Social mindfulness and prosociality vary across the globe

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Social mindfulness and prosociality vary across the globe

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Humans are social animals, but not everyone will be mindful of others to the same extent. Individual differences have been found, but would social mindfulness also be shaped by one’s location in the world? Expecting cross-national differences to exist, we examined how social mindfulness differs across countries. At little to no material cost, social mindfulness typically entails small acts of attention or behavior. Cooperation in these tasks actually means making regard for others come at a cost. Cooperation in these tasks is momentarily busy, Mary picks first. What to choose? If Mary decided to take the Merlot, Alex would be left with only one choice of red wine. Wanting to be nice, Mary decides on the glass of Cabernet Sauvignon. Such daily dilemmas and the ensuing behavioral decisions are the domain of social mindfulness (SoMi), or being thoughtful of others in the present moment, and considering their needs and wishes before making a decision” (2, p. 18). The construct has been operationalized as making “other-regarding choices involving both skill … and will … to act mindfully toward another person’s control over outcomes” (3), p. 86). Cooperative decisions like these are shaped by individual and situational factors (4–6); here, we investigate possible cross-national differences. Understanding cooperation has been a core topic in the behavioral sciences (7), and investigating how people balance self-interest at a cross-national level is a popular topic. Such research has predominantly targeted costly cooperation, demonstrating striking differences (e.g., refs. 7–9). But what about low-cost cooperation and how it might vary across countries? Surprisingly,
research to date has not offered much evidence regarding this rather common form of cooperation. Hence, the goal of the present research is to provide such information in a large-scale comparison of SoMi across 31 industrialized countries and regions. To identify potential explanations, we additionally examine possible associations between SoMi and several relevant country-level variables like income, inequality, collectivism, trust, and environmental performance.

**SoMi and Low-Cost Cooperation.** In the current literature, cooperation typically involves a cost: In an interdependent situation, people face a choice between increasing their private gains (or reducing private losses) or increasing the greater good. Although there may be situations in which self-interest aligns with what is good for others (10), many situations require some give and take in which personal costs are incurred to reach a greater goal. Decades of research have yielded considerable progress on the scientific understanding of this kind of behavior, providing numerous explanations for cooperation. For example, reciprocity and concern for reputation seem to promote cooperation more than conformity (11, 12). In most cases, costs are made strategically, based on outcome distributions with specific self–other allocations that are explicitly described in the task instructions. Examples are dictator games (13) or measures of social value orientation (SVO), in which participants divide money or valuable points between themselves and someone else (14, 15). The material outcome is important and cooperation always costly. Conclusions from such research do not automatically apply to the domain of low-cost behaviors that are such an intricate part of what is commonly understood as cooperation.

The primary distinction of SoMi is that instead of weighing material costs and benefits, it implies a “social mind” to recognize and meet others’ needs and wishes in the present moment at little to no cost to the self. Summarizing the construct as introduced in previous literature (2, 3), SoMi entails benevolence with regards to the needs and interests of others. More specifically, the projected outcome of socially mindful behavior is realized at the interpersonal relation level and not through the exchange of goods or services (e.g., helping). A target’s feeling of being acknowledged and valued often matters as much or more than material considerations (16, 17). Returning to our wine selection example, it does not matter whether Alex (the second chooser) eventually picks the Cabernet or the Merlot; the best outcome is that Alex noticesthat Mary has left some choice. Thus, the construct of SoMi reflects to what extent people consider others and demonstrate their broader awareness of others when making decisions with wider consequences (2).

SoMi can be shaped by a variety of factors that are based on the self (e.g., individual differences) and others (e.g., social context). For example, research on individual differences shows rather stable associations with traditionally prosocial personality traits (4). SoMi predicts charitable giving (18) and prosocial behavior in organizations (19). Furthermore, neural patterns when making socially mindful decisions are consistent with mentalizing and interpersonal functioning, and 3) demographics.

Lastly, SoMi can “prime the pump” for the development of cooperation. In interdependent contexts, full cooperation is rarely realized straight away. Rather, there are complex dynamics—interacting decision makers may start with small moves, reading the situation and perhaps signaling their cooperative intent. These dynamics facilitate reciprocity and the growth of trust-based cooperation, building on existing social preferences. SoMi can be a precursor to these dynamics, and decision makers who are more socially mindful may actualize the benefits of cooperation more readily than those with low SoMi, and its presence may facilitate the emergence of collectively efficient dynamics.

In the current research, we used the SoMi paradigm to measure SoMi (2, 3). In a dyadic allocation task, the first mover picks a product from a product set, and the second mover picks a product from the remaining items (similar to the wine selection example). The first mover is considered to be socially mindful if the second mover still has choice (i.e., has more than one type of product to choose from). The costs involved are limited to the mental effort spent on considering the options for self and other, and possibly foregoing one’s own slight preference among basically equivalent products of very modest material value (Materials and Methods). This makes SoMi a specific form of low-cost cooperation. By not relying on language comprehension, the SoMi paradigm furthermore offers an intuitive and nonverbal way to assess SoMi, which is yet another distinction from many extant measures of cooperation that makes it especially suitable for cross-national research.

**Cross-National Perspectives.** The cross-national perspective on cooperation has generated strong interest in recent years. Pro-social tendencies, assessed via behavior in ultimatum bargaining games, dictator games, and public goods dilemmas, as well as instrumental cooperation in the form of punishing free riders, show considerable variation across diverse cultures and populations (8, 23, 24). These findings suggest societal differences in cooperative strategies—the ways in which individuals and groups seek to promote cooperation through reciprocity or punishment. However, these conclusions are predominantly based on outcomes of interdependence settings in which cooperation typically entails high costs that are material in nature; much less is known about societal or regional differences in situations where costs are negligible and outcomes are not material.

The current research extends existing cross-national comparisons of cooperation by investigating SoMi as a specific form of low-cost cooperation in which credibly showing benevolence is more important than the material outcome. Given the relative scarcity of research on cross-national differences in prosociality, this investigation may be described as empirical, curiosity-driven research. Our empirical model has two steps. First, we investigate cross-national variations in SoMi among modern, industrialized, and digitalized societies (cf. ref. 8). Second, we examine whether such differences would be related to broader manifestations of prosociality and societal functioning, using three themes derived from the broader literature on cooperation: 1) trust and social preferences, 2) key variables of societal and economic functioning, and 3) demographics.
Examined in the first theme, trust and reciprocity are a given in cooperation research (25, 26), next to social preferences (14, 27). Assuming that prosociality as measured using ultimatum game offers and helping strangers has been found to decrease with a country’s economic productivity, our second theme examines the link of SoMi with quantified indicators of national prosperity and inequality like gross domestic product (GDP) as well as the income inequality (Gini) index (9, 28). Furthermore, straightforward explanations could be found in collectivistic versus individualistic orientations. Hence, we include Hofstede’s cultural dimensions (29)—with the caveat that this particular conceptualization is not undisputed. We moreover enter previously used country-level indices like civic cooperation (30), competitiveness, rule of law (26), democracy, religiosity (31), and environmental performance (EPI) (32). The latter is meant to see if local explanations for cooperation relate to a general sense of SoMi in which benevolent interest in others includes general care for the shared environment within nations. In the third theme, we examine if age, education (self and parental), socioeconomic status (SES) (33), and other common factors are related with SoMi, both at individual and country level.

Present Research. Although urbanized western cultures are well represented in our samples, we aimed to cast a wider net over the world to include modern, industrialized, and digitalized nations and regions from, for example, Eastern Europe (Czech Republic, Poland, Romania, and Russia), the Middle East (Israel and Turkey), East Asia (China [including Hong Kong], India, Indonesia, Japan, Singapore, and South Korea), Latin America (Argentina, Chile, and Mexico), and Africa (Pretoria region of South Africa). An overview of the specific samples and targeted countries and regions is provided in Materials and Methods and illustrated in Fig. 1; see SI Appendix, Table S1 for details.

Remarkably, some cross-cultural experiments, even among nonwestern societies, have revealed little variation among college students (34). Still, we targeted younger people (aged 18 to 25), often students in social or behavioral sciences, exactly because a sample of young, well-educated participants as often used in past research would provide a relatively conservative test to build upon in the future. Moreover, the relative homogeneity of student samples makes it more likely that national differences in SoMi reflect true cultural differences and not some other variables like age or education (35).

We explored SoMi in two subsequent steps: 1) are there cross-national differences, and if yes, 2) can we relate these to trust-based measures and social preferences, economic-, environmental-, and/or morality-oriented indices at country level, or selected demographic variables? Although expecting to see differences in country scores, we decided to advance no formal hypotheses regarding ranking or the direction of possible associations with our selection of country-level variables. To distinguish between individual and cross-national differences, we also examined SoMi at individual level. Finally, we used SVO as an established way of measuring costly, outcome-oriented preferences (15) to compare to and illustrate SoMi.

Results
SoMi. SoMi across countries. First, we established that countries differed in SoMi. Results showed that the variance was larger than zero, likelihood ratio test (LRT) (1) = 525.34, P < 0.001. To provide converging evidence, we also estimated an ordinary least squares (OLS) ANOVA on SoMi as outcome variable and country as predictor. This showed a significant main effect, F(30, 8,323) = 22.27, P < 0.001, proving the between-countries variability to be statistically larger than the average within-country variability. Finally, a Kolmogorov–Smirnov test showed that the distribution

![Fig. 1. Distribution of means for SoMi (Right, ranked high to low) and SVO (Left) per countryregion.](https://doi.org/10.1073/pnas.2023846118)
of the country means was not uniform as would have been expected by chance ($P < 0.001$). Ranking and an overview of means are provided in Fig. 1. See SI Appendix, Table S2 for more details. Combining the three tests, we can confidently conclude that the size of SoMi variability across countries is well above within-country average variability and above sampling error. Moreover, we found no sizable correlation between sample size $N$ and the means of SoMi across countries ($r = -0.01099$), nor with the countries' SDs ($r = -0.0042$).

**Simple relations.** Next, we looked at simple relations at individual and country level. Table 1 shows that SoMi was positively related with SVO, both at the individual (0.25, $P < 0.001$) and at the country level (0.68, $P < 0.001$). This means that within each country, greater prosocial orientations were associated with greater SoMi. The strong associations at both levels of analysis provide evidence for meaningful shared as well as unique contributions of both variables to prosocial behavior (18). Although a very small effect, trust in others was associated with SoMi at the individual level but not at country level. Trust perceived by others was not related with SoMi at individual or country level. Note, however, that the reliability for both trust scales was rather low ($\alpha = 0.58$). Also note that measures of trust and SVO were taken at the same time as SoMi (endogenous), unlike the demographic variables (exogenous). See SVO for more SVO results.

Table 1 also provides the demographic results. Generally speaking, SoMi was not meaningfully associated with these variables at an individual level, which was stable across countries. Even though the correlations with age, gender, and subjective SES were statistically significant, this was mainly due to the large sample size. The effect sizes were so small that they can be considered negligible. At country level, SoMi was positively associated with parental education and negatively with SES and number of sisters.

In Table 2, we report associations between SoMi and selected variables that only vary at the national level. SoMi was positively associated with economic prosperity as reflected in GDP and gross national income (GNI) (both per capita), rule of law, economic competitiveness, and above all, EPI. On the other hand, SoMi was negatively associated with income inequality (Gini index, $P = 0.051$) and religiosity. Among the Hofstede dimensions, only power distance was associated with SoMi, suggesting that less distance goes together with greater SoMi; we did not find associations between individualism versus collectivism and SoMi.

### Table 1. Bivariate relations with SoMi within the domains of trust and SVO and demographic variables, at individual and country level

<table>
<thead>
<tr>
<th>Source of relation</th>
<th>Individual level</th>
<th>Country level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICC $\beta$ $t$ $df$ $p$</td>
<td>ICC $\beta$ $t$ $df$ $p$</td>
</tr>
<tr>
<td><strong>Trust and SVO</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SVO</td>
<td>0.37 0.25 22.64 7,861 &lt;0.001</td>
<td>0.68 4.91 28.03 &lt;0.001</td>
</tr>
<tr>
<td>Trust</td>
<td>0.51 0.03 2.24 7,748 0.025</td>
<td>0.02 0.13 28.02 0.900</td>
</tr>
<tr>
<td>Perceived trust</td>
<td>0.51 0.00 0.29 7,721 0.776</td>
<td>-0.07 -0.39 28.01 0.702</td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>0.50 0.02 1.83 7,645 0.067</td>
<td>0.24 1.32 28.00 0.198</td>
</tr>
<tr>
<td>Parental education</td>
<td>0.43 -0.00 -0.14 7,604 0.888</td>
<td>0.52 3.23 28.07 0.003</td>
</tr>
<tr>
<td>Age</td>
<td>0.49 0.02 1.96 7,675 0.050</td>
<td>0.30 1.67 28.01 0.106</td>
</tr>
<tr>
<td>Gender</td>
<td>0.51 -0.02 -2.14 7,676 0.033</td>
<td>0.16 0.87 28.07 0.391</td>
</tr>
<tr>
<td>Income</td>
<td>0.49 -0.01 -0.85 7,594 0.398</td>
<td>0.28 1.56 28.06 0.130</td>
</tr>
<tr>
<td>SES</td>
<td>0.47 -0.03 -2.70 7,612 0.007</td>
<td>-0.38 -2.20 28.00 0.036</td>
</tr>
<tr>
<td>Brothers (number)</td>
<td>0.51 0.01 1.00 7,647 0.319</td>
<td>-0.18 -0.56 28.04 0.343</td>
</tr>
<tr>
<td><strong>Sisters (number)</strong></td>
<td>0.48 0.01 0.51 7,646 0.609</td>
<td>-0.37 -2.09 28.09 0.046</td>
</tr>
</tbody>
</table>

SVO, social value orientation; Gender: male, 1; female, 2; SES, socioeconomic status; $\beta$ may be interpreted as correlation coefficient.

### Table 2. Country-level bivariate relations with SoMi across three domains

<table>
<thead>
<tr>
<th>Key variables</th>
<th>ICC $\beta$ $t$ $df$ $p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust (WVS)</td>
<td>0.45 0.27 1.51 25.09 0.144</td>
</tr>
<tr>
<td>Religiosity</td>
<td>0.41 -0.42 -2.55 25.14 0.017</td>
</tr>
<tr>
<td>Civic cooperation</td>
<td>0.44 0.30 1.71 25.08 0.099</td>
</tr>
<tr>
<td>Rule of law (2015)</td>
<td>0.45 0.45 2.56 26.03 0.016</td>
</tr>
<tr>
<td>Democracy index (2014)</td>
<td>0.50 0.23 1.23 28.01 0.229</td>
</tr>
<tr>
<td>Competitiveness</td>
<td>0.47 0.39 2.24 28.12 0.033</td>
</tr>
<tr>
<td>Freedom index</td>
<td>0.48 -0.31 -1.75 27.97 0.091</td>
</tr>
<tr>
<td>EPI</td>
<td>0.40 0.60 3.83 27.04 0.001</td>
</tr>
</tbody>
</table>

Hofstede dimensions

<table>
<thead>
<tr>
<th>Data</th>
<th>$\beta$ $t$ $df$ $p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power distance</td>
<td>0.44 -0.42 -2.48 27.03 0.020</td>
</tr>
<tr>
<td>Individualism</td>
<td>0.47 0.30 1.67 27.05 0.107</td>
</tr>
<tr>
<td>Masculinity</td>
<td>0.48 0.21 1.13 27.02 0.267</td>
</tr>
<tr>
<td>Uncertainty avoidance</td>
<td>0.49 0.11 0.60 27.10 0.555</td>
</tr>
<tr>
<td>Long term orientation</td>
<td>0.50 0.16 0.87 28.05 0.392</td>
</tr>
<tr>
<td>Indulgence versus restraint</td>
<td>0.49 0.28 1.49 27.10 0.149</td>
</tr>
</tbody>
</table>

Economic indices

| GDP P/C (2015) | 0.45 0.46 2.76 28.06 0.010 |
| GNI P/C (2015) | 0.46 0.47 2.68 27.05 0.013 |
| Gini index | 0.47 -0.36 -2.04 28.01 0.051 |

EPI, environmental performance index; GDP P/C, gross domestic product per capita; GNI P/C, gross national income per capita; Gini Index, income inequality; $\beta$ may be interpreted as correlation coefficient.

**Prediction Models.** To generate a broader picture and to identify the best predictor(s) overall, next we compared multiple models in which predictors were considered together (7). Note that these models were used to statistically support the associations and do not imply causal inferences. We found that among all variables, EPI was the best (and only) predictor of SoMi, $b = 0.04$, $SE = 0.01$, $t(28.32) = 4.12$, $P < 0.001$, suggesting that greater SoMi is associated with greater concern with protecting the environment. See Fig. 2 for a scatterplot.

**SVO.** First, the variance of SVO across countries was larger than zero LRT (1) = 306.01, $P < 0.001$. An OLS ANOVA with SVO as dependent variable and country as independent variable revealed a significant main effect, $F(30.00, 7,990.00) = 14.07, P < 0.001$; a Kolmogorov–Smirnov test indicated that the distribution of the country means was not uniform ($P < 0.001$). The means are illustrated in Fig. 1, showing differences in ranking between SoMi and SVO as well as a general positive association as reported in Simple Relations. At step two (simple relations), SVO followed a different pattern than SoMi: SVO was not associated with most of the demographic variables at individual level. Even though correlations were significant for education (positive) and SES (negative), the effect size was small enough to be considered negligible and the significance a result of such a large sample. At country level, education was positively associated with SVO, $b = 0.50, P = 0.005$. However, we found practically no associations with our selected key variables and economic indices; only indulgence versus restraint (Hofstede) was significant, $\beta = 0.48, P = 0.010$. SVO results are summarized in SI Appendix, Tables S2–S4. We conclude that SoMi and SVO are meaningfully associated, such that they provide evidence for convergence and uniqueness and that the patterns of correlations with demographic variables, trust, and societal and economic variables show that SoMi functions differently from SVO.

*The association of EPI with SoMi is also significant after Bonferroni correction ($P < 0.001$).
Discussion
Large-scale, industrialized societies differ in low-cost cooperation as operationalized using SoMi; in this broad overview, we found strong support for substantial cross-national variation (Fig. 1). This confirms that research on cooperation should look at nation-level differences (cf. ref. 28). Across three broad themes, SoMi was associated with individual trust and SVO and some societal and economic indices (religiosity, power distance, GDP, and Gini) but most strongly with the level of EPI within the targeted countries. We also found limited associations with demographic variables (parental education and SES). Ranking and pattern of associations for SoMi and SVO overlapped meaningfully but not substantially, confirming that low-cost cooperation should be investigated independently from costly cooperation.

Our primary aim was to provide an overview of cross-national differences in SoMi. The proportion of socially mindful decisions differed considerably across the samples in our study. Scores ranged from 46.2 (Indonesia) to 72.0% (Japan), with a gradual incline between the lowest and highest values (see Fig. 1). This pattern indicates that low-cost cooperation varies across nation-based populations and should be further investigated. Other than costly cooperation measured using tasks with monetary consequences, there is little research on nonmonetary, low-cost cooperation, even though “social life also involves low-cost cooperation, such as information sharing, showing respect, and conveying appreciation such as gratitude and compliments” (36), p. 503).

Exploring potential mechanisms in a second step, we organized selected variables in three broader themes. Within the first theme, trusting others was associated with SoMi at individual level but not at country level. A common factor in research on costly cooperation (26, 30, 37), this finding could suggest that functional trust in low-cost cooperation is different from how trust operates in costly cooperation; however, scale reliability was low, and conclusions should be treated with caution. Looking at social preferences, we did find the expected positive association with SVO, which was moderate at individual level and larger at country level (4). Fig. 1 illustrates this correlation but at the same time shows clear differences of where countries are on the list. This distinction is corroborated by a fully different pattern of associations in step two of the analyses across all three themes. Only level of education seems to provide common ground, but even there it concerns parental (SoMi) versus individual (SVO) education. Together these findings provide evidence for the unique place of low-cost cooperation in general and SoMi in particular within the broader concept of human cooperation.

The second theme, investigations of selected societal variables and economic indices at country level, showed higher levels of SoMi for countries with lower levels of religiosity. This brings to mind that the common positive association between religiosity and subjective well-being strongly depends on societal factors; difficult life circumstances predict higher religiosity and thus greater well-being (38). SoMi seems associated with easier life circumstances, as indicated by associations with GDP, GNI, and Gini. We did not measure individual level religiosity, however, which makes it unclear if and how religiosity and SoMi are connected at the personal level. The simple relation between religiosity and cooperation in the literature (e.g., ref. 39) would suggest a positive association [but see refs. 26 and 40], and the community aspect of many religions could well promote SoMi, at least within one’s own community (2, 5). Additionally, the democratically installed and maintained rule of law showed a positive association...
with SoMi. The negative association with power distance (Hofstede dimensions) points in the same direction: SoMi—low-cost cooperation—is not driven by obeying those in power but by truly interpersonal relations in which others are seen and acknowledged as equals living under the same norms (3).

Following the third theme, SoMi was not correlated at individual level with most of the demographic variables we investigated. Although several correlations were statistically significant, effect sizes were generally too small to be meaningful. At country level, we found that SoMi was positively associated with parental education but negatively with SES. Seemingly contradictory, both parental education and SES are used as operationalizations of social class. One explanation for the divergent pattern is that parental education reflects what often is described as cultural capital, or class background (41), whereas the social ladder as a measure of subjective social class is based on one’s actual economic assessment, or class foreground (42, 43). Foreground and background complement each other but do not automatically overlap. That SoMi is positively related with background cultural capital but negatively with foreground economic hierarchy once more underlines that SoMi skips the economic costs. It also shows that social class is and remains a complex and multifaceted phenomenon to define (6).

Among all potential mechanisms we investigated, one solid effect needs to be highlighted. The country-level association between SoMi and EPI that washed out all other relations in our final model suggests that prosocial tendencies may not only be revealed in people’s orientation toward individual strangers but also toward a collective of strangers with a broader concern for environmental sustainability. This broader concern specifically combines protection of environmental health with the protection of ecosystems (44). The positive association connects with growing research on the social aspects of biodiversity conservation and sustainability initiatives that suggests that greater social capital is accompanied by greater and more successful environmental protection (45, 46), possibly a form of collective action (47). In terms of the SoMi paradigm, SoMi may not only reflect how people leave others choice at a micro level but also how they may want to leave the broader community of others a reasonably healthy earth to live on at a macro level. SoMi, then, is shaped by a socially interconnected environment in which the awareness of a “we,” “us,” and “our future” may all be equally accessible units of thought and action. This means that the foundation of a social and political climate that helps recognize, address, and reduce climate change.

In the end, what best explains the general picture? Considering all findings, we suggest that SoMi may be conceptualized as a specific and effective expression of social capital (47–50), a comprehensive perspective on society with important implications for its development and functioning (30). Following one of the definitions, the economic function of social capital is to diminish the costs of formal coordination tasks by using informal social communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51). From a relational perspective, such capital materializes through social interactions that include low-cost communication channels (51).
Table 3. Country-level variables; descriptions and sources

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civic cooperation</td>
<td>Norms for civic cooperation.</td>
<td>World Value Survey (wave 6); missing values added from European Values Study. Computed following (30). 2015 World Economic Forum (62).</td>
</tr>
<tr>
<td>Democracy</td>
<td>Countries’ state of democracy based on five categories: Electoral process and pluralism, civil liberties, the functioning of government, political participation, and political culture.</td>
<td><a href="http://epi.yale.edu">http://epi.yale.edu</a></td>
</tr>
<tr>
<td>EPI</td>
<td>The EPI ranks countries on 24 performance indicators across 10 issue categories covering environmental health and ecosystem vitality. This provides a measure of how close countries are to established environmental policy goals.</td>
<td>World Press Freedom Index 2015; <a href="https://rsf.org/en/ranking/2015">https://rsf.org/en/ranking/2015</a>.</td>
</tr>
<tr>
<td>Hofstede dimensions</td>
<td>Six basic dimensions of culture: Power Distance (PDI), Individualism (IDV), Masculinity (MAS), Uncertainty Avoidance (UAI), Long Term Orientation (LTO), and Indulgence versus Restraint (IVR).</td>
<td><a href="http://www.geerthofstede.nl">http://www.geerthofstede.nl</a>, <a href="http://www.geerthofstede.com">http://www.geerthofstede.com</a>.</td>
</tr>
<tr>
<td>Religiosity</td>
<td>“Important in life: Religion.”</td>
<td>World Value Survey (wave 6); European Values Study.</td>
</tr>
<tr>
<td>Trust</td>
<td>“Most people can be trusted.”</td>
<td>World Value Survey (wave 6); European Values Study.</td>
</tr>
</tbody>
</table>

preferences. For instance, the full questionnaire contained two different measures of SVO. In the current paper, we focus on SoMi as outcome variable. Because it provides a linear, noncategorical measure of SVO, we include the SvoSlider for explanatory purposes; cross-national results for both SVO measures may be further reported and discussed in detail elsewhere. The questionnaire contained some further items that did not pertain to the current research question and are not reported here. A complete list of variables is provided in SI Appendix.

Samples and Participants. Data were derived from 46 independent samples, involving 31 countries and regions across the globe (for details, see SI Appendix, Table S1). To target comparable samples across nations, we primarily targeted student populations between 18 and 25 y of age. Overall, we collected responses from 10,353 individuals. After omitting a number of incomplete answers, we were able to compute a valid SoMi score for 8,354 participants (2,916 males, 4,913 females, and 525 did not report), M_age = 21.98 y, SD = 5.19.

Procedure and Materials. Data were collected in the course of 2015. Because a general proficiency in English was expected in most academic settings, the survey was presented in English wherever possible. However, when deemed necessary by the local research team, the survey was translated into the relevant native language. Our main focus was on students in psychology and/or social sciences, but depending on the population of the local university, students from other areas (i.e., business or economics) were also invited. Where possible, experiments were held in the local research facilities (a dedicated laboratory) or else the survey was distributed online to specifically targeted participant pools. Participation incentives (i.e., monetary compensation, course credits, lottery draws, or no monetary incentive) were offered based on local reimbursement norms for completing such a survey (SI Appendix, Table S1). General ethics approval was provided at the Vrije Universiteit Amsterdam, complemented by local approval at various research locations. All participants provided informed consent.

SoMi was measured using the SoMi paradigm. As described in previous research (2), this dyadic task entailed participants choosing one product from an array of products shown onscreen as the first of two people, without replacement. The (imaginary) other person was “someone you haven’t met before, and will not knowingly meet again in the future.” The ratio of products varied between one unique versus two identical products and one unique versus three identical products. An example would be one red among two green apples or one yellow among three blue baseball hats. Taking one of the nonunique products (e.g., a green apple or a blue hat) was scored as socially mindful because it preserved choice for the other person. Control trials offered two versus three identical products. For visualizations, see SI Appendix or http://www.socialmindfulness.nl. There were 24 trials in total that included 12 experimental and 12 control trials, using 12 separate categories of products, all offered in a fully randomized order. SoMi was calculated as the percentage of socially mindful choices across experimental trials.

For validation and comparison (3, 4) we measured SVO using the SvoSlider, consisting of six consecutive (hypothetical) allocations of money between self and other, resulting in orientations that range from competitive to altruistic; higher numbers indicate higher cooperation (15). We furthermore assessed standard demographics like age and gender and exploratively asked about the number of brothers and sisters (to check associations with family size), SES (42), relative income (far below to far above average), and parental education (less than high school to professional degree). We also measured general trust (three items, e.g., “I completely trust most other people;” α = 0.58) and perceived trust (three items, e.g., “I think that most other people completely trust me;” α = 0.58) (59). The reliability of these latter scales was rather low, limiting the strength of the conclusions.
At the analysis phase, we related SoMi with various country level variables, including GDP, GNI, the Gini inequality index, the EPI, the Hofstede dimensions (29), and trust as measured in the World Value Survey. See Table 3 for an overview, a brief description, and source references. We did the same for SVO.

### Analytical Strategy

To examine if countries differed in SoMi, we performed a linear mixed model with SoMi as outcome variable, random intercepts across countries, and only the intercept as fixed effect. The variance of intercepts across countries (i.e., the differences between country means) was tested with a LRT. This was complemented by an OLS ANOVA on SoMi as outcome variable and country as predictor. A Kolmogorov–Smirnov test was used to check uniformity in the distribution of the country means.

Simple relations at individual and country level were estimated using linear mixed models. In each model, SoMi was the outcome variable and each variable, in turn, the predictor. Country was the cluster variable for which we estimated the variability of random coefficients. The relation between SoMi and the variable was set both as fixed (average) and random (varying) effects, random across country. Similarly, the intercepts were set as random effects varying across countries. The variables were standardized in such a way that the relation between SoMi and each variable was decomposed in two independent effects: The former effect can be interpreted as a standard (Pearson) correlation, corresponding to the average correlation across countries; the latter as the correlation one would obtain if the relation was computed on the means of the countries in the variables (country level). Nonetheless, all estimations and tests were done on the whole sample. The models presented here also allowed us to estimate the variance of the random effects (intercepts and coefficients).

To estimate the relation between SoMi and selected key variables that only vary at the national level, we report bivariate relations across three main domains (Table 2). The data was standardized such that the coefficients can be interpreted as the correlation between SoMi and the variable at the country level. The results are therefore very similar to Pearson correlations estimated on the average SoMi score of each country and its value in the target variable. However, parameters and tests were derived and run on the whole sample. From the available economic indices, we used variables per capita to prevent confounds from the size of the country population. GDP was transformed to linearize the relation with SoMi.

We standardized variables and ran all mixed models using R (package lme4) (60) with country level 2 as the clustering variable. After comparisons with other models through the Akaikian and Bayesian information criteria, we selected the model with the best fit (61).

### Data Availability

Data and associated protocols have been deposited on the Open Science Framework (https://doi.org/10.1073/pnas.2023846118). Social mindfulness and prosociality vary across the globe.


32. A. Hsu et al., 2016 Environmental Performance Index (Yale University, New Haven, CT, 2016).


