercept only model and explained 30.8% of the variance among participants.

For the model with national power distance scores as a predictor, there was some evidence that increased IRD more strongly predicts decreased life satisfaction for students from low power distance cultures, but the interaction term is not conventionally reliable (b = .004, SE = .002, p = .06). The inclusion of all predictors led to a better fitting model, $\chi^2(11) = 2{,}256.10$, $p < .05$, compared with an intercept only model and explained 29.7% of the variance among participants.

Political trust. For both models, we expected increased GRD, but not increased IRD, to predict decreased political trust (because trust represents a country-level attitude). As shown in Table 5, there is some evidence that increased GRD more strongly predicted decreased political trust for students from individualistic countries, but the interaction is not conventionally reliable (b = .003, SE = .001, p = .06). The inclusion of all predictors led to a better fitting model, $\chi^2(11) = 1{,}340.32$, $p < .05$, compared with an intercept only model and explained 20% of the variance among participants.

Table 5. Estimates and Standard Errors for Multilevel Models With Individual Collectivism as Predictor—Study 2.

	Life satisfaction		Political trust		Attitudes toward immigrants		Respect from other citizens	
	b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Fixed effects								
Intercept	4.21	.44	3.94	.76	3.93	.72	5.27	.34
Level 1 Individual Main Effects								
IRD	0.40*	.08	0.08	.06	−0.23*	−.05	0.13†	.07
GRD	0.08	.05	0.47*	.09	0.06	.08	0.21*	.07
Level 2 National Main Effects								
IC	0.01†	.003	0.0001	.007	−0.01*	.01	0.001	.003
Gini Coefficient	−0.002	.009	0.02	.02	−0.001	.02	−0.01	.007
Cross-level interaction								
IC × IRD	0.003*	.001	0.0004	.009	0.002*	.001	0.003*	.001
IC × GRD	0.0002	.0008	0.003†	.001	−0.001	.001	0.002	.001
Random effects								
Level 2 Country intercept	0.14*	.04	0.66*	.18	0.41*	.11	0.09*	.03
Level 1 IRD Intercept	0.005	.01	0.01	.03	−0.02	.02	0.01	.01
Level 1 IRD Slopes	0.02*	.01	0.03*	.01	0.01*	.01	0.01*	.004
Level 1 GRD Intercept	−0.003	.02	0.06*	.02	−0.01	.02	0.01	.009
Level 1 GRD Slopes	0.004	.004	0.01*	.01	0.00	.01	0.009†	.004

Note. N = 6,106 respondents (Level 1), 28 countries (Level 2). Each column presents the results of a separate analysis that test whether individualism-collectivism moderates the relationship between the two RD measures and a specific outcome variable. We report unstandardized parameter estimates (*b*) and standard errors (*SE*). Level-1 predictors were group mean centered. Any reliable main effects reported for these models are difficult to interpret given the reliable interactions and additional predictors included for each test (Bryk & Raudenbush, 1992; Cohen & Cohen, 1983). IRD = individual relative deprivation; GRD = group relative deprivation; IC individual-collectivism; RD = relative deprivation.
†$p < .10$. *$p < .05$.

The equation with power distance as a predictor revealed that increased GRD predicted decreased political trust more strongly for students from lower power distance countries in comparison with higher power distance countries ($b = –.005$, $SE = .002$, $p = .005$, See Figure 3). The inclusion of these variables led to a better fitting model, $\chi^2(11) = 1{,}346.37$, $p < .05$, compared with an intercept only model and explained 20% of the variance among participants.

Attitudes toward immigrants. For both models, we expected increased GRD, but not increased IRD, to predict more negative attitudes toward immigrants because these attitudes should be associated with one's identity as a citizen. Unexpectedly, the equation with individualism-collectivism as a predictor indicates that increased IRD more strongly predicts increased negative attitudes toward immigrants for students from more collectivistic countries in comparison with students from more individualistic countries ($b = .002$, $SE = .001$, $p = .01$). The inclusion of these variables led to a better fitting model, $\chi^2(11) = 172.50$, $p < .05$, compared with an intercept only model and explained 1.2% of the variance among participants.

When power distance was included as a predictor, students from high power distance cultures reported more negative attitudes toward immigrants ($b = .03$, $SE = .001$, $p = .001$). As shown in Table 4, no other predictors were reliable. The inclusion of these variables led to a better fitting model, $\chi^2(11) = 174.08$, $p < .05$, compared with an intercept only model and explained 1.2% of the variance among participants.

Table 6. Estimates and Standard Errors for Multilevel Models With Power Distance as Predictor—Study 2.

	Life satisfaction		Political trust		Attitudes toward immigrants		Respect from other citizens	
	b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Fixed effects								
Intercept	5.02	.33	4.81	.52	2.62	.49	5.47	.27
Level 1 Individual Main Effects								
IRD	0.81*	.11	0.17	.07	−0.01	.06	0.52*	.09
GRD	0.09	.06	0.86*	.10	0.12	.10	0.45*	.08
Level 2 National Main Effects								
PD	−0.01*	.004	−0.002	.007	0.03*	.001	−0.004	.003
Gini Coefficient	−0.002	.82	−0.04*	0.01	−0.01	.06	−0.009	.007
Cross-level interaction								
PD × IRD	−0.004†	.002	−0.001	.001	−0.002	.001	−0.004*	.002
PD × GRD	0.000	.001	−0.005*	.002	0.002	.002	−0.003†	.001
Random effects								
Level 2 Country Intercept	0.13*	.04	0.66*	.02	0.33*	.09	0.09*	.03
Level 1 IRD Intercept	0.004	.01	0.06*	.02	−0.007	.01	0.009	.01
Level 1 IRD Slopes	0.03*	.008	0.009†	.004	0.0009	.002	0.01*	.005
Level 1 GRD Intercept	−0.0008	.007	0.002	.03	−0.02	.02	0.008	.008
Level 1 GRD Slopes	0.004	.004	0.02*	.008	0.01†	.07†	0.008	.004

Note. N = 6,106 respondents (Level 1), 28 countries (Level 2). Each column presents the results of a separate analysis that test whether individualism-collectivism moderates the relationship between the two RD measures and a specific outcome variable. We report unstandardized parameter estimates (*b*) and standard errors (*SE*). Level-1 predictors were group mean centered. Any reliable main effects reported for these models are difficult to interpret given the reliable interactions and additional predictors included for each test (Bryk & Raudenbush, 1992; Cohen & Cohen, 1983). IRD = individual relative deprivation; GRD = group relative deprivation; PD = power distance; RD = relative deprivation.
†$p < .10$. *$p < .05$.

To determine whether these patterns might reflect structural differences shaped by the actual presence of immigrants, we reran the models described above with the percentage of international migrants in the total national population (United Nations, Department of Economic and Social Affairs, Population Division, 2016) as an additional predictor. Percentage of international migrants was related to differences in power distance, $r(6112) = –.39$, $p < .0001$; individualism-collectivism, $r(6112) = .35$, $p < .0001$; and economic inequality, $r(6112) = –.10$, $p < .0001$. However, percentage of international immigrants did not predict attitudes toward immigrants when we included other national-level predictors ($b = .01$, $SE = .01$, $p = .35$, for the individualism-collectivism model). All the other patterns remained the same. We also reran the models without the eight countries where the percentage of international immigrants for the total population was close to zero. All the patterns remained the same.

Respect from other citizens. For both models, we expected increased IRD, but not increased GRD, to predict feeling less respected by other citizens because respect reflects an individual-level internal state. A first equation with individualism-collectivism as a predictor indicated that that individualism-collectivism moderated the predictive power of the IRD on perceived respect ($b = –.003$, $SE = .001$, $p = .02$). As shown in Figure 4, the negative relationship between increased

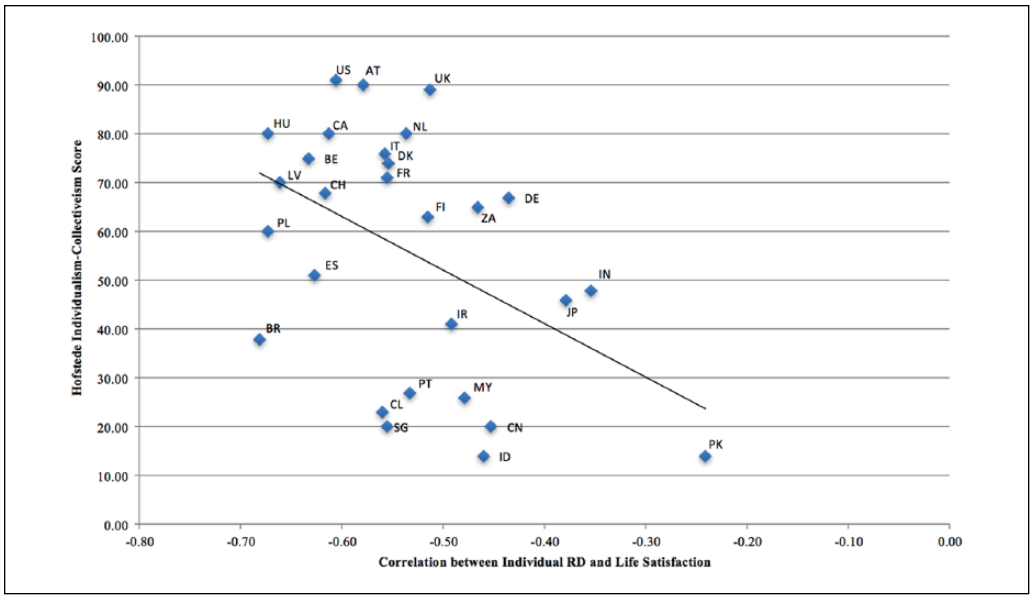

Figure 2. Correlations between IRD and life satisfaction by country and individualism score, Study 2.
Note. Correlations are coded to indicate that respondents who report more IRD report less life satisfaction. IRD = individual relative deprivation.

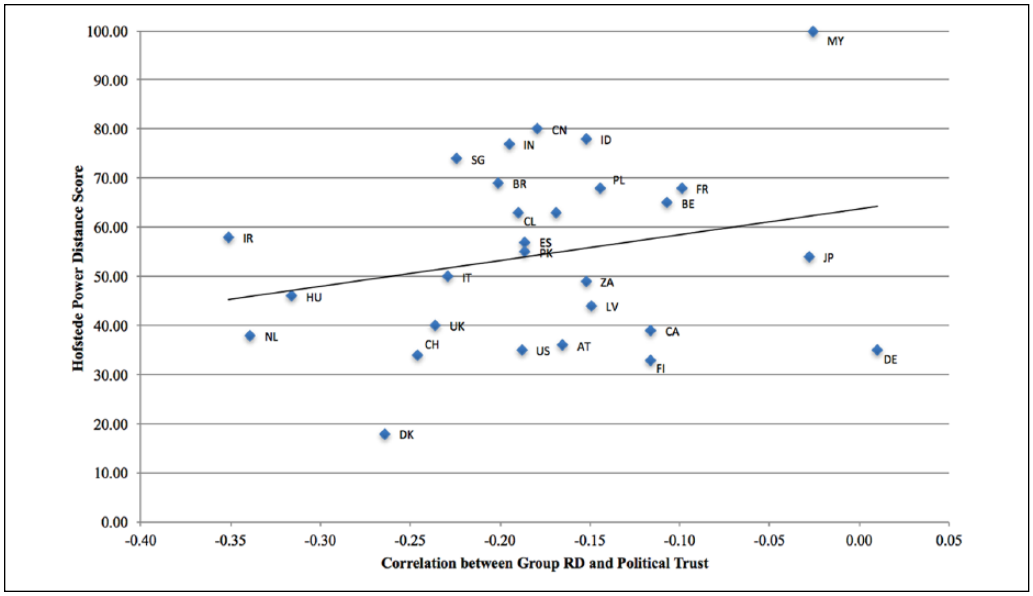

Figure 3. Correlations between GRD and political trust by country and power distance score, Study 2.
Note. Correlations are coded to indicate that respondents who report more GRD trust the government less. GRD = group relative deprivation.

IRD and decreased respect was stronger for students from more individualistic countries in comparison with students from more collectivistic countries. The inclusion of these variables led to a

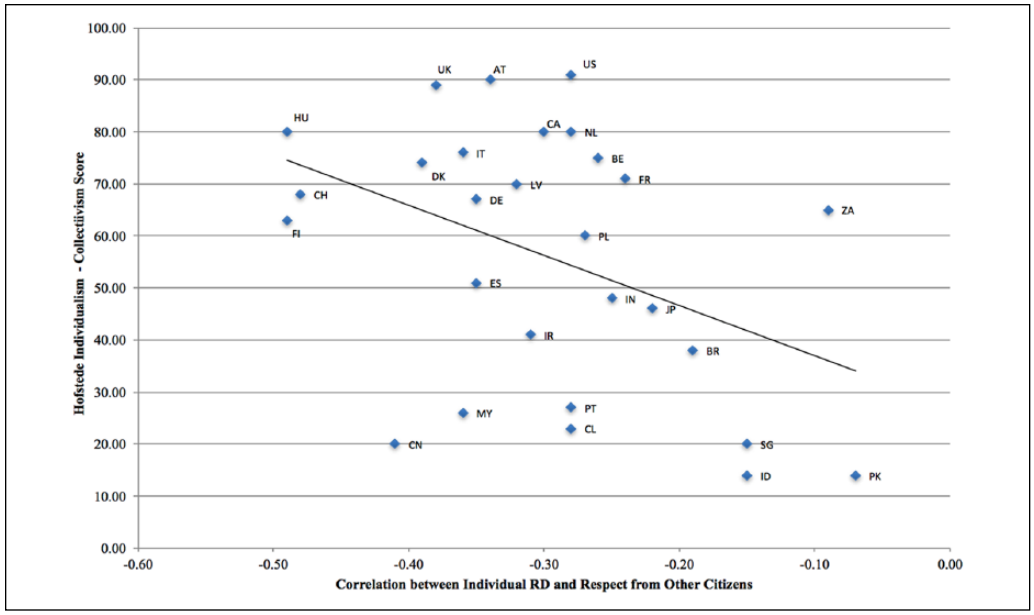

Figure 4. Correlations between IRD and respect by country and individualism score, Study 2.
Note. Correlations are coded to indicate that respondents who report more IRD report less respect from other citizens. IRD = individual relative deprivation.

better fitting model, $\chi^2(11) = 950.54$, $p < .05$, compared with an intercept only model and explained 14.6% of the variance among participants.

A second equation with power distance as a predictor indicated that power distance moderated the predictive power of IRD on perceived respect ($b = –.004$, $SE = .002$, $p = .02$). As shown in Figure 5, the negative relationship between increased IRD and decreased respect was stronger for students from low power distance countries. The inclusion of these variables led to a better fitting model, $\chi^2(11) = 951.90$, $p < .05$, compared with an intercept only model and explained 13.6% of the variance among participants.

Discussion

RD measures that matched the outcome variable level of analysis predicted the outcomes more strongly. Increased IRD predicted decreased life satisfaction and respect from other citizens, individual-level outcomes, and increased GRD predicted decreased political trust, a collective-level outcome. Most important, national cultural differences moderated the relationship between IRD and outcomes. IRD predicted life satisfaction and respect from other citizens more strongly for students from more individualistic countries—cultural contexts in which people might feel more responsible for their relative position. We also find suggestive evidence that IRD predicted students' life satisfaction and respect from other citizens to a greater extent in lower power distance countries—cultural contexts in which people are more likely to believe that they deserve to be treated as equals.

Increased GRD predicted students' decreased trust in political institutions to a greater extent in lower power distance cultures—contexts in which people are more likely to challenge status and power inequities. Increased GRD also tended to predict decreased political trust more strongly for students from individualistic national cultures—a pattern that contradicts theorists' expectations that GRD should be more important for members of collectivistic cultures given

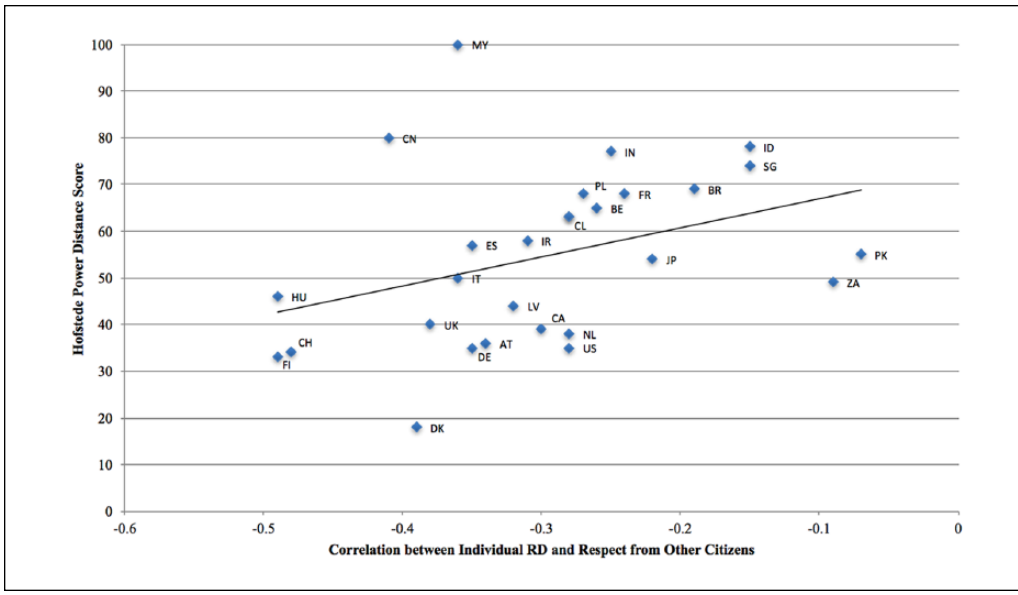

Figure 5. Correlations between IRD and respect by country and power distance score, Study 2.
Note. Correlations are coded to indicate that respondents who report more IRD report less respect from other citizen. IRD = individual relative deprivation.

their greater interest and investment in various reference groups (van den Bos et al., 2015). It is possible that the GRD measure (comparisons between one's country and others) did not capture the reference group comparisons that members of collectivistic cultures would find most compelling (Gilovich et al., 2013; Oyserman et al., 2002). For example, a measure of RD defined as an evaluation of one's *family's* position predicted suicidal ideation and depression among Chinese undergraduates (Zhang & Tao, 2013). Because families often serve as the most relevant reference group for members of collectivistic cultures, RD measures formulated with family-based comparisons could yield stronger effects. Employing such a measure will be important for future cross-national research. However, the emphasis on agency and competition associated with individualistic national values as opposed to the emphasis on harmony and responsibility associated with collectivistic national values suggests that members of individualistic cultures will be more sensitive to both IRD and GRD.

Finally, to our surprise, increased IRD and not increased GRD more strongly predicted negative attitudes toward immigrants among students from more collectivistic countries. Again, the IRD measure might better represent respondents' extended families or other relevant reference groups as compared with a GRD measure that focused on comparisons between one's country and other countries. Members of collectivist cultures generally hold more negative attitudes toward immigrants (Oishi & Diener, 2014; Oyserman et al., 2002). They are invested in clear boundaries between and strong interrelationships within relevant reference groups and they are more likely to see group boundaries as fixed, relatively stable, and ascribed (Gilovich et al., 2013; Oyserman et al., 2002). These characteristics tend to make members of collectivist cultures less accommodating and more suspicious of new arrivals. If they interpreted the IRD measures as representing not just themselves, but also those close to them, and they viewed recent immigrants as a potential threat, the relationship between increased IRD and more negative attitudes toward immigrants is less surprising. Interestingly, undergraduates from the Netherlands primed for collectivism and undergraduates from Singapore, a collectivistic culture, did not distinguish

between IRD and GRD based on one's work department (van den Bos et al., 2015). Undergraduates from Singapore primed for individualism and undergraduates from the Netherlands, an individualistic culture, did. This pattern suggests that members of collectivistic cultures might view IRD and some forms of GRD as interchangeable. However, the predictive value of IRD disappears when power distance is included as a predictor of immigrant attitudes. In addition, the amount of variance in immigrant attitudes explained by these models is quite small, so we should treat this pattern with caution.

These data also reveal small national differences that echo previous cross-national research. For example, students from more collectivistic cultures expressed more negative attitudes toward immigrants and slightly less life satisfaction (Oishi & Diener, 2014; Oyserman et al., 2002). Students from high power distance cultures expressed less life satisfaction and more negative attitudes toward immigrants (Daniels & Greguras, 2014). Finally, students from countries with greater economic equality expressed more political trust (Inglehart & Baker, 2000). These patterns give us some confidence that these particular data are not just idiosyncratic representations of the respective country's general national culture.

General Discussion

The present article presents a preliminary attempt to demonstrate how cultural values moderate the many effects of RD. As we predicted, RD more strongly predicted outcomes for members of more individualistic national cultures. First, the effect sizes that we located for Study 1 were larger for samples from more individualistic countries, a pattern that was stronger when the original authors intended the samples to represent the larger national population. Second, Study 2 shows that increased IRD more strongly predicted increased life satisfaction and respect from other citizens for students from more individualistic countries. Increased GRD also tended to predict decreased political trust more strongly for students from more individualistic countries.

We also predicted that RD would predict outcomes more strongly for members of low power distance cultures. However, the evidence for this hypothesis is more mixed. In Study 1, national differences in power distance did not moderate the relationship between RD measures and outcomes. But in Study 2, the relationship between increased GRD and decreased political trust was stronger for students from lower power distance cultures. The relationship between increased IRD and decreased respect was also stronger for students from lower power distance cultures. However, given the very close correlation between national power distance and individualism-collectivism scores in the second study, these patterns should be treated with caution. Even though it seems obvious to propose that the degree to which people accept power and status differences as legitimate should moderate the relationship between RD and outcomes, the idea could be wrong. For example, research investigations of money primes as an influence on attitudes and behavior suggest that money does not prime power, control, or status but instead primes principles of social exchange and notions of equity (Vohs, 2015). Given how frequently RD is operationalized as income differences, perhaps a similar process is at work here. It also is possible that university students from high power distance countries are more similar to university students from low power distance countries than they are to the average citizen of their own country (Haidt, Koller, & Dias, 1993). However, a similar claim could be made for students' orientation toward individualism, yet we found reliable differences.

Limitations

Like all research, this study has several limitations. First, we looked at just two national values and did not test the full range of cultural markers. We necessarily had to ignore within-country variations, nor could we test the full range of cultural differences across all nations. And although

the second study allowed us to employ the same RD and outcome measures across multiple countries, undergraduate students are not representative samples of a country's citizens (Haidt et al., 1993). Even the representative samples that we reviewed for the meta-analysis were associated with a range of response rates and relatively few countries. Therefore, it will be important to replicate these analyses with national representative samples that include direct measures of national values.

Second, our measures are not perfect. For example, the most theoretically accurate RD measures target anger and resentment. In the original meta-analysis, the nine RD measures that explicitly measure anger and resentment yielded the strongest relationships (average $r = +.34$, CI = [+.26, +.43]; Smith et al., 2012). However, most of the RD measures included in the first study and the two RD measures in the second study asked respondents about their relative satisfaction, a much milder index of people's feelings about their disadvantaged situation. We expect that RD measures that explicitly include anger and resentment should yield even stronger cross-cultural differences, especially given that members of collectivistic cultures are more likely to view the expression of anger as inappropriate (van Kleef, Homan, & Cheshin, 2012). One also could argue that the economic and life satisfaction measured in Study 2 are quite similar. Importantly, we find the same pattern for respect from other citizens (a measure distinct from economic satisfaction) that we find for life satisfaction.

Third, our correlational data also do not enable us to infer causal relationships. However, experiments demonstrate that IRD, in particular, influences behavior. For example, Canadian undergraduate students randomly assigned to learn that they had less monthly discretionary income compared with their peers were more likely to gamble the US$20.00 that the experimenters gave them in comparison with students who learned that they had relatively more discretionary income (Callan et al., 2008). The same experimental manipulation revealed that relatively deprived British undergraduates were less likely to donate an unexpected monetary windfall to charity (Kim, Callan, Gheorghiu, & Matthews, 2017). Finally, students randomly assigned to a lower pay rate only cheated on a study task if others in the same classroom were randomly assigned to a higher pay rate (John, Loewenstein, & Rick, 2014).

Finally, the close correlation between power distance and individualism-collectivism suggests that a more nuanced cultural value framework might be helpful for future research. In particular, Triandis and Gelfand (1998) distinguish between vertical and horizontal forms of individualism and collectivism. For example, vertical individualistic cultures like the United States and Great Britain define status as the product of personal achievement whereas horizontal individualistic cultures like Sweden and Denmark value equality and the personal expression of uniqueness. Horizontal collectivistic cultures like Brazil value interdependence and sociability whereas vertical collectivistic cultures like Japan and Korea privilege ingroups over the self and value compliance with authorities (Triandis and Gelfand, 1998). More subtle distinctions within these two national values might reveal stronger relationships.

Implications

There are three possible reasons why RD predicts outcomes more strongly for members of more individualistic cultures in contrast to members of collectivistic cultures. First, members of individualistic cultures should be more likely to view themselves as responsible for their (personal) current and future situation (Oishi & Gilbert, 2016). Second, they should be more willing to express their anger (van Kleef et al., 2012). Third, they should view their position within their social networks and reference groups as less fixed and more easily changed (Oishi & Gilbert, 2016).

It is tempting to speculate that if the world is in fact becoming more individualistic, as many claim, the impact of RD will increase as well. Many modern cultures are marked by a focus on

individual initiative, personal wealth, equity, freedom, and achievement-based status (Schwartz & Sagie, 2000). There is also evidence that as people become more geographically mobile, group memberships become less central to one's identity, and people feel less obligated to friends and family (Oishi & Gilbert, 2016), both markers of individualism. But other evidence suggests that national values tend to be fairly stable (Hofstede, 2001; Markus, 2016). This stability probably reflects the extent to which these national value differences are embedded in cultural practices, norms, and institutions in ways that are slow to change (Hofstede, 2001; Inglehart & Baker, 2000; Markus, 2016). Therefore, it is important to consider the ways in which differences in national cultural values can facilitate or mitigate RD.

These data show the increased predictive strength of RD within individualistic cultures. It is a separate question as to whether members of more individualistic cultures are more likely to notice or make the upward contrasts that reveal undeserved disadvantages. Even if any national cultural values that shape comparison preferences are stable, access to the upward contrasts that create RD likely has increased as social media and globalization facilitate more opportunities to view geographically distant comparisons as psychologically local. Furthermore, as greater societal inequality filters down to differences within the local context, people's subjective perceptions of undeserved disadvantages will have a larger impact on their health, attitudes, and behavior (Brown-Iannuzzi, Lundberg, & McKee, 2017; John et al., 2014; Osborne et al., 2015).

Across cultures, the consequences of RD can be good and bad. On one hand, there is evidence that (I)RD is associated with worse physical and mental health and problematic behaviors like gambling and stealing. On the other hand, there is evidence that (G)RD is associated with greater willingness to confront and repair injustice. National cultural differences might amplify or mitigate the relative strength of these relationships, but these cultural differences do not erase RD's impact.

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Notes

1. The purpose of the previously published meta-analysis (Smith, Pettigrew, Pippin, & Bialosiewicz, 2012) based on 210 studies (293 independent samples) was to evaluate relative deprivation's (RD) predictive power. We showed that RD measures that included deserving, anger, dissatisfaction, or other negative emotions predicted outcomes more strongly in comparison with RD measures that were limited to cognitive comparisons. We also showed that subjective RD measures predicted outcomes more strongly in comparison with objective RD measures (based on participant's position within a particular income distribution). In addition, we showed that group relative deprivation (GRD) more strongly

predicted collective action and intergroup attitudes in comparison with individual relative deprivation (IRD). In contrast, IRD more strongly predicted internal states and individual behaviors in comparison with GRD. Finally, we showed that multi-item RD and outcome measures yielded larger effect sizes in comparison with single-item RD and outcome measures. We did not compare RD measures across countries.

2. We also created a variable that contrasted the United States with all other samples (a test of the "exceptional" hypothesis, Inglehart & Baker, 2000). It was not a reliable predictor on its own, and it did not change the patterns that we report.
3. Representative samples were not more individualistic (M = 80.87, SD = 18.22) in comparison with convenience samples (M = 78.06, SD = 18.21), $t(300) = 1.27$, $p = .21$. Representative samples were slightly lower in power distance (M = 40.91, SD = 10.54) in comparison with convenience samples (M = 43.30, SD = 12.53), $t(300) = -1.63$, $p = .10$.
4. Teymoori and colleagues (2016) drew upon these data for their investigation of anomie. However, none of the analyses presented in this article have been previously published. We did not test the potential effects of other country-level indicators or other measures included in the original survey.
5. We ran all models with the RD measures centered around the grand mean (as opposed to the respective country mean). The patterns that we report remain the same.
6. We ran all models with gender as an additional predictor (which meant that we lost one of the country samples). Including gender did not change any of results reported in the text. We also ran all models with a second interaction term that tested whether differences in the Gini coefficient moderated the relationship between the RD measures and outcomes. IRD predicted students' perceptions that other citizens respected them for students from countries with greater economic inequality (b = –.008, SE = .003, $p = .03$, $r = –.13$). All other patterns remained the same. The interaction was not a reliable predictor for the other outcomes.

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