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The Relationship Between Financial Scarcity and Perceived Control Across 51 Societies

Leon P. Hilbert[1,2], Marret K. Noordewier[2,3], Angelo Romano[3], and Wilco W. Van Dijk[2,3]

Abstract

When people lack needed financial resources, they can experience financial scarcity. In a cross-societal study conducted across 51 societies (N = 12,779), we examined whether financial scarcity threatens perceived control over one's life. Moreover, in line with Compensatory Control Theory (CCT), we tested whether formal institutions buffer against the control threat of financial scarcity and explored whether several cultural values serve a similar protective function. Results revealed an overall negative association between financial scarcity and perceived control that varied significantly across societies. Unexpectedly, the negative relationship was weaker in societies with lower welfare provisions, weaker institutions, and poorer labor conditions. Exploratory analyses also indicated attenuation effects in societies with lower economic development and social capital, tighter cultural norms, and stronger traditional and collectivist values. This suggests that cultural values may be more effective than formal institutions in buffering individuals against the psychological consequences of financial scarcity.

Keywords

financial scarcity, poverty, perceived control, cultural values, institutions

Introduction

People are motivated to perceive a sense of control over their life, which is defined as the perceived ability to influence one's psychological states and behaviors, attain desired outcomes, and prevent undesired outcomes (Landau et al., 2015). Maintaining control yields several positive consequences, such as inducing positive affect, facilitating goal pursuit, and enhancing mental and physical health (Bhanji et al., 2016; Greenaway et al., 2015; Heckhausen et al., 2010; Thompson & Spacapan, 1991). Conversely, lacking a sense of control is aversive and stressful, and relates to depression and anxiety (Jonas et al., 2014; Ross & Mirowsky, 2013).

Previous research shows that the need for control is ubiquitously strong across the globe (Hornsey et al., 2019). However, people worldwide face a variety of threats to control. One such threat might be financial scarcity (Cannon et al., 2019; Fritsche & Jugert, 2017), defined as the subjective experience of lacking financial resources to meet demands (de Bruijn & Antonides, 2022; Haushofer & Fehr, 2014; Shah et al., 2012). Here, we conducted a cross-cultural study across 51 societies (N = 12,779) to test whether financial scarcity is negatively related with perceived control, and whether this relationship is moderated by economic, institutional, and cultural factors.

Studies show that subjective measures of financial deprivation, such as financial scarcity, tend to be better predictors of life outcomes than objective measures, like income (Sommet & Spini, 2022; van Dijk et al., 2022). Specifically, financial scarcity might impede the ability to effectively attain desired life outcomes or prevent undesired ones, thereby constituting a threat to personal control (Cannon et al., 2019; Fritsche & Jugert, 2017). This is particularly the case if the threat to personal control is appraised as unchangeable, which is characteristic for perceived financial scarcity (Cannon et al., 2019). In line with this, a longitudinal study using Swiss panel data showed that over time, financial scarcity was associated with reduced self-mastery, a subcategory of perceived control (Sommet & Spini, 2022). Similarly, a diary study conducted in the United States demonstrated that upon receiving income (i.e., a reduction

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of financial scarcity), participants reported an increased sense of control over their lives and felt less distressed (Jachimowicz et al., 2022). Therefore, we hypothesized that financial scarcity is negatively related with perceived control (H1).

While extant research provides initial evidence for the association between financial scarcity and perceived control, it is based on WEIRD samples (Western, Educated, Industrialized, Rich, Democratic) (Henrich et al., 2010). Hence, it remains unclear whether the negative relationship between financial scarcity and perceived control holds across societies.

Societal Buffers to Control Threats

According to Locus of Control theory (Rotter, 1966), people differ in how they attribute control over life events, with some believing outcomes are determined by their own actions (internal locus of control) and others attributing them to external forces (external locus of control). Building on this, Compensatory Control Theory (CCT) emphasizes how situational effects may change the reliance on personal (i.e., internal) and secondary (i.e., external) sources for control (Landau et al., 2015). CCT thus provides a theoretical framework for how the relationship between financial scarcity and perceived control might differ across societies. Previous research shows that when people perceive themselves as unable to achieve goals through own means, they rely more on the government and societal institutions (Kay et al., 2008, 2010).

This suggests that formal institutions of a society might serve as compensation sources against the threat to personal control posed by financial scarcity. First, *welfare provisions*—the social and monetary support provided by a society to its citizens—might shield people in financial scarcity from the feeling out of control (Attah et al., 2016; Israel, 2016). Second, higher *quality of institutions*—reflecting the effectiveness of institutions and processes by which authority is exercised in a society—might restore a threatened sense of control by increasing trust in governance and perceptions of order and safety (Chong & Calderón, 2000; Kay et al., 2008, 2010). This is consistent with the material security hypothesis, stating that efficient societal institutions may fulfill basic needs and mitigate threats related to environmental and resource insecurity (Hruschka et al., 2014; Hruschka & Henrich, 2013). Third, better *labor conditions*—ensuring equal access to employment opportunities, favorable working conditions, and fair wages—might safeguard people with little financial resources from lacking a sense of control and severe negative economic, health, and psychological consequences of exploitation (Muntaner et al., 2010). Thus, disparities across societies in the prevalence and accessibility of these formal institutions may influence the relationship between financial scarcity and perceived control. Taken together, we hypothesized (H2a–c) that in societies with higher welfare provisions, higher quality of institutions, and better labor conditions, the negative association between financial scarcity and perceived control would be weaker.

CCT also provides a theoretical framework for a number of alternative sources that might buffer against the control threat of financial scarcity. For instance, identification with others can restore control perceptions when personal control is threatened (Fritsche, 2022; Fritsche et al., 2013; Rothbaum et al., 1982). Therefore, stronger social bonds that are typical for *collectivistic societies* might buffer against the negative effects of financial scarcity, as collectivism emphasizes interdependence and shared resources (Hofstede, 2011; Jachimowicz et al., 2022; Mikucka, 2014). Similarly, a better functioning of the civil society as indicated by higher *social capital* might provide alternative access to resources and opportunities, thereby enhancing perceived control when financial resources are lacking (Helliwell & Putnam, 2004; Lin, 2007). CCT also suggests that religious beliefs (Hoogeveen et al., 2018; Jackson & Bergeman, 2011; Kay et al., 2008, 2010) and deference to authority (Friesen et al., 2014; Goode et al., 2014) can serve as secondary sources of control. Therefore, *traditional values*, which emphasize religion, family ties, and authority (Inglehart & Welzel, 2001), may also buffer against a control threat of financial scarcity. Stronger adherence to social norms as indicated by a *tight versus loose culture* (Gelfand et al., 2011) might similarly provide structure and orientation, thereby functioning as a secondary source of control. Finally, the negative relationship between financial scarcity and perceived control may be weaker in societies with lower *economic development* and higher *economic inequality*. In poorer societies with a larger proportion of people living in poverty, experiencing financial scarcity may lead to fewer negative upward social comparisons. As such, financial scarcity might have a less pronounced impact on perceived control compared with wealthier societies, where a greater share of the population is financially well off (Kley, 2022).

Cross-cultural research shows that several of these cultural values and economic contexts are negatively correlated with the formal institutions from our preregistered hypotheses (Alesina & Giuliano, 2015). Therefore, they provide potential competing explanations for societal-level differences in the association between financial scarcity and control, which we explored post hoc.

The Current Research

To test our hypotheses, we recruited 12,779 participants (stratified by age and gender) from 51 societies in an online survey study. Perceived control was assessed by means of a single item measure by asking participants to indicate the degree to which they perceived control over their lives (Haerpfer et al., 2020). Subsequently, participants completed five items of the Psychological Inventory of Financial Scarcity (PIFS) (van Dijk et al., 2022). To test the cross-societal hypotheses, we retrieved openly available

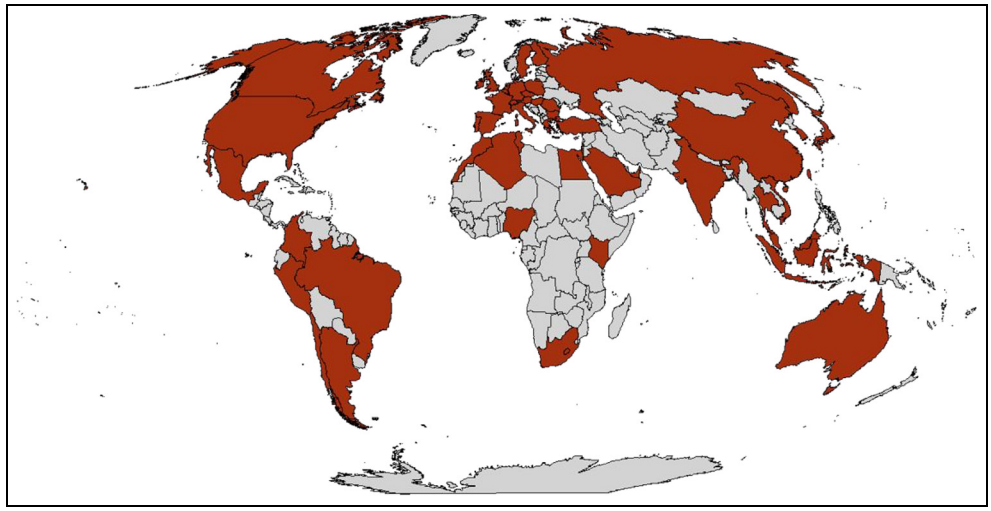

Figure 1. *Map Displaying All Societies Included in the Study*
Note. We collected data from the following 51 societies: Algeria, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Czech Republic, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Kenya, Malaysia, Mexico, Morocco, Netherlands, Nigeria, Peru, Poland, Portugal, Romania, Russian Federation, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Tunisia, Turkey, United Arab Emirates, United Kingdom, United States, and Vietnam.

societal indicators for potential moderators of the relationship between financial scarcity and perceived control.

Method

Ethics, Data Availability, and preregistration

The study was approved by the Psychology Research Ethics Committee of Leiden University (The Netherlands), application number: 2020-02-03-A. Romano-V1-2068. All participants provided informed consent. Raw data, analysis codes, and materials are openly available at the Open Science Framework (OSF) (https://doi.org/10.17605/OSF.IO/UPAJ3).

The study setup, measures, hypotheses, and analysis plan were preregistered on the OSF prior to data collection (https://doi.org/10.17605/OSF.IO/6KTHF). Before linking our own data with the data for the societal indicators, we updated the preregistration to specify the cross-societal hypotheses 2a–c and respective analyses plan, and dropped the secondary analyses on the items assessing the endorsement of compensatory control sources. We deviated from the final preregistered analysis plan in the following way: To extract components for the societal indicator of "labor conditions," we had planned to include the indicators *Collective Bargaining Coverage Rate* and *Compliance with Labor Rights* from the International Labor Organization (ILO). However, these indicators contained too many missing values for the societies in our study, which would have resulted in a loss of approximately 35% of data.

Under exploratory analyses, we examined the effects of eight alternative predictors to explain the cross-societal findings observed under H2. We initially conducted post hoc analyses on the societal indicators for economic development, economic inequality, individualistic versus collectivistic values, and secular versus traditional values, as well as individual level predictors for religiosity and family support. In the review process, we added analyses on cultural tightness versus looseness and social capital. We report all exploratory analyses conducted and use a Bonferroni correction for the alpha level based on the eight additional analyses ($\alpha = .006$).

Participants and Data Collection

Participants were recruited through the Toluna Panel and its third-party panel providers from December 2020 to February 2021. Our goal was to recruit 12,750 participants across 51 societies (approximately 250 per society, stratified by age and gender). All societies included in the study are shown in Figure 1. A sensitivity power analysis with a sample of $n = 250$, power of $1\text{-}\beta = 80\%$, and a significance level of $\alpha = .05$ indicated that this sample was large enough to detect within-societal effects of $r = .032$ in regression models with four predictors (financial scarcity plus three control variables). For participants that failed all attention checks, new participants were recruited until the target sample size was met. As such, 16,659 participants were recruited, of which 12,863 met the inclusion criteria. Eighty-four participants had incomplete data and were excluded from all analyses, leading to a final sample of 12,779 participants. Sample descriptives per society are displayed in the Supplementary Table 1.

Procedure

Participants first conducted a behavioral experiment unrelated to our project (Romano et al., 2022, 2024) and then responded to a number of questionnaires. First, participants responded to the single item measure on perceived control and then completed the PIFS (van Dijk et al., 2022). Thereafter, participants responded to several items unrelated to this project and gave their demographic information.

Measures

Perceived Control. Participants filled in a single-item measure for perceived control as used in the World Values Survey (Haerpfer et al., 2020). The item was introduced as follows: "This questionnaire is about control. Some people feel they have completely free choice and control over their lives, whereas other people feel that what they do has no real effect on what happens to them." Then, on a 7-point Likert-type-scale ranging from 1 = *totally disagree* to 7 = *totally agree*, participants were asked to indicate their agreement with the statement "I have control over my life." Histograms for perceived control scores in each society are displayed in the Supplementary Figure 1.

Psychological Inventory of Financial Scarcity. Participants filled in a short version of the PIFS (van Dijk et al., 2022), which consists of five items measured on a 7-point Likert-type-scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. The full version of the PIFS consists of four subscales that assess perceptions of *insufficient financial resources*, *lack of control over one's financial situation*, *a short-term focus*, and *financial rumination and worry*. From each of the first three subscales, we selected the item with the highest face validity and ease of translation. In addition, we selected one item each for worry and rumination.

The five selected items were: "I often don't have enough money," "I experience little control over my financial situation," "I am only focusing on what I have to pay at this moment, rather than my future expenses," "I am constantly wondering whether I have enough money," and "I worry about money a lot." Reliability analyses based on multilevel confirmatory factor analysis (mCFA) using the *multilevelTools* package in *R* (Geldhof et al., 2014) revealed that the scale was reliable within societies, ω_{within} = .84, 95% confidence interval (CI) = [.84, .85], and between societies, $\omega_{between}$ = .95, 95% CI = [.92, .97]. Histograms for PIFS scores in each society are displayed in the Supplementary Figure 1 and robustness checks for analyses without the financial control item are displayed in Supplementary Table 6.

Societal Indicators. To test our preregistered cross-societal hypotheses, we combined our dataset with societal indicators from openly available datasets. First, we retrieved indicators for the respective constructs of our hypothesis tests. Then, we dropped indicators that covered an insufficient number of societies included in our study. For the remaining indicators, we selected data from the same year of our data collection or the closest available time point. To increase the reliability and generalizability of our analyses, we submitted all indicators of the same construct to a principal component analysis and extracted their linear combinations as predictors for our hypotheses tests (see Supplementary Table 2). We extracted a number of components that explained at least 80% of variance for all indicators. To keep data loss at a minimum, we imputed missing data based on "leave one out" cross-validation using the *missMDA* package in *R* (Josse & Husson, 2016). The number of missing cases for each indicator was low ($\leqslant$ 6), suggesting that imputation was appropriate.

Welfare Provisions. As indicators for welfare provisions, we used the *Social Safety Net Expenditure by GDP* measure from the World Bank (2023a) and the *Social Protection* indicator from the Global Social Mobility Index of the World Economic Forum (2020). The two indicators correlated with r = .86. Principal component analyses revealed a single component that explained 92.6% of the total variance.

Quality of Institutions. As indicators for the quality of institutions, we used the six *Worldwide Governance Indicators* (i.e., Voice and Accountability, Regulatory Quality, Political Stability and Absence of Violence/Terrorism, Rule of Law, Government Effectiveness, and Control of Corruption) (The World Bank, 2022), the *Liberal Component Index* of the Varieties of Democracies Institute (Michael Coppedge, 2022; Pemstein et al., 2020), the *Efficient and Inclusive Institutions* indicator from the Global Social Mobility Index (World Economic Forum, 2020), a *Rule of Law* indicator (Freedom House, 2023), and the *Functioning of Government* indicator from the Democracy Index (Economist Intelligence Unit, 2020). Principal component analyses revealed a single component that explained 80.1% of the total variance.

Labor Conditions. As indicators for labor conditions, we used the three indicators *Work Opportunities*, *Fair Wages*, and *Working Conditions* from the Global Social Mobility Index (World Economic Forum, 2020). Principal component analyses revealed a solution with one component representing labor conditions as a whole and explaining 69.3 % of the total variance. A second orthogonal component represented mainly work opportunities and explained only 21.0 % of the total variance, for which results can be found in the Supplementary Table 3.

Statistical Analyses

We analyzed the data in *R* and set the alpha level to $\alpha <$ .05 for two-sided hypothesis tests. We used the *lme4*

package (Bates et al., 2015) for multilevel models. All models included random intercepts for societies, and the control variables age, gender, and education. All individual level variables were *z*-standardized within societies using the *standardize* package (Eager, 2017). Societal level variables were also *z*-standardized. Models were fitted with restricted maximum likelihood (REML) estimation. The meta-analysis was conducted using the *metafor* package (Viechtbauer, 2010). Figures were made with the packages *ggplot2* (Wickham, 2016) and *sjplot* (Lüdecke, 2018).

Results

The Relationship Between Financial Scarcity and Control Across Societies

Data showed support for our hypothesis that across societies, financial scarcity was associated with lower perceived control. A mixed model showed a negative relationship between financial scarcity and perceived control, $\beta = -0.24$, 95% CI = [−0.26, −0.22], $p < .001$ (see Supplementary Table 3 for full models). A meta-analysis to estimate the heterogeneity of the relationship between financial scarcity and perceived control across societies showed a moderately negative relationship between financial scarcity and perceived control across societies, $r = -.18$, $SE = .02$, 95% CI = [−.22, −.14], $z = -8.86$, $p < .001$ (see Figure 2). Moreover, there was strong heterogeneity in effect sizes between societies, $\tau^2 = .017$, $SE = .004$, $Q\ (50) = 303.5$, $p < .001$, implying that the strengths of the relationship varied substantially across societies. Of the total variance in effect sizes, 82.9% could be attributed to heterogeneity between societies. Correlations ranged from −.51 to .31, indicating that the relationship between financial scarcity and perceived control was strongly negative in some societies, whereas it was moderately positive in others (Figure 2).

Welfare, Institutions, and Labor Conditions

Next, we tested our hypotheses that several societal indicators might covary with the observed heterogeneity in effect sizes between societies and moderate the relationship between financial scarcity and perceived control. Results revealed interaction effects between financial scarcity and each of the components for welfare provisions ($\beta = -0.09$, $p < .001$), quality of institutions ($\beta = -0.10$, $p < .001$), and labor conditions ($\beta = -0.09$, $p < .001$; Figure 3A to C; see Supplementary Table 3 for full models). Surprisingly, these interaction effects were in the opposite direction to our preregistered hypotheses. The negative relationship between financial scarcity and perceived control was weaker for societies with lower or worse—rather than higher or better—welfare provisions, quality of institutions, and labor conditions. These findings were robust across a multitude of alternative model specifications (see Supplementary Tables 6–9).

To gain a better understanding of this unexpected pattern of results, we examined whether other societal indicators might also covary with the strong heterogeneity in effect sizes across societies. Regression tables for all exploratory analyses are provided in the Supplementary Tables 4–5.

Economic Development and Economic Inequality

First, we examined whether the relationship between financial scarcity and perceived control was weaker in societies characterized by lower wealth, as this might lead to fewer upward social comparisons (Kley, 2022). To examine this, we included GDP per capita (The World Bank, 2023b) as a measure for economic development in our analyses. Indeed, the negative relationship between financial scarcity and control was weaker in societies with lower GDP per capita ($\beta = -0.08$, $p < .001$).

Second, we examined whether the relationship between financial scarcity and perceived control might be contingent on economic inequality within a society. To test this, we used the Gini coefficient (The World Bank, 2023c) as a measure for economic inequality. However, results did not support this alternative moderation model, as there was no difference in the relationship between financial scarcity and perceived control based on Gini coefficients ($\beta = 0.02$, $p = .216$).

Individualistic versus Collectivistic Values

Third, we examined whether differences in collectivism versus individualism (Hofstede, 2011) covary with the heterogeneity in the relationship between financial scarcity and perceived control. To test this, we used data on Hofstede's cultural dimension on individualism versus collectivism (Hofstede, 2023). The negative relationship between financial scarcity and perceived control was weaker in more collectivistic societies compared with more individualistic societies ($\beta = -0.05$, $p < .001$).

Secular versus Traditional Values

Fourth, we examined whether societal disparities in cultural values concerning secularism versus traditionalism might be associated with the observed heterogeneity in effects. To test this, we used data on secularism versus traditionalism from the World Values Survey (Haerpfer et al., 2020). Indeed, the negative relationship between financial scarcity and perceived control was weaker in societies with more traditional values compared with those with more secular values ($\beta = -0.06$, $p < .001$).

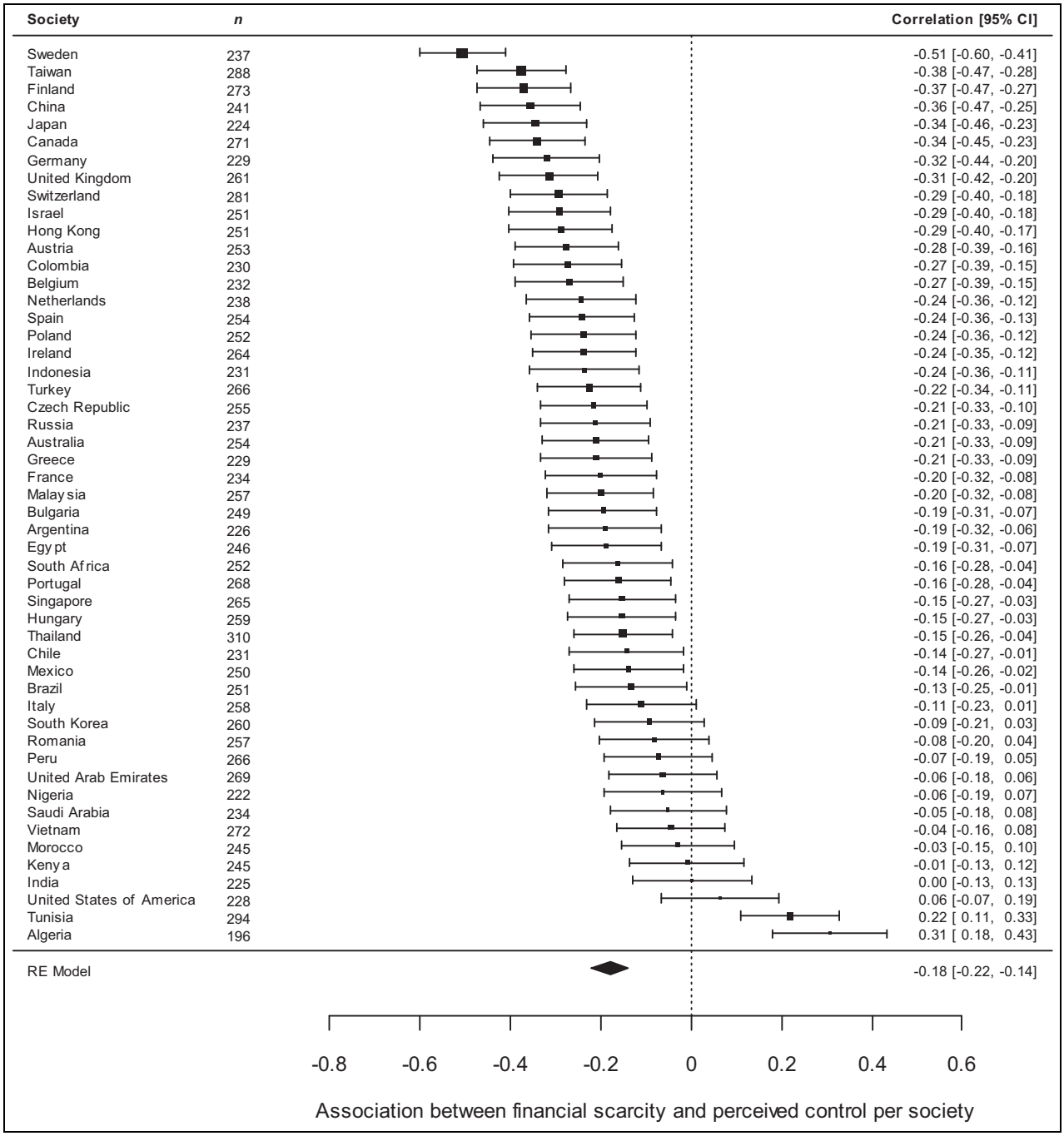

Figure 2. *The Association of Financial Scarcity and Perceived Control Across Societies*

Note. The forest plot displays the meta-analytic effect sizes for financial scarcity on perceived control per society. For each society, we report the Pearson correlation coefficient (*r*) and its 95% confidence interval. The size of the square indicates the relative weight the societal estimates for the overall effect size. The diamond displays the overall effect size is for the random effects (RE) model. *n* = sample size for each society.

Cultural Tightness versus Looseness

Fifth, we examined whether differences in cultural tightness versus looseness might also be associated with the heterogeneity of the relationship between financial scarcity and control. Analyses based on an available cross-cultural indicator (Uz, 2015) showed that in tighter versus looser societies, the negative association between financial scarcity and perceived control was weaker ($\beta = -0.07, p < .001$).

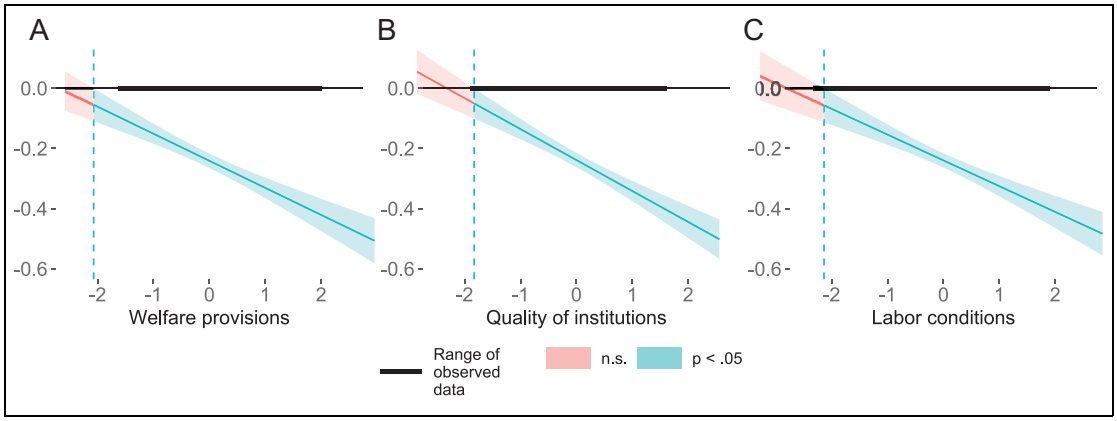

Figure 3. *The Moderation Effects of Societal Indicators on the Association Between Financial Scarcity and Perceived Control*
Note. The figure shows Johnson-Neyman plots with the slopes of financial scarcity (β weights) on control for the different levels of the societal indicators (*z*-standardized). Figure 3A shows that at in societies with lower levels of welfare provisions, the negative association between financial scarcity and perceived control is weaker. Figure 3B and C show similar results for societies with lower quality of institutions and worse labor conditions, respectively, with the association becoming being non-significantly different from zero for the lowest scoring societies.

Social Capital

Sixth, we examined whether the relationship between financial scarcity and perceived control was contingent on social capital. We used the social capital pillar of the Legatum Prosperity Index (2023) for our analyses. Results were not in line with this contention, as the negative association between financial scarcity and control was weaker in societies with lower social capital ($\beta = -0.10$, $p < .001$) instead of higher.

Within Societal Effects of Religiosity and Family Support

Finally, we tested whether related variables in our dataset might explain the heterogeneity in effect sizes on the individual level. Therefore, we used single item measures for religiosity and for the willingness to seek financial support from friends and family in times of need. In line with the results on traditional versus secular values on the societal level, we found that the more religious people were, the less their experience of financial scarcity was associated with lower perceived control ($\beta = .09$, $p < .001$). Likewise, in line with the results on collectivism on the societal level, we found that the more likely people were to seek financial support from family and friends in times of need, the smaller the negative association between financial scarcity and perceived control ($\beta = .09$, $p < .001$).

Discussion

People are motivated to experience control over their lives (Hornsey et al., 2019; Landau et al., 2015). When experiencing financial scarcity, however, this need might be threatened (Fritsche & Jugert, 2017). According to CCT, threats to personal control, such as financial scarcity, can be compensated by external sources of control, such as formal institutions, religion, and social networks (Friesen et al., 2014; Kay et al., 2008, 2009) Therefore, societies across the globe might differ in their abilities to buffer against the control threat of financial scarcity. We tested these contentions with a cross-cultural study in 51 societies.

We found that in the majority of societies, financial scarcity was negatively related to perceived control over one's life. In certain societies, this association was so strong that financial scarcity accounted for approximately 25% of the variance in perceived control. In line with prior research (Jachimowicz et al., 2022; Sommet & Spini, 2022), our findings thus show that lacking needed financial resources can threaten the need to feel in control over one's life. Crucially, our research shows that this finding is not ubiquitous across the globe. In several societies, there was no evidence for a relationship between financial scarcity and perceived control, and in two societies, this relationship was even positive. This adds an important boundary condition to previous findings based on WEIRD samples (Jachimowicz et al., 2022; Sommet & Spini, 2022), challenging the prevailing assumption that the negative relationship between financial scarcity and perceived control would be universal. Having insufficient financial resources and lacking control over one's life appear closely linked in some parts of the world but not in others. To explain this global heterogeneity, we built on the theoretical framework of CCT, which suggests that several societal qualities might buffer against the control threat of financial scarcity (Landau et al., 2015). When personal control is threatened, people might rely on formal institutions to retain a sense of control over their lives (Kay et al., 2008, 2010). Yet, contrary to our hypotheses, the negative relationship between financial scarcity and perceived control was weaker in

societies with lower—rather than higher—welfare provisions and quality of institutions, and with worse—rather than better—labor conditions.

Our exploratory analyses help to explain these counterintuitive findings. The development of formal institutions is correlated with the prevalence of several cultural values (Alesina & Giuliano, 2015), which might also form sources of secondary control. Specifically, in societies with more collectivist and traditional values, as well as in societies with tighter social norms, the association between financial scarcity and control was weaker. Individual-level results for participants' religiosity and family support aligned with these moderation effects on the societal level. These findings suggest that secondary sources of control like social networks, religious beliefs, and increased structure from social norms might buffer against a control threat of financial scarcity, supporting core predictions of CCT (Friesen et al., 2014; Kay et al., 2008; Landau et al., 2015). Finally, we found that in societies with lower economic development, experiencing financial scarcity coincided less with a diminished sense of control over one's life. This is in line with prior research showing that financial deprivation does not lead to such a strong stress response if it is more common in the national reference group (Kley, 2022) and might indicate that the relative comparison of "having less than others" is a driver for the control threat of financial scarcity (Caballero et al., 2022). Similarly, in societies where financial hardship is more common, people may be better adapted and more resilient to deal with it (see Frankenhuis & Nettle, 2019).

Taken together, our findings suggest that cultural values, such as collectivism and traditionalism, as well as tight social norms, might be more effective than formalized institutions in buffering against the negative effects of financial scarcity on a sense of control over one's life.

Limitations and Future Research

The correlational nature of the findings represents a limitation to the current research. While this is a common issue in cross-cultural research (Barkow, 1967), it has two important implications for the interpretation of the findings from this specific study.

First, given that the societal indicators are correlated, it is difficult to attribute the observed variation in effects to any single indicator. For example, societies with higher welfare provisions are also considerably more individualistic ($r = .68$, $p < .001$, see Supplementary Figure 2 for all correlations between societal indicators). As such, smaller negative associations between financial scarcity and perceived control in societies with lower welfare expenditures might be driven by the more collectivistic values and social support structures that are also typical for these societies. While the preregistered analyses are robust when controlling for other indicators used in the exploratory analyses (see Supplementary Table 7), it is not feasible to control for all potentially relevant societal differences simultaneously without overfitting statistical models.

Second, the societal context might not only influence the association between financial scarcity and perceived control, it might also directly affect the experience of financial scarcity. For example, research shows that non-take-up of welfare benefits is a crucial problem in societies with high welfare expenditure (Hyee et al., 2020; Simonse et al., 2023). Thus, in societies with high welfare expenditures, people who experience low levels of financial scarcity might have effectively received benefits, while people experiencing high levels of financial scarcity might have fallen through the safety net that the welfare system should normally provide. As such, experiencing financial scarcity in a society *although* it has high welfare expenditures might be particularly problematic, leading to reduced control. A similar explanation might apply to the exploratory finding that the negative relationship between financial scarcity and control was weaker in societies with lower social capital. People experiencing financial scarcity might already feel excluded from society (Noordewier et al., 2025), therefore not being able to benefit from the effective functioning of societal groups. Taken together, mechanistic explanations of the societal variation in the association between financial scarcity and control—based on individual societal indicators—should be cautioned. Future research aiming to identify such causal mechanisms could employ (quasi-)experimental methods for stronger evidentiary support (Pega et al., 2022).

Future research might also further investigate the potential implications of our findings for some consequences of financial scarcity established in the literature. Prior research conducted in WEIRD samples has emphasized the mechanistic (i.e., mediating) role of low control in the effects of financial scarcity on stress (Jachimowicz et al., 2022), ill health (Sommet & Spini, 2022), as well as individual and social decisions (Hilbert et al., 2022a, 2022b; To et al., 2023). While lack of control may not be the only mediator for these effects of financial scarcity, our findings suggest these consequences may be less universal than previously assumed.

Conclusion

Lacking control over one's life is an intrinsic problem and has a myriad of negative downstream consequences, for instance on goal pursuit (Bhanji et al., 2016; Heckhausen et al., 2010), and mental and physical health (Jonas et al., 2014; Ross & Mirowsky, 2013). Our study shows that financial scarcity forms a considerable threat to maintaining a sense of control over one's life, although the extent of this varies based on the societal context. Specifically, in societies with lower economic development, collectivist and traditional values, as well as tight social norms, lacking needed resources coincides less with a perceived lack of control over one's life. On the contrary, in more individualistic and secular societies, with loose social norms, and

with formal institutions as well as welfare benefits in place, experiencing financial scarcity also means losing a sense of control over one's life. These findings underscore the relevance of socio-economic and cultural differences across the globe that might help or fail to compensate against the psychological consequences of financial scarcity.

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Author Contributions

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Data curation: LPH.
Formal Analyses: LPH, with input from AR.
Visualization: LPH, with input from AR.
Writing—original draft: LPH.
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Supplemental Material

Supplemental material is available in the online version of the article.

References

Alesina, A., & Giuliano, P. (2015). Culture and institutions. *Journal of Economic Literature*, *53*(4), 898–944. https://doi.org/10.1257/jel.53.4.898

Attah, R., Barca, V., Kardan, A., MacAuslan, I., Merttens, F., & Pellerano, L. (2016). Can social protection affect psychosocial wellbeing and why does this matter? Lessons from cash transfers in sub-Saharan Africa. *The Journal of Development Studies*, *52*(8), 1115–1131. https://doi.org/10.1080/00220388.2015.1134777

Barkow, J. H. (1967). The causal interpretation of correlation in cross-cultural studies. *American Anthropologist*, *69*(5), 506–510. https://doi.org/10.1525/aa.1967.69.5.02a00070

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1). https://doi.org/10.18637/jss.v067.i01

Bhanji, J. P., Kim, E. S., & Delgado, M. R. (2016). Perceived control alters the effect of acute stress on persistence. *Journal of Experimental Psychology: General*, *145*(3), 356–365. https://doi.org/10.1037/xge0000137

Caballero, A., Fernández, I., Aguilar, P., & Carrera, P. (2022). The links among relative financial scarcity, thinking style, fatalism, and well-being. *PsyCh Journal*, *11*(6), 885–894. https://doi.org/10.1002/pchj.566

Cannon, C., Goldsmith, K., & Roux, C. (2019). A self-regulatory model of resource scarcity. *Journal of Consumer Psychology*, *29*(1), 104–127. https://doi.org/10.1002/jcpy.1035

Chong, A., & Calderón, C. (2000). Institutional quality and poverty measures in a cross-section of countries. *Economics of Governance*, *1*(2), 123–135. https://doi.org/10.1007/PL00021678

de Bruijn, E.-J., & Antonides, G. (2022). Poverty and economic decision making: A review of scarcity theory. *Theory and Decision*, *92*(1), 5–37. https://doi.org/10.1007/s11238-021-09802-7

Eager, C. D. (2017). *standardize: Tools for standardizing variables for regression in R* (Version 0.2.1) [Computer software]. https://CRAN.R-project.org/package = standardize

Economist Intelligence Unit. (2020). *Democracy Index 2020: In sickness and in health?*https://www.eiu.com/n/campaigns/democracy-index-2020/

Frankenhuis, W. E., & Nettle, D. (2019). The strengths of people in poverty. *Current Directions in Psychological Science*, *29*, 16–21. https://doi.org/10.1177/0963721419881154

Freedom House. (2023). *Freedom in the world*. https://freedomhouse.org/report/freedom-world

Friesen, J. P., Kay, A. C., Eibach, R. P., & Galinsky, A. D. (2014). Seeking structure in social organization: Compensatory control and the psychological advantages of hierarchy. *Journal of Personality and Social Psychology*, *106*(4), 590–609. https://doi.org/10.1037/a0035620

Fritsche, I. (2022). Agency through the we: Group-based control theory. *Current Directions in Psychological Science*, *31*(2), 194–201. https://doi.org/10.1177/09637214211068838

Fritsche, I., Jonas, E., Ablasser, C., Beyer, M., Kuban, J., Manger, A.-M., & Schultz, M. (2013). The power of we: Evidence for group-based control. *Journal of Experimental Social Psychology*, *49*(1), 19–32. https://doi.org/10.1016/j.jesp.2012.07.014

Fritsche, I., & Jugert, P. (2017). The consequences of economic threat for motivated social cognition and action. *Current Opinion in Psychology*, *18*, 31–36. https://doi.org/10.1016/j.copsyc.2017.07.027

Geldhof, G. J., Preacher, K. J., & Zyphur, M. J. (2014). Reliability estimation in a multilevel confirmatory factor analysis framework. *Psychological Methods*, *19*(1), 72–91. https://doi.org/10.1037/a0032138

Gelfand, M. J., Raver, J. L., Nishii, L., Leslie, L. M., Lun, J., Lim, B. C., Duan, L., Almaliach, A., Ang, S., Arnadottir, J., Aycan, Z., Boehnke, K., Boski, P., Cabecinhas, R., Chan, D., Chhokar, J., D'Amato, A., Subirats Ferrer, M., Fischlmayr, I. C., & Yamaguchi, S. (2011). Differences between tight and loose cultures: A 33-nation study. *Science*, *332*(6033), 1100–1104. https://doi.org/10.1126/science.1197754

Goode, C., Keefer, L. A., & Molina, L. E. (2014). A compensatory control account of meritocracy. *Journal of Social and*

Political Psychology, *2*(1), 313–334. https://doi.org/10.5964/jspp.v2i1.372

Greenaway, K. H., Haslam, S. A., Cruwys, T., Branscombe, N. R., Ysseldyk, R., & Heldreth, C. (2015). From "we" to "me": Group identification enhances perceived personal control with consequences for health and well-being. *Journal of Personality and Social Psychology*, *109*(1), 53–74. https://doi.org/10.1037/pspi0000019

Haerpfer, C., Inglehart, R., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., Norris, P., Ponarin, E., & Puranen, B. (2020). *World Values Survey Wave 7 (2017-2020) Cross-national data-set* (Version 1.5) [Dataset]. World Values Survey Association. https://doi.org/10.14281/18241.1

Haushofer, J., & Fehr, E. (2014). On the psychology of poverty. *Science*, *344*(6186), 862–867. https://doi.org/10.1126/science.1232491

Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review*, *117*(1), 32–60. https://doi.org/10.1037/a0017668

Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, *359*(1449), 1435–1446. https://doi.org/10.1098/rstb.2004.1522

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature*, *466*(7302), 29–29. https://doi.org/10.1038/466029a

Hilbert, L. P., Noordewier, M. K., & van Dijk, W. W. (2022a). Financial scarcity increases discounting of gains and losses: Experimental evidence from a household task. *Journal of Economic Psychology*, *92*, 102546. https://doi.org/10.1016/j.joep.2022.102546

Hilbert, L. P., Noordewier, M. K., & van Dijk, W. W. (2022b). The prospective associations between financial scarcity and financial avoidance. *Journal of Economic Psychology*, *88*, 102459. https://doi.org/10.1016/j.joep.2021.102459

Hofstede, G. J. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, *2*(1). https://doi.org/10.9707/2307-0919.1014

Hofstede, G. J. (2023). *Dimension data matrix*. https://geerthofstede.com/research-and-vsm/dimension-data-matrix/

Hoogeveen, S., Wagenmakers, E.-J., Kay, A. C., & Van Elk, M. (2018). Compensatory control and religious beliefs: A registered replication report across two countries. *Comprehensive Results in Social Psychology*, *3*(3), 240–265. https://doi.org/10.1080/23743603.2019.1684821

Hornsey, M. J., Greenaway, K. H., Harris, E. A., & Bain, P. G. (2019). Exploring cultural differences in the extent to which people perceive and desire control. *Personality and Social Psychology Bulletin*, *45*(1), 81–92. https://doi.org/10.1177/0146167218780692

Hruschka, D., Efferson, C., Jiang, T., Falletta-Cowden, A., Sigurdsson, S., McNamara, R., Sands, M., Munira, S., Slingerland, E., & Henrich, J. (2014). Impartial institutions, pathogen stress and the expanding social network. *Human Nature*, *25*(4), 567–579. https://doi.org/10.1007/s12110-014-9217-0

Hruschka, D. J., & Henrich, J. (2013). Economic and evolutionary hypotheses for cross-population variation in parochialism. *Frontiers in Human Neuroscience*, *7*. https://doi.org/10.3389/fnhum.2013.00559

Hyee, R., Immervoll, H., Fernandez, R., & Lee, J. (2020). *How reliable are social safety nets? Value and accessibility in situations of acute economic need* (OECD Social, Employment and Migration Working Papers No. 252). https://doi.org/10.1787/65a269a3-en

Inglehart, R., & Welzel, C. (2001). *Modernization, cultural change, and democracy: The Human Development Sequence* (1st ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511790881

Israel, S. (2016). More than cash: Societal influences on the risk of material deprivation. *Social Indicators Research*, *129*(2), 619–637. https://doi.org/10.1007/s11205-015-1138-8

Jachimowicz, J. M., Frey, E. L., Matz, S. C., Jeronimus, B. F., & Galinsky, A. D. (2022). The sharp spikes of poverty: Financial scarcity is related to higher levels of distress intensity in daily life. *Social Psychological and Personality Science*, *13*(8), 1187–1198. https://doi.org/10.1177/19485506211060115

Jackson, B. R., & Bergeman, C. S. (2011). How does religiosity enhance well-being? The role of perceived control. *Psychology of Religion and Spirituality*, *3*(2), 149–161. https://doi.org/10.1037/a0021597

Jonas, E., McGregor, I., Klackl, J., Agroskin, D., Fritsche, I., Holbrook, C., Nash, K., Proulx, T., & Quirin, M. (2014). Threat and defense. *Advances in Experimental Social Psychology*, *49*, 219–286. https://doi.org/10.1016/B978-0-12-800052-6.00004-4

Josse, J., & Husson, F. (2016). MissMDA: A package for handling missing values in multivariate data analysis. *Journal of Statistical Software*, *70*(1). https://doi.org/10.18637/jss.v070.i01

Kay, A. C., Gaucher, D., Napier, J. L., Callan, M. J., & Laurin, K. (2008). God and the government: Testing a compensatory control mechanism for the support of external systems. *Journal of Personality and Social Psychology*, *95*(1), 18–35. https://doi.org/10.1037/0022-3514.95.1.18

Kay, A. C., Shepherd, S., Blatz, C. W., Chua, S. N., & Galinsky, A. D. (2010). For God (or) country: The hydraulic relation between government instability and belief in religious sources of control. *Journal of Personality and Social Psychology*, *99*(5), 725–739. https://doi.org/10.1037/a0021140

Kay, A. C., Whitson, J. A., Gaucher, D., & Galinsky, A. D. (2009). Compensatory control: Achieving order through the mind, our institutions, and the heavens. *Current Directions in Psychological Science*, *18*(5), 264–268. https://doi.org/10.1111/j.1467-8721.2009.01649.x

Kley, S. (2022). How material deprivation impacted economic stress across European countries during the great recession. A lesson on social comparisons. *Acta Sociologica*, *65*(1), 66–85. https://doi.org/10.1177/00016993211001121

Landau, M. J., Kay, A. C., & Whitson, J. A. (2015). Compensatory control and the appeal of a structured world. *Psychological Bulletin*, *141*(3), 694–722. https://doi.org/10.1037/a0038703

Legatum Prosperity Index. (2023). https://index.prosperity.com/about/resources

Lin, N. (2007). *Social capital: A theory of social structure and action*. Cambridge University Press.

Lüdecke, D. (2018). *sjPlot: Data visualization for statistics in social science* (Version 2.6.2) [Computer software]. https://doi.org/10.5281/ZENODO.1308157

Michael Coppedge, J. G. (2022). *V-Dem Dataset 2022* [Dataset]. Varieties of Democracy (V-Dem) Project. https://doi.org/10.23696/VDEMDS22

Mikucka, M. (2014). Does individualistic culture lower the well-being of the unemployed? Evidence from Europe. *Journal of Happiness Studies*, *15*(3), 673–691. https://doi.org/10.1007/s10902-013-9445-8

Muntaner, C., Solar, O., Vanroelen, C., Martínez, J. M., Vergara, M., Santana, V., Castedo, A., Kim, I.-H., & Benach, J., & EMCONET Network, . (2010). Unemployment, informal work, precarious employment, child labor, slavery, and health inequalities: Pathways and mechanisms. *International Journal of Health Services*, *40*(2), 281–295. https://doi.org/10.2190/HS.40.2.h

Noordewier, M. K., Doolaard, F. T., Lelieveld, G.-J., van Dijk, E., Hilbert, L. P., Marr, S., van Beest, I., Gallucci, M., & van Dijk, W. W. (2025). A longitudinal study on the association between financial scarcity and feelings of societal exclusion. *Journal of Behavioral and Experimental Economics*, *114*, 102319. https://doi.org/10.1016/j.socec.2024.102319

Pega, F., Pabayo, R., Benny, C., Lee, E.-Y., Lhachimi, S. K., & Liu, S. Y. (2022). Unconditional cash transfers for reducing poverty and vulnerabilities: Effect on use of health services and health outcomes in low- and middle-income countries. *Cochrane Database of Systematic Reviews*, *2022*(3). https://doi.org/10.1002/14651858.CD011135.pub3

Pemstein, D., Marquardt, K. M., Tzelgov, E., Wang, Y., Medzihorsky, J., Krusell, J., Miri, F., & von Römer, J. (2020). The V-Dem measurement model: Latent variable analysis for cross-national and cross-temporal expert-coded data. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3595962

Romano, A., Gross, J., & De Dreu, C. K. W. (2022). Conflict misperceptions between citizens and foreigners across the globe. *PNAS Nexus*, *1*(5), pgac267. https://doi.org/10.1093/pnasnexus/pgac267

Romano, A., Gross, J., & De Dreu, C. K. W. (2024). The nasty neighbor effect in humans. *Science Advances*, *10*(26), eadm7968. https://doi.org/10.1126/sciadv.adm7968

Ross, C. E., & Mirowsky, J. (2013). The sense of personal control: Social structural causes and emotional consequences. In C. S. Aneshensel, J. C. Phelan, & A. Bierman (Eds.), *Handbook of the Sociology of Mental Health* (pp. 379-402). Springer. https://doi.org/10.1007/978-94-007-4276-5_19

Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology*, *42*(1), 5–37. https://doi.org/10.1037/0022-3514.42.1.5

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, *80*(1), 1–28. https://doi.org/10.1037/h0092976

Shah, A. K., Mullainathan, S., & Shafir, E. (2012). Some consequences of having too little. *Science*, *338*(6107), 682–685. https://doi.org/10.1126/science.1222426

Simonse, O., Knoef, M., Van Dillen, L. F., Van Dijk, W. W., & Van Dijk, E. (2023). Psychological barriers to take-up of healthcare and child support benefits in the Netherlands. *Journal of European Social Policy*, *33*(3), 353–372. https://doi.org/10.1177/09589287231164343

Sommet, N., & Spini, D. (2022). Financial scarcity undermines health across the globe and the life course. *Social Science & Medicine*, *292*, 114607. https://doi.org/10.1016/j.socscimed.2021.114607

Thompson, S. C., & Spacapan, S. (1991). Perceptions of control in vulnerable populations. *Journal of Social Issues*, *47*(4), 1–21. https://doi.org/10.1111/j.1540-4560.1991.tb01831.x

To, C., Wiwad, D., & Kouchaki, M. (2023). Economic inequality reduces sense of control and increases the acceptability of self-interested unethical behavior. *Journal of Experimental Psychology: General*, *152*(10), 2747–2774. https://doi.org/10.1037/xge0001423

Uz, I. (2015). The index of cultural tightness and looseness among 68 countries. *Journal of Cross-cultural Psychology*, *46*(3), 319–335. https://doi.org/10.1177/0022022114563611

van Dijk, W. W., van der Werf, M. M. B., & van Dillen, L. F. (2022). The Psychological Inventory of Financial Scarcity (PIFS): A psychometric evaluation. *Journal of Behavioral and Experimental Economics*, *101*, 101939. https://doi.org/10.1016/j.socec.2022.101939

Viechtbauer, W. (2010). Conducting Meta-Analyses in. *R with the Metafor Package*. *Journal of Statistical Software*, *36*(3). https://doi.org/10.18637/jss.v036.i03

Wickham, H. (2016). *ggplot2: Elegant graphics for data analysis* (2nd ed.). Springer. https://doi.org/10.1007/978-3-319-24277-4

The World Bank. (2022). *The Worldwide Governance Indicators (WGI)*. https://info.worldbank.org/governance/wgi/

The World Bank. (2023a). *ASPIRE*. https://www.worldbank.org/en/data/datatopics/aspire/documentation

The World Bank. (2023b). *GDP per captita (current US$)*. https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

The World Bank. (2023c). *Gini index*. https://data.worldbank.org/indicator/SI.POV.GINI

World Economic Forum. (2020). *Global Social Mobility Index 2020: Why economies benefit from fixing inequality*. http://www3.weforum.org/docs/Global_Social_Mobility_Report.pdf

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