Geographically Segregated Culture is associated with Lower Mobility, Weaker Democracy, and Risk of Civil Conflict

Cindel J. M. White[1*], Michael Muthukrishna[2]

[1]Department of Psychology, York University, [2]Department of Psychological and Behavioural Science, London School of Economics and Political Science

Author Note

*Correspondence concerning this article should be addressed to Cindel J. M. White, Department of Psychology, York University, 4700 Keele Street, Toronto, ON, Canada, M3J 1P3. Email: cjmwhite@yorku.ca

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Abstract

Stable nations require strangers to coordinate and cooperate despite cultural differences. Using the Cultural Fixation Index (CF_{ST}) on World Values Survey data (more than 260,000 participants; 95 countries; 2005–2022), we quantified within-country cultural distances between regions, ethnicities, religious groups, education levels, and social classes, to predict various measures of social mobility, democracy, and civil conflict. A pre-registered multiverse analysis (54,600 model specifications; 100 model families; 6 demographic groupings; 6 outcome measures) showed only one robust pattern of negative societal outcomes: larger cultural distance between geographic regions is associated with higher corruption, weaker democracy, lower social mobility, and greater risk of civil conflict. Distances between ethnic, religious, and socioeconomic groups were mostly benign, and educational distance was often associated with better outcomes. The results imply that what matters is not diversity per se, but whether culturally distinct groups are geographically segregated and therefore less likely to regularly interact to negotiate the cultural traits needed for cooperation and coordination.

Keywords*:* Cultural diversity, conflict, corruption, democracy, inequality

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Modern nations ask large groups of diverse strangers to cooperate toward shared public goods, such as paying taxes, following laws, and participating peacefully in political, economic, and educational institutions. Such higher-level cooperation might be easier in more culturally homogeneous populations, when individuals share values and agree on the best political policies, moral principles, religious conventions, and the ideal values to instill in one's children. Attitudes towards immigrants and other ethnolinguistic outgroups are also typically more negative when these groups are perceived to endorse very different values and beliefs than one's own (1–4). Many intergroup conflicts arise between groups with different ethnic or religious identities, especially when these groups differ in core sacred values (5–8). Such intergroup hostilities may pose challenges to coordination toward common goals (9). Some evidence suggests that more ethnically diverse countries have less long-term economic growth (10). It may be more challenging for culturally diverse nations to have well-functioning political and economic institutions. But other recent research reveals that cultural diversity can also generate benefits, such as greater innovation and creativity, with downstream benefits for economic development (11, 12). For example, greater product innovations, patents, high-impact scientific publications, and entrepreneurship comes from more diverse firms (13, 14), international research teams (15), and ethnically diverse U.S. cities and counties (16, 17).

This "paradox of diversity" (18) raises the question of what aspects of cultural diversity are most relevant to positive and negative societal outcomes, which national outcomes are most affected, and to what extent these relationships hold across different countries around the world. In the present study, we apply a novel technique to measure within-country cultural diversity, by

using the Cultural Fixation Index (CF_{ST}, (19)) to compare the distribution of cultural traits (attitudes, beliefs, and preferences, drawn from the World Values Survey) between various groups within each country. We test whether countries with more culturally-diverse socio-demographic groups have worse national outcomes: weaker democracies, higher inequality, lower social mobility, and more intrastate warfare.

Previous tests of cultural fractionalization and conflict

Most previous work on the relationship between diversity and negative societal outcomes has proxied diversity with ethnic *fractionalization*: the probability that two individuals selected at random from a country come from different ethnic groups ((20–23); see (24) for discussion of various measures of cultural diversity). Several studies have found that countries with greater ethnolinguistic fractionalization have lower quality of government (perhaps especially when regionally segregated (25)); more political instability (26, 27); more corruption and less economic growth (10, 23, 28–32); worse provision of public goods like health care (33); and more civil conflict (34).

However, other studies have either failed to find these associations (22, 35, 36), found the opposite pattern (37–39), or documented alternative variables that moderate or overwhelm the effect of fractionalization. For example, the relation between ethnolinguistic fractionalization and political instability might depend on a country's level of modernization (40), or be due to economic inequalities between groups (41), tolerance (42, 43), the exclusion of ethnic minorities from positions of power (44), or polarization, rather than fractionalization as such (45). Effects might also depend on the type of group identity used to classify cultural diversity. Religious (rather than ethnic) fractionalization was only weakly associated with political instability, and

may actually be associated with *less* instability (23) and greater social cohesion after accounting for inclusion of minorities in society (44).

Quantifying cultural differences through the Cultural Fixation Index (CF_{ST})

One possible reason for these conflicting findings is that previous measures of ethnolinguistic fractionalization merely measure the *presence* of different ethnolinguistic groups within a country, without quantifying whether the different ethnolinguistic groups actually endorse different cultural values and how large these differences might be. Negative societal outcomes (e.g., civil conflict and less public goods provision) may only arise when differences in cultural values overlap with differences in ethnic group identification (46). The mere presence of different ethnic groups, or the presence of diverse traits among individuals (but not clustered along group lines) may not produce negative social outcomes.

To address this gap, we directly measured differences in cultural values between sociodemographic groups using a novel technique, the Cultural Fixation Index ($CF_{ST,}$ (19)). The Cultural Fixation Index provides a measure of the cultural differences between groups across a variety of different survey items indexing cultural traits (attitudes, beliefs, norms, values, preferences, and behaviors), relative to the overall variance in traits across the whole population, thus indicating how much of the total variation is due to differences between groups rather than variation across individuals within the population. CF_{ST} adapts a metric typically used in population genetics to measure how genotype frequencies (i.e., the distribution of particular alleles such as blue or brown eyes at a particular locus of a genome, in this case for eye color) differ between sub-populations relative to the entire population. This measure is used in population genetics, because it maps onto theoretical models of the extent to which subpopulations deviate from random mating and therefore is an indication of the extent to which

subpopulations can be considered genetically distinct, perhaps due to geographical separation or mating preferences.

Muthukrishna et al. (19) argue that, for similar reasons, this statistic is useful in measuring cultural distances because it directly maps onto models of deviation from random social learning and therefore indicates structuring in cultural transmission, perhaps due to lack of interaction or preferences for learning from ingroups. The cultural fixation index (CF_{ST}) therefore treats responses (such as agree or disagree) as alleles and questions (such as "Politicians who don't believe in God are unfit for public office") as cultural loci, measuring how much of the variance in the distributions cultural attitudes, beliefs, values, and behaviour is explained by between-group differences, rather than the overall variance in traits across individuals. This statistic has the advantage of quantifying the overall cultural differences across a range of potentially-independent, discrete cultural traits (including continuous, binary, and nominal traits along many independent dimensions), rather than only considering a single dimension of culture. We draw on cultural traits measured by the World Values Survey (WVS (47),Waves 5 – 7, 2005 – 2022), which surveyed more than 260,000 participants from nationally representative samples of 95 countries around the world. CF_{ST} scores, derived from the WVS, have previously been validated as an index of cultural difference that predicts meaningful patterns of cross-national variability. For example, the CF_{ST} distance between countries and the United States is correlated with various other indices of cultural differences between countries, such as measures of individualism, tightness-looseness, and corruption (19), endorsement of different moral values (48), including moral judgments of autonomous vehicles (49), the motivating effect of money (50), science skepticism (51), and the response patterns of artificial intelligence large language models (52). CF_{ST} also captures meaningful variation within

countries, such as notable cultural distances between members of different religious denominations (and greater cultural similarity when people share a religious denomination despite living in different countries (53)).

Overview of current study

In the analyses below, we use CF_{ST} to directly measure the magnitude of cultural differences between groups within each country. Because cultural differences can arise from many different demographic characteristics (54), we examined several different types of groups within each country, where members were defined by their education levels, income levels, subjective social classes, religious groups, ethnic groups, or geographic regions. We tested whether the degree of cultural distance (CF_{ST}) between cultural groups within each country is positively associated with measures of corruption, conflict, and inequality, negatively associated with social mobility, and negatively associated with measures of the success or stability of democracy.

To ensure a robust test of these associations, we ran a multiverse analyses (55, 56). There are many different decisions that researchers can make about which specific subsets of data and variables to include and how to specify the model. Through a multiverse analysis, researchers are able to specify many different plausible models – utilizing different combinations of variable choices, modeling techniques, outlier exclusions, covariates, and so on, to examine the degree to which the focal association of interest is robust across different specifications. This method allows researchers to draw conclusions after observing patterns across many different plausible analyses, thereby identifying which effects are robustly present across many specifications and therefore unlikely to be an artifact of specific statistical choices, or to identify which modeling choices cause effects of interest to consistently emerge or disappear (see (56, 57) for

recommended procedures, and (58–61) for examples). Although there is no simple or agreed upon guideline or benchmarks for testing statistical significance of the multiverse results, bootstrapping techniques can be used to compare the observed results to expected results from null data, where there is no true association between variables, but the same set of specified analyses are performed. By conducting the full multiverse of many plausible analyses, researchers can therefore evaluate how focal effects vary across many different analytical choices, and whether these patterns are more extreme than would be expected from mere statistical noise in data where no patterns truly exist.

In our study, we conducted a multiverse analysis across a wide range of model specifications (>18,000), that test different operationalizations of key variables, different clusters of covariates, and other different analytic choices. We can therefore evaluate which associations between measures of within country cultural distance are consistently associated with country-level outcomes, across a range of different analytic choices. Prior to conducting these comprehensive analyses, the methods and analysis plan were preregistered on the Open Science Framework (https://osf.io/cgd5h/?view_only=3984976d37394926ac3c4d61cecb0a4c).

We find that larger cultural distances between subnational regions robustly predicts a range of negative societal outcomes. However, cultural distances between other socio-demographic groups tend to show no association or associations with more positive social outcomes, suggesting that many forms of cultural diversity can co-exist.

Results

How large are the cultural fractures within countries and do they covary?

We first explored the magnitude of the cultural fractures based on different sociodemographic groupings within each country, then we tested the correlations between these

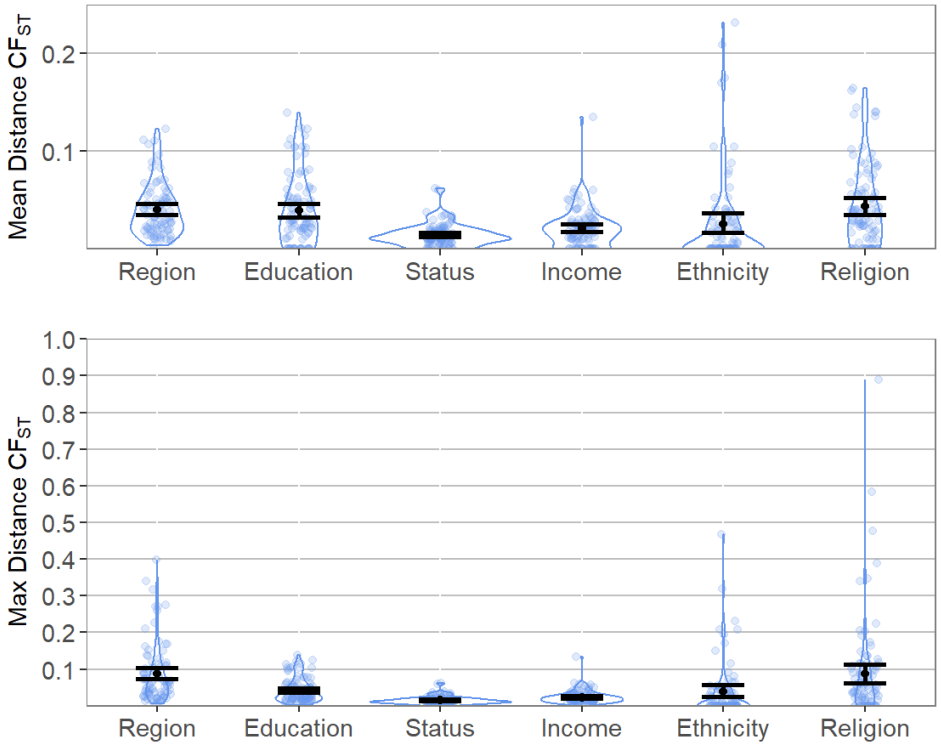
different cultural distances. These analyses (a) show the size of these differences to give an indication of how much they might matter and (b) test whether these sociodemographic groupings are largely independent of one another, or whether they capture similar (potentially overlapping) cultural clusters. CF_{ST} scores range from 0 to 1, with higher values indicating greater differences in cultural values between groups. As depicted in Figure 1, average cultural distances were the largest between people living in different geographic regions, and between different religious denominations, but were significantly smaller for measures of ethnicity. Compared to cross-country cultural distances, mean cultural distances were smaller within countries (ranging from $M_{CSFT} = 0.015$ for social status groupings to $M_{CSFT} = 0.044$ for religious groupings). This magnitude is smaller than the cultural distance between the United States and United Kingdom ($CF_{ST} = 0.048$) or even the United States and Canada ($CF_{ST} = 0.030$). However, there was considerably variation between countries in their within-country distances; some countries were more fractured than others. For example, as illustrated in Figure 1, lower panel, in some countries, the cultural distance between regions, ethnicities, and religious groups was comparable to the largest cultural distance between all pairs of countries analyzed in Muthukrishna et al. (19) – Norway and Egypt ($CF_{ST} = 0.60$). We therefore ran both models using mean CF_{ST} and models using maximum CF_{ST}, to account for the possibility that a single group that is very different from the others may be more relevant than the average difference between all groups.

We next examined the covariation between measures of cultural distance. Countries with larger regional cultural distances tended to have smaller educational distances, $r = -0.33$, $p < .001$, but geographic region and ethnic group distances were not significantly correlated with other types of cultural distances, rs < 0.2, $p > .05$. These correlations suggest that different types

of cultural clustering are largely independent of one another and should be analyzed separately as possible predictors of country-level outcomes.

Cultural distances were also significantly higher when groups were defined by high vs. low educational levels, compared to high vs. low in other indicators of socioeconomic status, such as income or subjective social status. These results are consistent with theories about the important role of education in cultural transmission (62–64) and empirical evidence showing that higher education is associated with closer cultural distance to WEIRD countries (65). Larger cultural distances between educational groups were also significantly associated with larger cultural distances between status groups, $r = 0.34$, $p < .001$, income groups, $r = 0.23$, $p < .03$, and religious groups, $r = 0.28$, $p = .01$. However, these correlations remain modest in size, indicating that education, income, and status are capturing distinct patterns of cultural differences. We therefore analyzed education, income, and status as separate predictors in the primary analysis.

Figure 1. Upper: Distribution of high vs. low (education, status, and income) or mean cultural distance (for region, ethnicity, ethnolinguistic group, and religion) between demographic groups within each country. Lower: maximum cultural distances between demographic groups within each country. Blue points represent CFST scores within each country, and black dots indicate the mean (and 95% CI) across all countries.



Multiverse Analysis Strategy

For each sociodemographic grouping within a country, we employed a multivariate regression to assess to what degree the cultural distances within countries predict each of the five outcome variable measures. Linear regression models were used to predict any continuous outcome variables, and logistic regression was used to predict binary outcome variables (i.e., conflict and war). In both OLS and logistic models, identical sets of predictors and covariates were used in the model specifications. Due to skew in the cultural distances, CF_{ST} values were log-transformed prior to analysis. Any countries with cultural distances equal to zero (i.e., when almost everyone in the country is part of the same group) were replaced with the smallest non-

zero value for that variable. All continuous predictors and outcome variables were standardized prior to analyses to produce standardized estimates of effect sizes.

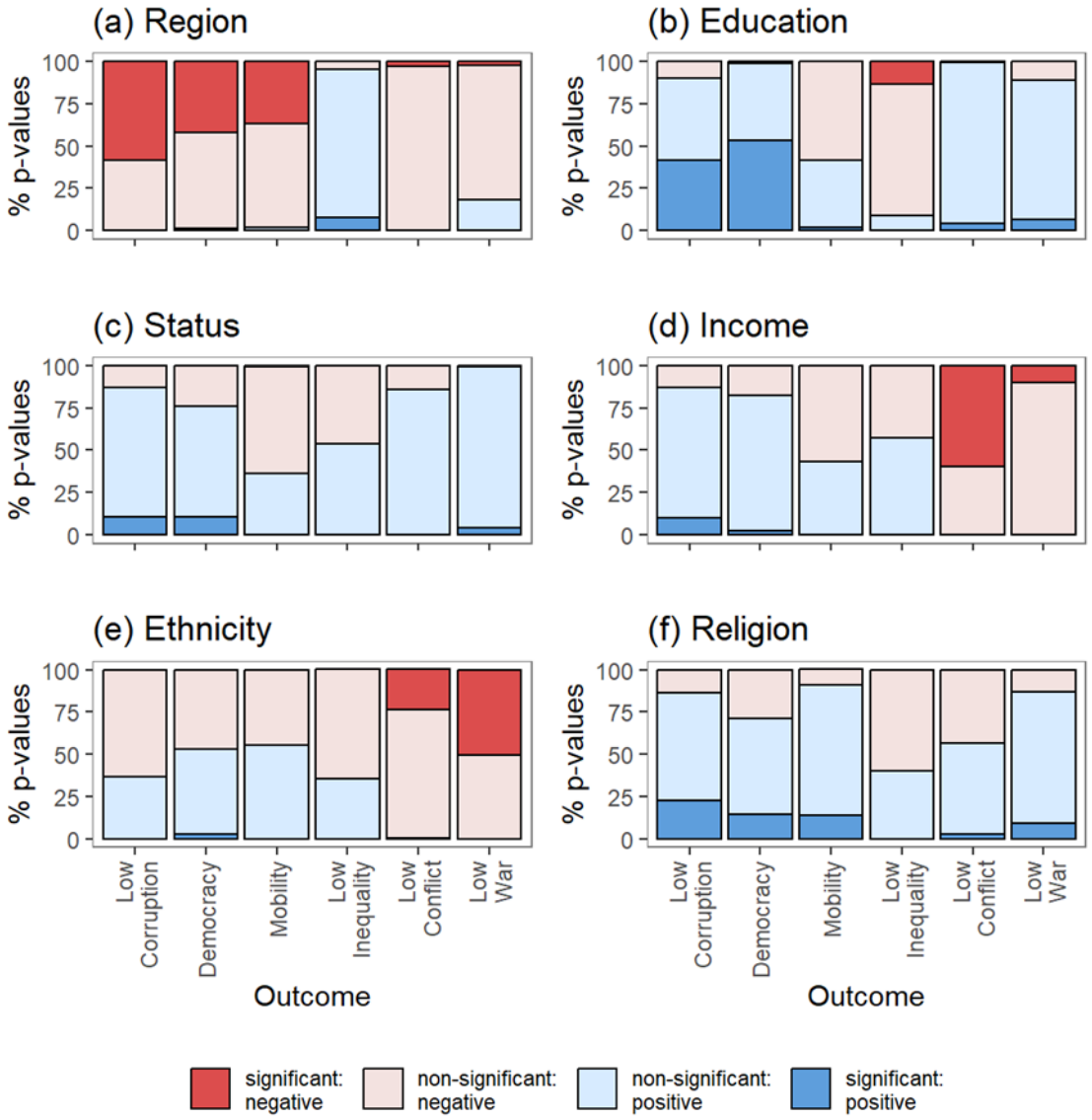
Due to power concerns given the relatively small sample size (95 countries, at most), we ran models with several different clusters of control variables, rather than running all possible combinations of all control variables. We created models that included, (a) one or all of GDP per capita, average educational attainment, and population size variables; (b) a geographic cluster that included a country's mountainousness, contiguity, oil resources, and instability; (c) the country's legal origin, genetic diversity, and kinship intensity, or a second geographic cluster of variables (capturing waterways, agricultural suitability, and latitude); and (d) continent fixed effects (see Table S3 for more details about model covariates). We also ran models in which some or all of these control variables were absent. From each of these multiverse analyses, the percentage of significant positive effects, significant negative effects, and non-significant associations between cultural distances and outcomes are depicted in Figure 2.

To assess the likelihood that our results reflect meaningful patterns in the data, we followed recommendations from Simonsohn et al. (56) and tested whether the observed average effect sizes are more extreme than would be expected if the null hypothesis were true, that is, if there were truly no association between the focal predictor and outcome. For models with continuous outcome variables (i.e., when predicting democracy, corruption, mobility, and inequality), we used the *specr* package in R (66) to test whether the observed average effect size from all specifications is significantly larger than would be expected if one forces the null on the data (see (56)). For models with binary outcome variables (i.e., war and conflict) we bootstrapped null models in which the outcome variable scores were randomly assigned (based on their predicted probability in the real data), thereby eliminating any real association between

the predictor and outcome variables, and then evaluated what proportion of specification curves applied to these null datasets produce effect sizes as extreme as that observed from specification curves of the real data. See Supplementary Figures S25 – S28 for more details of these inferential tests.

We also conducted alternative analyses that drop homogeneous countries (i.e., where $CF_{ST} = 0$) from the analyses, or that include random intercepts by continent rather than continent fixed effects to account for regional differences beyond the country level, are available in Supplementary Table S4, and largely replicate the pattern of results reported below. Supplementary Figures S1 – S24 also display more detailed results for all variables included in these analyses.

Figure 2. Summary of p-values from multiverse analyses predicting country-level outcomes from cultural distances (CF_{ST}) between groups within each country. Plots indicate the percentage of p-values that were significant vs. non-significant, and whether the effect sizes were positive or negative in direction. Each plot represents separate multiverse analyses, where cultural distances between groups were defined by different demographic characteristics of participant, including their (a) region, (b) education, (c) status, (d) income, (e) ethnicity, and (f) religion. Outcome measures were recoded so that positive scores indicate more positive country-level outcomes. Therefore, significant positive effects (darker blue) and directionally positive effects (light blue) indicate that cultural distances within a country predict lower corruption, greater democracy, more social mobility, lower inequality, and less conflict. Significant negative effects (red) and directionally negative effects (pink) indicate that cultural distances within a country predict more negative societal outcomes.



Region Multiverse

As predicted, bivariate relationships indicated that greater cultural distance between regions within a country was associated with greater corruption, $r = .47$, less democracy (according to all measures of democracy: Polity $r = -.32$, FSI $r = -.47$, LibDem $r = -.46$), less social mobility, $r = -.34$, and a greater likelihood of intrastate war, $r = .26$, and low-intensity conflict, $r = .29$, $p \leq .01$. These bivariate relationships were often robust to alternative analysis strategies. In the multiverse of analyses (Figures 3 - 4), regional distance predicted greater corruption in 59% of analyses (100% of effects were negative in direction), less democracy in 42% of analyses (99% of effects were negative), and less social mobility in 37% of analyses (98% of effects were negative), but only predicted low inequality in 7% of analyses (95% of effects were positive). Inferential tests indicate that the average effect sizes across these specifications are significantly larger than would be expected from null data (i.e., data with no association between regional distances and the outcomes), ps $\leq .001$. Regional differences only predicted low war or conflict in 3% analyses (although 81% of war effects and 100% of conflict effects were negative in direction, indicating a greater likelihood of war/conflict), which is not more than would be expected from a null model, ps $> .13$. Models including covariates were somewhat less likely to be significant than models without covariates, but no covariate introduced to the model consistently wiped out the significant effects, indicating that none of our plausible control variables can fully account for the observed association between regional cultural distances and country-level outcomes.

Fig 3. Specification curve of multiverse of analyses that predict country-level corruption and democracy from cultural distance across regions. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates. Top panel depicts effect size estimates across all models, and bottom panel indicates significant based on whether control variables were included as covariates in the model: GDP = log GDP, Edu = average educational attainment, Pop = population, GenDiv = genetic diversity, Legal = legal origin, KII = kinship intensity index, Geo1 = geographic controls (fraction mountainous, non-connected territories, oil, new state, instability), Geo2 = geographic controls (distance to waterways, caloric suitability of land, latitude), Continent = continent.

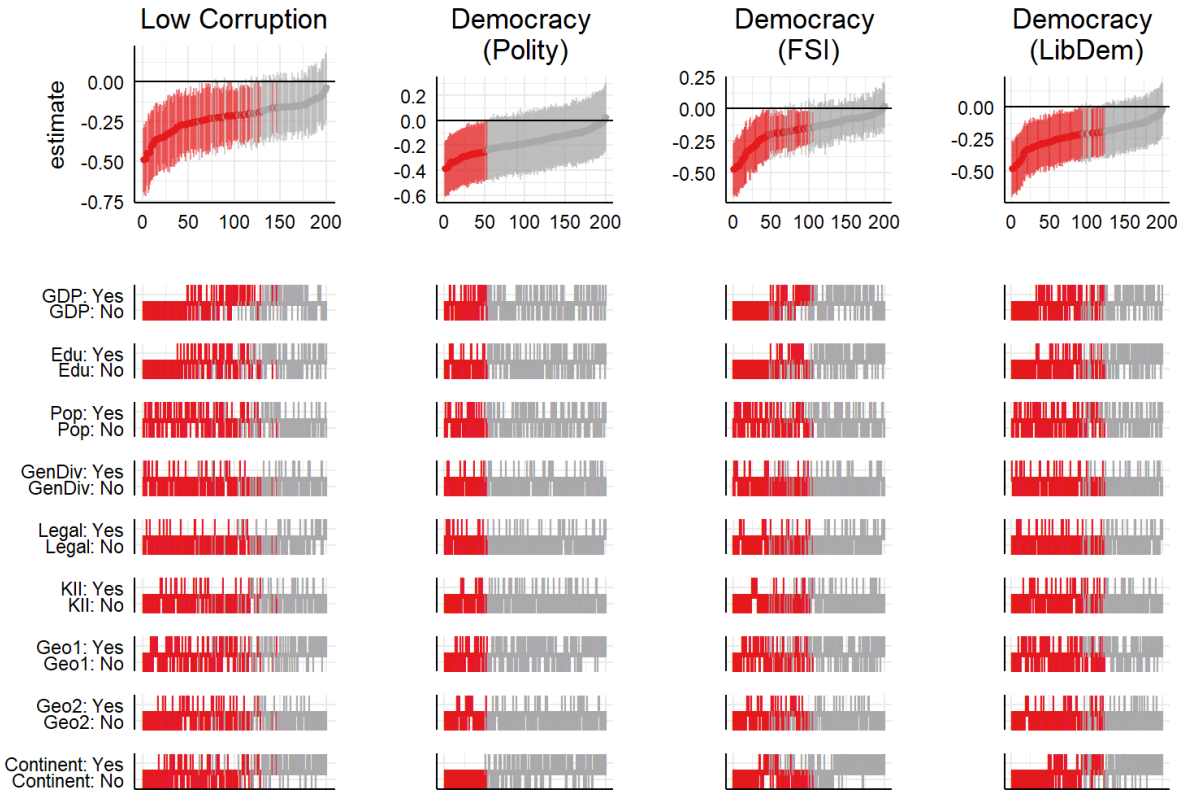
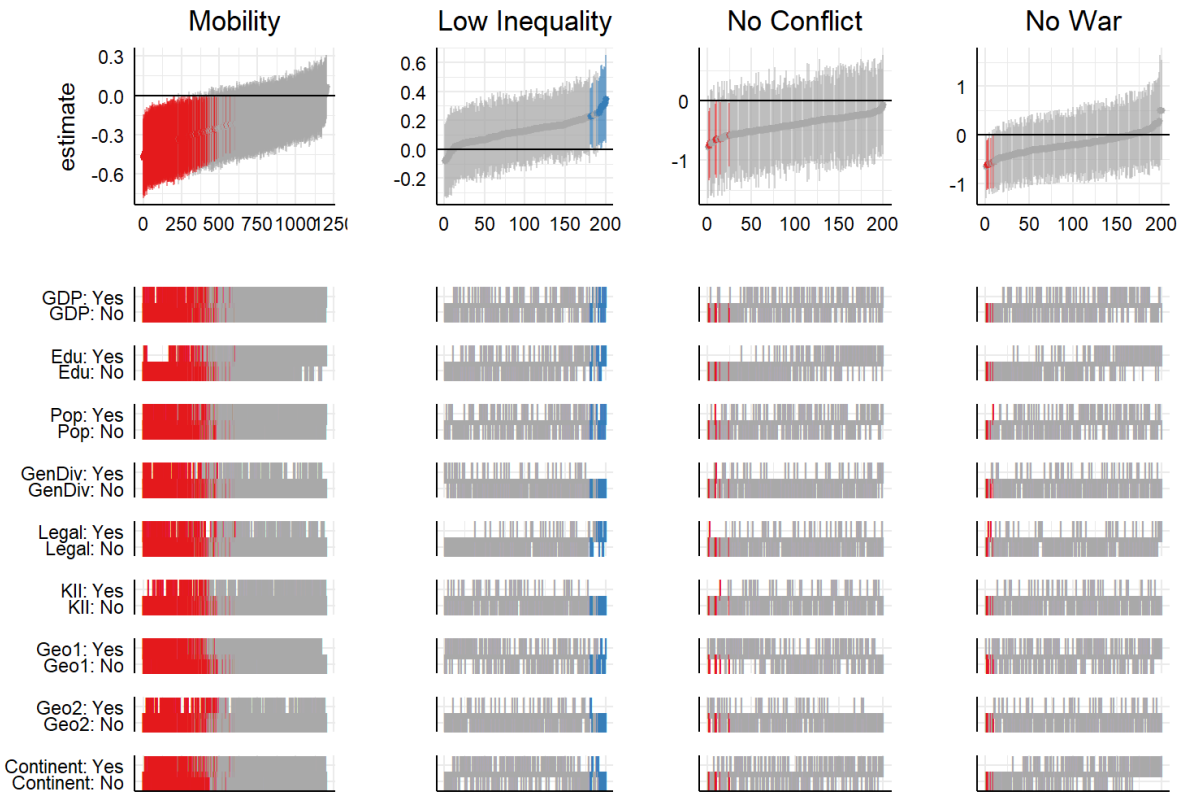


Fig 4. Specification curve of multiverse of analyses that predict country-level social mobility, inequality, conflict, and war from cultural distance across regions. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates. Top panel depicts effect size estimates across all models, and bottom panel indicates significant based on whether control variables were included as covariates in the model: GDP = log GDP, Edu = average educational attainment, Pop = population, GenDiv = genetic diversity, Legal = legal origin, KII = kinship intensity index, Geo1 = geographic controls (fraction mountainous, non-connected territories, oil, new state, instability), Geo2 = geographic controls (distance to waterways, caloric suitability of land, latitude), Continent = continent.



Education Multiverse

Contrary to our predictions, bivariate relationships showed greater within-country distances between the highly educated and those with low education predicted less corruption, r = .42, greater democracy (according to all measures of democracy: Polity r = .37, FSI r = .47, LibDem r = .39), greater social mobility, r = .23, and less likelihood of intrastate war, r = -.21,

and conflict, r = -.20, all ps ≤ .05. However, only the bivariate relationships with democracy and corruption were robust to alternative analysis strategies. In the multiverse of analyses (depicted in Figure 5 - 6), education distance significantly predicted low corruption in 42% of analyses (90% positive effects) and democracy in 53% of analyses (with 99% of effects positive in direction). Inferential tests indicate that the effect sizes predicting democracy are significantly larger than would be expected from a null model, p < .001, but effect sizes predicting corruption were not, p = .14. Educational cultural distance was not reliably associated with social mobility (2% significant effects; 42% positive effects), the absence of war (7% significant effects; 89% positive effects), or the absence of conflict (4% significant effects; 99.5% positive effects). Estimates were not significantly different from what would be expected from null data, ps > .10. Educational cultural distance also did not meaningfully predict a country's level of low inequality, according to the bivariate correlation, r = 0.06, or the multiverse (14% of analyses significant, 91% negative effects).

This pattern goes against our hypothesis that cultural divisions more generally within a country will have negative outcomes, and this finding remains robust to various model specifications and possible covariates. Cultural distance across education groups was also positively correlated with the average level of education in each country (r = .53), and GDP (r = .53, ps < .001), but educational distances remained a significant predictor of democracy in 42% of analyses with average education as a covariate and 27% of analyses with GDP as a covariate. Educational distances remained a significant predictor of low corruption in 24% of analyses with average education as a covariate and 5% of analyses with GDP, but did not remain a meaningful predictor of social mobility or conflict (< 2% significant).

Fig 5. Specification curve of multiverse of analyses that predict country-level corruption and democracy from cultural distance across education levels. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates. Top panel depicts effect size estimates across all models, and bottom panel indicates significant based on whether control variables were included as covariates in the model: GDP = log GDP, Edu = average educational attainment, Pop = population, GenDiv = genetic diversity, Legal = legal origin, KII = kinship intensity index, Geo1 = geographic controls (fraction mountainous, non-connected territories, oil, new state, instability), Geo2 = geographic controls (distance to waterways, caloric suitability of land, latitude), Continent = continent.

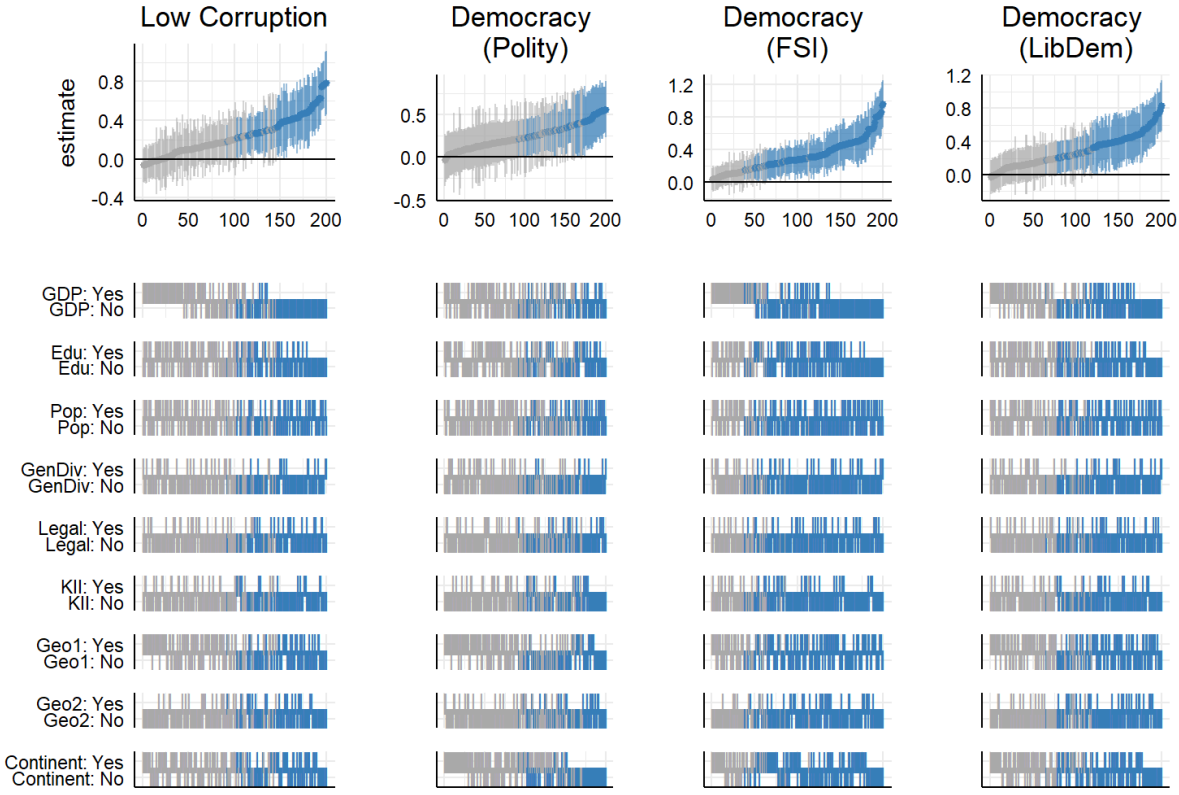


Fig 6. Specification curve of multiverse of analyses that predict country-level social mobility, inequality, conflict, and war from cultural distance across education levels. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates. Top panel depicts effect size estimates across all models, and bottom panel indicates significant based on whether control variables were included as covariates in the model: GDP = log GDP, Edu = average educational attainment, Pop = population, GenDiv = genetic diversity, Legal = legal origin, KII = kinship intensity index, Geo1 = geographic controls (fraction mountainous, non-connected territories, oil, new state, instability), Geo2 = geographic controls (distance to waterways, caloric suitability of land, latitude), Continent = continent.

To further probe the possible relationships between educational group differences and the outcome variables, we also tested exploratory models that allowed for a non-linear association with the outcome variables, by including the squared Education CF_{ST} as an additional predictor (see Supplementary Materials for more details). These models revealed that that a non-linear model was a better fit to the data than a linear model for several variables. The quadratic effect was significant when predicting democracy (FSI Education^2 b = 18.15, 95% CI [11.50, 24.80], p

<.001, LibDem Education^2 b = 0.16 [0.08, 0.25], p <.001, Polity was non-significant, p = .13), although additional robustness checks using the full multiverse of covariates showed that this quadratic effect is only significant in 25% of FSI models and 9% of LibDem models. The quadratic effect was also significant when predicting low corruption, Education^2 b = 12.84 [7.17, 18.50], p <.001 (22% of models significant), and social mobility, Education^2 b = -0.08 [-0.15, -0.01] , p = .021 (12% of models significant), although no significant quadratic effect when predicting intra-state warfare and conflict (ps > .08). In each of these cases, the pattern of effects involved more positive outcomes (more democracy, lower corruption, lower social higher social mobility) at very high, compared to moderate or low levels of education group distance, but very little difference between low and moderate levels of education group distance. Thus, across all of these analyses, high levels of cultural differences between high-education and low-education groups was generally associated with more positive national outcomes. Note that this significant non-linear effect did not appear for any of the other predictors (i.e., CF_{ST} based on region, status, income, ethnicity, and religion groupings).

Subjective Social Status and Income Multiverse

The relationships between two other indicators of socioeconomic status – income and subjective perception of status – and the outcome variables trend in the same direction as the results for education, including slightly greater democracy and less corruption. However, these relationships were generally not robust to including controls in the multiverse: They did not generate more than 21% significant relationships across different model specifications, with the exception of an association between income distances and low-intensity conflict, which was positive and significant in 60% of model specifications, bivariate r = .12, which was significantly

more than expected from a null model, $p = .021$. This lack of associations may be partially due to the lack of variation in cultural distances between income groups and subjective social status groups.

Ethnicity Multiverse

Distances between ethnic groups were not significantly associated with democracy in bivariate correlations (Polity $r = -.08$, FSI $r = -.04$, LibDem $r = -.09$), and only significant in 3% of multiverse model specifications (7% for Polity, 2% for FSI, 1% for LibDem), $p = .45$, although the direction of the effect was negative in 47% of model specifications predicting democracy. Distances between ethnic groups were also not significantly associated with low corruption, $r = -.02$ (0% of multiverse model specifications were significant, although 64% of effects were negative), with low-intensity conflict, $r = .19$ (24% of multiverse model specifications, 99.8% positive effects), or with social mobility, $r = .06$ (<1% of multiverse model specifications, 55% negative effects). However, distances between ethnic groups did predict a greater likelihood of intrastate war, $r = .35$ (50% of multiverse model specifications, 100% positive effects). The associations were significantly larger than expected from null models when predicting mobility, $p < .001$, war, $p = .022$, and low corruption, $p = .028$, but not democracy, $p = .45$, or conflict, $p = .064$.

Religion Multiverse

As bivariate relationships, greater within-country distances between religious groups predicted less corruption, $r = .42$, greater democracy (Polity $r = .26$, $p = .02$, FSI $r = .46$, $p < .001$, LibDem $r = .41$, $p < .001$), greater social mobility, $r = .25$, and less likelihood of intrastate war, $r = -.27$, and conflict, $r = -.23$, ps $< .03$. This pattern, like the pattern for educational fractionalizations, goes against our hypothesis that cultural divisions within a

country will have negative outcomes. However, these bivariate relationships were not robust to alternative analysis strategies. In the multiverse analysis religious distance predicted low corruption in 23% of analyses (87% positive effects), democracy in 15% of analyses (71% positive effects), and greater social mobility in 14% of analyses (91% positive effects), war in 10% of analyses (87% negative effects), and conflict in 3% of analyses (57% negative effects). The associations were significantly larger than expected from null models when predicting mobility, $p < .001$, and corruption, $p = .048$, but not democracy, $p = .69$, war, $p = .17$, or conflict, $p = .49$. Therefore, cultural distances between religious groups were less consistently associated with these outcome variables.

Discussion

We conducted a multiverse of plausible analyses to test the hypothesis that cultural differences between sociodemographic groups within a country are associated with worse country-level outcomes, such as weaker democracies or more intrastate conflict, by creating social coordination and cooperation problems. Contrary to this hypothesis, across a variety of different model specifications there were very few significant associations between cultural distances and negative societal outcomes, when groups were defined by their social status, income, religion, or ethnicity. Only cultural distances between different geographic regions within a country consistently predicted less democracy, greater corruption, less social mobility, and a greater likelihood of intrastate war and low-intensity conflict.

Regional cultural diversity is associated with more negative outcomes

Our findings expand existing theories of how geographical features are relevant to understanding civil conflict (67), by illustrating the negative effects of having divergent cultural traits among regionally separated populations. Why might cultural differences clustered by

geography be especially harmful to national institutions? Our analysis is unable to offer a causal explanation, but suggests that geographic regions indicate clustering of culture, institutions, dialects, and ecologies that may result in conflicting values and interests, as well as having low levels of cross-group interaction. Social psychological studies confirm that positive intergroup contact reduces stigma and improves a range of intergroup attitudes and behaviours (68, 69), whereas conflict is more likely which ethnic groups are localized in specific territories (70). People who live together and interact frequently eventually have to find ways to overcome cultural differences to coordinate and cooperate toward mutual benefit, such as learning to speak the same language or the evolution of norms for tolerance that allow them to effectively engage with people different from themselves. Hostilities may therefore be more likely to arise when cultural outgroups are also geographically distant. As one example of this, a survey of African countries found that ethnic diversity at the immediate community level was associated with more positive socioeconomic outcomes, but cultural diversity at the larger provincial level was associated with more negative outcomes (71).

The current results are therefore compatible with arguments that societal conflict is most likely when different social identities and cultural groups live in different regions, especially overlapping with geographic boundaries. This geographic isolation may allow political movements to mobilize collective action aligned with local grievances (72–74). For example, different geographic regions within a country might have unequal access to resources or political power, or face discrimination, which generates conflict and tension about country-wide policies (75–77). Regional differences may also better capture polarization into meaningful groups that can influence country-level outcomes (such as persistent regional voting blocks (78)), not merely differences between diverse individuals or fractionalized group identities that do not align with

politically significant preferences (45, 79). Future research focusing more on the geographic segregation of culturally different groups may provide insight into which contexts foster conflict and which allow tolerance of cultural diversity, and how the intersection of multiple socio-demographic factors makes it easier to mobilize local group interests, perhaps at the expense of higher levels of cooperation. Our Cultural Fixation index provides a powerful tool to measure the extent that geographic or political groups align with divergent values, beliefs, and preferences.

Our findings point to which particular aspects of cultural diversity are most worthy of future investigation, but cannot identify the causal mechanism. Future longitudinal investigations of how cultural differences and national outcomes are shifting over time would provide valuable insight into whether cultural fractures precede conflict or vice versa. Various historical circumstances and political movements likely play an important role in why people with different cultural traits are clustered in different geographic regions, and once cultural groups are regionally segregated additional intergroup dynamics and political institutions may affect whether these cultural differences produce negative social outcomes. More targeted case studies of particular cultural groups facing political instability and conflict could also help reveal the underlying mechanisms driving tension or tolerance between culturally-divergent groups. Future research may also reveal important contextual or ecological factors that moderate these relationships. Negative intergroup relationships between cultural groups might be most likely to appear under conditions of resource stress, competition over resources, or other external forces that lead to perceptions of zero-sum competition between different groups (3, 41, 80, 81) or weak states and other conditions that facilitate insurgency (22, 35). Conflicts may be less likely to arise when a country is wealthy enough and has well-functioning institutions that allow for people to peacefully negotiate their competing interests. Although we controlled for various economic and

geographic features of countries in these analyses, future research with more nuanced data, or targeting specific settings of intergroup conflict under different conditions of resource scarcity, may be better able to detect such contextual moderators.

Ethnic, religious, and socioeconomic diversity is not typically associated with negative outcomes

Our analyses generally find null associations between other aspects of diversity (status, income, religion, ethnicity) and social outcomes. Cultural differences between people with high vs. low education even had the opposite effect, predicting more stable democracies and lower corruption. Some of these null effects may be due to a lack of variability and floor effects in CF_{ST} scores. Cultural distances between those with high vs. low income or high vs. low status were quite small in all countries. Previous research has documented a variety of psychological differences between those with high vs. low socioeconomic status (82–84), but merely possessing money or status may be a less direct influence on cultural traits, compared to the influence of formal education (which is explicitly designed to shape people's knowledge and perspective) or ethnic, religious, or regional communities that promote shared values.

The observed cultural differences between highly-educated and less-educated people is consistent with previously evidence that exposure to higher education shapes cultural traits (63, 82, 83, 85–88). Education could produce differences in values, priorities, political preferences, and inequal access to resources, along which divides conflict might arise. However, in our data cultural distances based on education predicted, if anything, more positive outcomes, such as lower corruption or more stable democracies. Previous studies have shown that raising overall levels of education within a population predicts a greater preference for democratic values, tolerance, and fair institutions, that ultimately predicts more stable democracies (89–92) and less

corruption (93, 94). Here we focused on the gap in educational attainment rather than the overall level; i.e. whether highly educated people endorse different cultural traits than those with less education in the population. We also find that the effects may be non-linear, with little difference between countries with low- to moderate-cultural distances between education groups, but much higher democracy and lower corruption when there are large differences between education groups. These findings warrant a more thoroughly investigation, for example identifying which specific cultural values or attitudes might be most relevant to sustaining democratic institutions.

Although the range of cultural distances varies between these groupings, these ranges are unlikely to explain the typically null associations when groups were defined by their ethnic or religious identity. For example, cultural distances between ethnic and religious groups showed substantial variation across countries, ranging from $CF_{ST} = 0$ (in Muslim-majority or Christian-majority countries) to $CF_{ST} = .89$ (between Muslims and those with unspecified other religions in the Netherlands), but were not associated with these negative outcomes.

Social identities (including ethnic and religious group membership) are key aspects of how people think about themselves, understand other people, and these group identities structure daily social interactions (95). Religious identities are especially important and are often deeply held convictions (96) with past research showing that religious identities predict meaningful patterns of shared cultural values around the world (53). Our research confirms that ethnic and religious group identities produce some of the largest cultural distances within countries, but contrary to research suggesting that ethnic fractionalizations more generally predicts more conflict and less provisions of public goods (e.g., (10, 46, 97–99)), we find that countries with diverse religious communities were no more likely to have weak democracies, corruption, inequality, or conflict. We find no evidence that religious or ethnic heterogeneity is inherently

problematic, however, we cannot exclude the possibility that ethnic, linguistic, or religious differences may provide the group boundaries for intergroup conflicts under resource stress, inequality, or grievances that produces conflict among people who would peacefully coexist under other circumstances (3, 75, 80, 81, 100).

The only other associations that showed robust significant findings were (a) income-based cultural distances, which predicted a greater likelihood of low intensity conflict, and (b) ethnic cultural distances, which predicted greater conflict and warfare. These finding may be consistent with prior literature arguing that cultural differences between groups are especially problematic when they coincide with unequal access to resources, wealth, and power, as grievances about inequalities create conflict between groups (41, 72, 75). Income- and ethnicity-based cultural distances did not predict a greater likelihood of other negative social outcomes, such as economic inequality, low social mobility, corruption, or weak democracies. Overall, these results suggest that ethnic, religious, and socioeconomic-based cultural distances may only predict certain forms of societal conflict and disfunction, while being unrelated to many other aspects of social coordination.

Future studies would benefit from testing the robustness of these null effects across alternative predictors and outcome indicators of cultural conflict. For example, religious and ethnic cultural distances may be associated with other outcomes, such as greater prejudice and conflict specifically directed towards religious or ethnic outgroups, but not necessarily greater social conflict or weaker democratic institutions in general. Another possibility is that our measure of cultural distance, which aggregated many different values contained within the World Values Survey, may mask the role of conflicts that arise over a single issue that creates tension between otherwise similar groups, such as specific sacred values (5). But the present data offers

no evidence that the mere presence of cultural value differences across many domains – political, sexual, financial, group memberships, and child-rearing preferences – reliably predicts negative outcomes for a country.

Conclusion

Our study provides a more direct method for addressing questions of how cultural differences are associated country-level outcomes by using the cultural fixation index (CF_{ST}) to explicitly quantify the magnitude of differences in cultural values, beliefs, attitudes, and behaviours, across several types of sociodemographic groups (rather than merely measuring the presence of different ethnic identities, which may or may not signify different cultural traits). This same method could be applied by researchers to answer other research questions, such as predicting other outcomes of interest (e.g., innovation), quantifying the cultural differences between other types of groups (e.g., between members of different sociodemographic groups working together in the same corporation), or applying it to a different set of cultural values that researchers find more relevant to their particular research question. Our results show how this measure of cultural differences between groups can be used to robustly test whether within-country cultural diversity predicts conflict and coordination problems. In conclusion, we find that cultural differences between geographic regions may be harmful to higher-level country functioning, but cultural differences between many other social groups can and do exist in well-functioning countries, even when these cultural fractures fall along ethnic or religious lines that can often be so salient in intergroup conflicts.

Methods

Predictors: Cultural distances within each country

Data source

Data were drawn from the World Values Survey (WVS (47), Waves 5 – 7 (2005 – 2022). This dataset contains responses from 268,992 participants from nationally representative samples of 95 countries around the world. At the time of our pre-registration, the final version of WVS Wave 7 was not yet available. For the results reported in this paper, we were able to incorporate Wave 7 and thereby include more countries and participants than we original preregistered. Outcome variables were accordingly also updated to the 2022 scores whenever available, to match the timeframe of the final WVS dataset. Analyses were conducted based on various divisions of this data into groups based on respondents' demographic characteristics. As preregistered, any groups with fewer than 100 respondents (according to the grouping criteria of each analysis) were excluded, to ensure sufficiently large samples sizes for a reliable cultural distance estimate.

All data and code for the present analyses are available on the Open Science Framework (https://osf.io/cgd5h/?view_only=3984976d37394926ac3c4d61cecb0a4c).

Cultural Values

Cultural distance was computed across all values, preferences, beliefs, and self-reported behaviors available in the WVS that are plausibly culturally transmissible (e.g., excluding demographic characteristics, see (19, 101) for a similar approach). These variables include topics such as political, religious, and moral viewpoints, attitudes towards strangers and outgroup members, social relationships, group memberships, and preferences towards child-rearing, sexuality, law, and economics. Following the procedure adopted by Muthukrishna et al. (19),

responses to these questions were collapsed into particular response categories, analogous to alleles in population genetics. Questions with nominal responses were kept as separate response alleles, and valenced responses to Likert-type scales were collapsed into positive vs. negative response categories (e.g., “strongly agree” and “agree” were combined and “disagree” and “strongly disagree” were combined, the midpoint “neither” was treated as a third category), to avoid potential cross-cultural differences in response extremity biases (102, 103) that might bias cultural distance scores. A full list of allele categorizations is available in the attached data and code.

We use the CF_{ST} metric (and relevant R-code) developed by Muthukrishna et al. (19) to assess cultural distances between groups. The Cultural F_{ST} statistic represents the ratio of the variance between subpopulations compared to the total population for responses to each cultural trait question (analogous to how Genetic F_{ST} reflects the variance of particular alleles at a particular locus of a genome). Values of CF_{ST} can range from 0 (when distributions of traits are identical between populations) to 1 (when equal sized populations are largely homogeneous, but exhibit completely different traits), with higher values indicating greater dissimilarity in cultural traits between groups.

Grouping Variables

The following demographic variables within the WVS dataset were used to group participants within each country. ***Education*** was classified as low if less than primary education, and high if greater than secondary education. ***Subjective social status*** was classified as high if “Upper class” or “Upper middle class” or low if “Working class” or “Lower class”. ***Income*** was classified as high if subjective income percentile was at the eighth step or above, and low if subjective income percentile was at the third step or below.

Region was drawn from whatever region classification was used in each country by the WVS. ***Ethnicity*** was likewise drawn from whatever ethnic labels were available in the WVS. Both of these classifications therefore differ somewhat between different countries, but are meant to provide a meaningful unit of analysis identified by local research teams. We used both this ethnic grouping variable, and a classification into ethnolinguistic groups recommended by Desmet and colleagues (46) to reclassify individuals in certain countries where *linguistic* group, rather than *ethnic* group, is arguably a more appropriate identifier.

Religious denomination was drawn from the WVS, and following a previous classification scheme used by White et al. (53), religious denominations were grouped into broader categories that collapsed across different sub-denominations of larger categories of world religions: Roman Catholic Christianity, Orthodox Christianity, other Christian groups (including Protestant, Evangelical, and Pentecostal denominations), Islam (including Sunni, Shia, and a general 'Muslim' option), Buddhism, Judaism, Druze, Spiritualism/Paganism (such as Brazilian Candomblé and Umbanda, Haitian Vodou, and other paganism and spiritualism), Ancestor Worshipping, and Native or Folk religions. This approach has the advantage of providing larger sample sizes than were available for most of the specific unique denominations available in the data, and also aggregated across variability caused by different ways of asking the religious denomination question in each country.

Preliminary investigations of the WVS data showed several cases in which the region, religion, ethnicity, or language variables were coded inconsistently across different waves (i.e., with the same category going by different names in different waves, or with some waves using narrower and some broader levels of classification). The WVS categories for region, religion, ethnicity, and language were therefore recoded to reconcile these inconsistent labels wherever

possible. In cases where different labeling schemes could not be meaningfully reconciled across waves, we only used data from the wave(s) most amenable to analysis. (Exploratory analyses indicated that controlling for the number of groups within each country did not meaningfully change the effects of cultural distances between groups in the multiverse analyses [see Supplementary Table S8], further indicating that it is cultural differences between groups, not merely the presence of different group identities, that matters.)

We ran all analyses using two measures of cultural fractionalizations: the mean of all pairwise distances (mean CF_{ST}) between different groups within a country, and the maximum cultural distance (max CF_{ST}) between different groups within a country (i.e., the distance between high-vs-low education, income, and SES groups, or the largest distance between any two regional, ethnic, or religious groups within a country).

Dependent Variables

The ***success of democracy*** was measured using three separate measures, including the most recent scores from (a) the 2022 Polity IV scores from the polity project (104), (b) the Fragile State Index scores from the Fund for Peace (*FSI* score, (105)), (c) the 2019 Liberal democracy index from the V-Dem institute (*LibDem* score (106)). All variables were coded such that higher numbers indicate more positive country-level outcomes, such as more successful democracy within the country.

Corruption was measured using the 2022 Corruption Perceptions Index (107). Higher scores indicate less corruption within a country.

Conflict was measured through two separate indicators: (a) the presence of an intrastate war since 1990 identified by Desmet et al. ((46), adapted from (22)) or identified in the Correlates of War database (108) and (b) the presence of low-intensity intrastate conflict

according to the Uppsala Conflict Data Program database (109). These variables were coded to indicate the presence or absence of one or more conflicts within the given time period, coded such that 1 indicates the absence of conflict, 0 the presence of conflict, and regression coefficients indicates a reduced probability of conflict within the country. The measures of intrastate war and intrastate conflict were positively correlated, $r = .69$, but were analyzed separately as different indicators of intrastate conflict.

Inequality was be measured using the Gini Coefficient provided by the World Bank (110). Gini Coefficient values were averaged across all values available for each country between 2005 – 2022, and recoded so that higher levels indicate less inequality.

Social mobility was based on the global database on intergenerational mobility (111, 112). Values of intergenerational persistence of were drawn from the association between parents' education (average or maximum) and the education of their children on average (variables: IGP, NL1, NL2, and COR), and recoded such that higher values indicate greater social mobility.

Control Variables

We took GDP per capita, years of education for citizens older than 15, and national population size from the V-Dem Version 10 dataset (106). These variables were entered both one at a time and altogether in separate models.

From Desmet et al. (46) we took various indicators of geographic features of each country, including the fraction of the country that is mountainous, whether it was a country with non-connected territories, the presence of oil, and the state's instability. This cluster of variables was entered together in the model as geographic controls.

Following Desmet et al.'s strategy, we also included several additional controls, one at a time, in addition to these basic controls: the legal origin; genetic diversity (both from (46)); an additional cluster of geographic control variables, including mean distance to waterways, caloric suitability of land for agriculture, absolute latitude; and kinship intensity (both from (113)).

Continent was also included as a fixed effect in the primary multiverse analyses, as well as included in alternative multiverse analyses that used multilevel modeling and included random intercepts by continent to account for geographic clustering of countries.

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Competing Interest Statement

The authors declare no competing interests.

Data availability

All data that support the findings of this study are available on the Open Science Framework at https://osf.io/cgd5h/?view_only=3984976d37394926ac3c4d61cecb0a4c, doi: 10.17605/OSF.IO/CGD5H

Code availability

All code for the analyses reported in this study are available on the Open Science Framework at https://osf.io/cgd5h/?view_only=3984976d37394926ac3c4d61cecb0a4c, doi: 10.17605/OSF.IO/CGD5H

References

1. C. Handley, S. Mathew, Human large-scale cooperation as a product of competition between cultural groups. *Nat. Commun.* **11**, 1–9 (2020).

2. M. Matthews, S. Levin, Testing a dual process model of prejudice: Assessment of group threat perceptions and emotions. *Motiv. Emot.* **36**, 564–574 (2012).

3. B. M. Riek, E. W. Mania, S. L. Gaertner, Intergroup Threat and Outgroup Attitudes: A Meta-Analytic Review. *Personal. Soc. Psychol. Rev.* **10**, 336–353 (2006).

4. L. J. Wolf, N. Weinstein, G. R. Maio, Anti-immigrant prejudice: Understanding the roles of (perceived) values and value dissimilarity. *J. Pers. Soc. Psychol.* **117**, 925–953 (2019).

5. S. Atran, J. Ginges, Religious and sacred imperatives in human conflict. *Science* **336**, 855–857 (2012).

6. B. K. L. Ng, W. M. Gervais, "Religion and Prejudice" in *The Cambridge Handbook of the Psychology of Prejudice*, Cambridge Handbooks in Psychology., C. G. Sibley, F. K. Barlow, Eds. (Cambridge University Press, 2016), pp. 344–370.

7. V. Saroglou, Intergroup Conflict, Religious Fundamentalism, and Culture. *J. Cross-Cult. Psychol.* **47**, 33–41 (2016).

8. C. A. Sharp, C. Leicht, "Beyond belief systems: Promoting a social identity approach to the study of science and religion" in *Identity in a Secular Age: Science, Religion, and Public Perceptions*, (University of Pittsburgh Press, 2020), pp. 111–126.

9. J. Habyarimana, M. Humphreys, D. N. Posner, J. M. Weinstein, Why Does Ethnic Diversity Undermine Public Goods Provision? *Am. Polit. Sci. Rev.* **101**, 709–725 (2007).

10. A. Alesina, E. L. Ferrara, Ethnic Diversity and Economic Performance. *J. Econ. Lit.* **43**, 762–800 (2005).

11. R. D. Putnam, E Pluribus Unum: Diversity and Community in the Twenty-first Century The 2006 Johan Skytte Prize Lecture. *Scand. Polit. Stud.* **30**, 137–174 (2007).

12. S. Sequeira, N. Nunn, N. Qian, Immigrants and the Making of America. *Rev. Econ. Stud.* **87**, 382–419 (2020).

13. M. Nathan, N. Lee, Cultural Diversity, Innovation, and Entrepreneurship: Firm-level Evidence from London. *Econ. Geogr.* **89**, 367–394 (2013).

14. P. Parrotta, D. Pozzoli, M. Pytlikova, The nexus between labor diversity and firm's innovation. *J. Popul. Econ.* **27**, 303–364 (2014).

15. B. K. AlShebli, T. Rahwan, W. L. Woon, The preeminence of ethnic diversity in scientific collaboration. *Nat. Commun.* **9**, 5163 (2018).

16. M. Posch, J. Schulz, J. Henrich, How Social Structure Drives Innovation: Surname Diversity and Patents in U.S. History. [Preprint] (2024). Available at: https://papers.ssrn.com/abstract=4531209 [Accessed 5 June 2025].

17. H. Qian, Diversity Versus Tolerance: The Social Drivers of Innovation and Entrepreneurship in US Cities. *Urban Stud.* **50**, 2718–2735 (2013).

18. R. Schimmelpfennig, L. Razek, E. Schnell, M. Muthukrishna, Paradox of diversity in the collective brain. *Philos. Trans. R. Soc. B Biol. Sci.* **377**, 20200316 (2021).

19. M. Muthukrishna, *et al.*, Beyond Western, Educated, Industrial, Rich, and Democratic (WEIRD) Psychology: Measuring and Mapping Scales of Cultural and Psychological Distance. *Psychol. Sci.* 095679762091678 (2020). https://doi.org/10/ggxkjb.

20. A. Alesina, A. Devleeschauwer, W. Easterly, S. Kurlat, R. Wacziarg, Fractionalization. *J. Econ. Growth* **8**, 155–194 (2003).

21. J. D. Fearon, Ethnic and Cultural Diversity by Country. *J. Econ. Growth* **8**, 195–222 (2003).

22. J. D. Fearon, D. D. Laitin, Ethnicity, Insurgency, and Civil War. *Am. Polit. Sci. Rev.* **97**, 75–90 (2003).

23. P. Karnane, M. A. Quinn, Political instability, ethnic fractionalization and economic growth. *Int. Econ. Econ. Policy* **16**, 435–461 (2019).

24. O. S. McDoom, R. M. Gisselquist, The Measurement of Ethnic and Religious Divisions: Spatial, Temporal, and Categorical Dimensions with Evidence from Mindanao, the Philippines. *Soc. Indic. Res. Dordr.* **129**, 863–891 (2016).

25. A. Alesina, E. Zhuravskaya, Segregation and the Quality of Government in a Cross Section of Countries. *Am. Econ. Rev.* **101**, 1872–1911 (2011).

26. A. Annett, Social Fractionalization, Political Instability, and the Size of Government. *IMF Staff Pap.* **48**, 561–592 (2001).

27. L. Blanco, R. Grier, Long Live Democracy: The Determinants of Political Instability in Latin America. *J. Dev. Stud.* **45**, 76–95 (2009).

28. G. P. Casey, A. L. Owen, Inequality and Fractionalization. *World Dev.* **56**, 32–50 (2014).

29. J. T. Dada, F. M. Ajide, M. Arnaut, M. A. S. Al-Faryan, On the contributing factors to shadow economy in Africa: Do natural resources, ethnicity and religious diversity make any difference? *Resour. Policy* **88**, 104478 (2024).

30. I. A. A. Firdaus, C. B. G. I. Pradana, C. Sugiyanto, Analysing the Link between Population Diversity, Population Growth, and Income: A Panel Data Stud. [Preprint] (2024). Available at: https://doi.org/10.21203/rs.3.rs-3932735/v1 [Accessed 1 March 2024].

31. E. Papyrakis, P. H. Mo, Fractionalization, polarization, and ecnomic growth: Identifying the transmission channels. *Econ. Inq.* **52**, 1204–1218 (2014).

32. S. B. Valentine, M. M. N. I. Motande, Financial Access and Income Inequality in Sub-Saharan Africa: Does Ethnic Fragmentation Give New Evidence? *Econ. Syst.* 101200 (2024). https://doi.org/10.1016/j.ecosys.2024.101200.

33. T. Powell-Jackson, S. Basu, D. Balabanova, M. McKee, D. Stuckler, Democracy and growth in divided societies: A health-inequality trap? *Soc. Sci. Med.* **73**, 33–41 (2011).

34. Indra, S. Nazara, D. Hartono, S. Sumarto, Roles of Income Polarization, Income Inequality and Ethnic Fractionalization in Social Conflicts: An Empirical Study of Indonesian Provinces, 2002–2012. *Asian Econ. J.* **33**, 165–190 (2019).

35. P. Collier, A. Hoeffler, Greed and grievance in civil war. *Oxf. Econ. Pap.* **56**, 563–595 (2004).

36. M. S. Fish, M. Kroenig, Diversity, Conflict and Democracy: Some Evidence from Eurasia and East Europe. *Democratization* **13**, 828–842 (2006).

37. E. Spolaore, R. Wacziarg, War and Relatedness. *Rev. Econ. Stat.* **98**, 925–939 (2016).

38. E. Spolaore, R. Wacziarg, "The Political Economy of Heterogeneity and Conflict" (National Bureau of Economic Research, 2017).

39. I. de Soysa, S. Almås, Does Ethnolinguistic Diversity Preclude Good Governance? A Comparative Study with Alternative Data, 1990-2015. *Kyklos* **72**, 604–636 (2019).

40. C. Jensen, S.-E. Skaaning, Modernization, ethnic fractionalization, and democracy. *Democratization* **19**, 1117–1137 (2012).

41. K. Baldwin, J. D. Huber, Economic versus cultural differences: Forms of ethnic diversity and public goods provision. *Am. Polit. Sci. Rev.* **104**, 644–662 (2010).

42. M. Brueckner, Democracy and Corruption. *J. Risk Financ. Manag.* **14**, 492 (2021).

43. E. M. Buitrago, M. Á. Caraballo, J. L. Roldán, Do Tolerant Societies Demand Better Institutions? *Soc. Indic. Res.* **143**, 1161–1184 (2019).

44. I. van Staveren, Z. Pervaiz, Is it Ethnic Fractionalization or Social Exclusion, Which Affects Social Cohesion? *Soc. Indic. Res. Dordr.* **130**, 711–731 (2017).

45. J. G. Montalvo, M. Reynal-Querol, Ethnic Polarization, Potential Conflict, and Civil Wars. *Am. Econ. Rev.* **95**, 796–816 (2005).

46. K. Desmet, I. Ortuño-Ortín, R. Wacziarg, Culture, Ethnicity, and Diversity. *Am. Econ. Rev.* **107**, 2479–2513 (2017).

47. R. Inglehart, *et al.*, World Values Survey: All Rounds – Country-Pooled Datafile. JD Systems Institute & WVSA Secretariat. https://doi.org/10.14281/18241.17. Deposited 2022.

48. M. Atari, *et al.*, Morality Beyond the WEIRD: How the Nomological Network of Morality Varies Across Cultures. *J. Pers. Soc. Psychol.* **125**, 1157–1188 (2023).

49. E. Awad, *et al.*, The Moral Machine experiment. *Nature* **563**, 59–64 (2018).

50. D. Medvedev, D. Davenport, T. Talhelm, Y. Li, The motivating effect of monetary over psychological incentives is stronger in WEIRD cultures. *Nat. Hum. Behav.* **8**, 456–470 (2024).

51. B. T. Rutjens, *et al.*, Science Skepticism Across 24 Countries. *Soc. Psychol. Personal. Sci.* **13**, 102–117 (2022).

52. M. Atari, M. Xue, P. Park, D. Blasi, J. Henrich, Which Humans? [Preprint] (2023). Available at: https://osf.io/5b26t_v1 [Accessed 6 June 2025].

53. C. J. M. White, M. Muthukrishna, A. Norenzayan, Cultural similarity among coreligionists within and between countries. *Proc. Natl. Acad. Sci.* **118** (2021).

54. A. B. Cohen, Many forms of culture. *Am. Psychol.* **64**, 194–204 (2009).

55. S. Steegen, F. Tuerlinckx, A. Gelman, W. Vanpaemel, Increasing Transparency Through a Multiverse Analysis. *Perspect. Psychol. Sci.* **11**, 702–712 (2016).

56. U. Simonsohn, J. P. Simmons, L. D. Nelson, Specification curve analysis. *Nat. Hum. Behav.* **4**, 1208–1214 (2020).

57. M. Del Giudice, S. W. Gangestad, A Traveler's Guide to the Multiverse: Promises, Pitfalls, and a Framework for the Evaluation of Analytic Decisions. *Adv. Methods Pract. Psychol. Sci.* **4**, 2515245920954925 (2021).

58. F. Dürlinger, J. Pietschnig, Meta-analyzing intelligence and religiosity associations: Evidence from the multiverse. *PLOS ONE* **17**, e0262699 (2022).

59. S. S. Webb, N. Demeyere, Using Multiverse Analysis to Highlight Differences in Convergent Correlation Outcomes Due to Data Analytical and Study Design Choices. *Assessment* **30**, 1825–1835 (2023).

60. R. Frey, D. Richter, J. Schupp, R. Hertwig, R. Mata, Identifying Robust Correlates of Risk Preference: A Systematic Approach Using Specification Curve Analysis. *J. Pers. Soc. Psychol.* **120**, 538–557 (2021).

61. K. Chaudhuri, A. Piper, Order out of Chaos: A Specification Curve Analysis of Age and Wellbeing. [Preprint] (2025). Available at: https://papers.ssrn.com/abstract=5740148 [Accessed 22 December 2025].

62. S. J. Ceci, How much does schooling influence general intelligence and its cognitive components? A reassessment of the evidence. *Dev. Psychol.* **27**, 703–722 (1991).

63. I. Kroupin, H. E. Davis, T. C. Zeng, J. Henrich, Back to school: How formal education has shaped almost all of cognitive science. [Preprint] (2024). Available at: https://osf.io/tqy2n [Accessed 2 September 2024].

64. J. W. Meyer, World society, institutional theories, and the actor. *Annu. Rev. Sociol.* **36**, 1–20 (2010).

65. C. J. M. White, M. Muthukrishna, More educated people are more WEIRD: Higher education predicts global cultural similarity to WEIRD countries. [Preprint] (2025). Available at: https://osf.io/8wr5d_v1 [Accessed 30 January 2025].

66. P. K. Masur, M. Scharkow, specr: Conducting and visualizing specification curve analyses. (2020). Deposited 2020.

67. H. Buhaug, S. Gates, The Geography of Civil War. *J. Peace Res.* **39**, 417–433 (2002).

68. A. Love, M. Hewstone, "Intergroup Contact and Prejudice Reduction: Three Guiding Principles" in *Social Psychology: Handbook of Basic Principles*, P. A. M. Van Lange, E. T. Higgins, A. W. Kruglanski, Eds. (Guilford Publications, 2020), pp. 430–451.

69. T. F. Pettigrew, L. R. Tropp, A meta-analytic test of intergroup contact theory. *J. Pers. Soc. Psychol.* **90**, 751–783 (2006).

70. N. B. Weidmann, J. K. Rød, L.-E. Cederman, Representing ethnic groups in space: A new dataset. *J. Peace Res.* **47**, 491–499 (2010).

71. D. Fielding, Community-level ethnic diversity and community-level socio-economic development: evidence from 20 African countries. *N. Z. Econ. Pap.* **0**, 1–19 (2023).

72. J. R. Gubler, J. S. Selway, Horizontal Inequality, Crosscutting Cleavages, and Civil War. *J. Confl. Resolut.* **56**, 206–232 (2012).

73. G. Østby, Polarization, Horizontal Inequalities and Violent Civil Conflict. *J. Peace Res.* **45**, 143–162 (2008).

74. D. Brancati, Decentralization: Fueling the Fire or Dampening the Flames of Ethnic Conflict and Secessionism? *Int. Organ.* **60**, 651–685 (2006).

75. L.-E. Cederman, N. B. Weidmann, K. S. Gleditsch, Horizontal Inequalities and Ethnonationalist Civil War: A Global Comparison. *Am. Polit. Sci. Rev.* **105**, 478–495 (2011).

76. L. Alcorta, H. J. Swedlund, J. Smits, Discrimination and ethnic conflict: a dyadic analysis of politically-excluded groups in sub-Saharan Africa. *Int. Interact.* **46**, 251–273 (2020).

77. A. Lee, Ethnic Diversity and Ethnic Discrimination: Explaining Local Public Goods Provision. *Comp. Polit. Stud.* **51**, 1351–1383 (2018).

78. C. Boone, M. Wahman, S. Kyburz, A. Linke, Regional cleavages in African politics: Persistent electoral blocs and territorial oppositions. *Polit. Geogr.* **99**, 102741 (2022).

79. J. Esteban, L. Mayoral, D. Ray, Ethnicity and Conflict: An Empirical Study. *Am. Econ. Rev.* **102**, 1310–1342 (2012).

80. C. K. W. De Dreu, J. Gross, A. Fariña, Y. Ma, Group Cooperation, Carrying-Capacity Stress, and Intergroup Conflict. *Trends Cogn. Sci.* **24**, 760–776 (2020).

81. D. Y. Mousseau, M. Mousseau, Allocation of public goods, ethnic favouritism and the risk of local ethnic wars in sub-Saharan Africa. *Politikon* **50**, 41–60 (2023).

82. R. M. Carey, H. R. Markus, Social class shapes the form and function of relationships and selves. *Curr. Opin. Psychol.* **18**, 123–130 (2017).

83. I. Grossmann, M. E. W. Varnum, Social Class, culture, and cognition. *Soc. Psychol. Personal. Sci.* **2**, 81–89 (2011).

84. M. W. Kraus, P. K. Piff, R. Mendoza-Denton, M. L. Rheinschmidt, D. Keltner, Social class, solipsism, and contextualism: How the rich are different from the poor. *Psychol. Rev.* **119**, 546–572 (2012).

85. L. Hooghe, G. Marks, How does the education cleavage stack up against the classic cleavages of the past? *West Eur. Polit.* **0**, 1–33 (2025).

86. M. Coenders, P. Scheepers, The Effect of Education on Nationalism and Ethnic Exclusionism: An International Comparison. *Polit. Psychol.* **24**, 313–343 (2003).

87. G. T. Wodtke, The Impact of Education on Intergroup Attitudes: A Multiracial Analysis. *Soc. Psychol. Q.* **75**, 80–106 (2012).

88. H. H. Hyman, P. B. Sheatsley, Attitudes toward desegregation. *Sci. Am.* **211**, 16–23 (1964).

89. W. Lutz, S. KC, Global Human Capital: Integrating Education and Population. *Science* **333**, 587–592 (2011).

90. N. Apergis, Education and democracy: New evidence from 161 countries. *Econ. Model.* **71**, 59–67 (2018).

91. R. J. Barro, Determinants of Democracy. *J. Polit. Econ.* **107**, S158–S183 (1999).

92. A. Castelló-Climent, On the distribution of education and democracy. *J. Dev. Econ.* **87**, 179–190 (2008).

93. E. L. Glaeser, R. E. Saks, Corruption in America. *J. Public Econ.* **90**, 1053–1072 (2006).

94. H. Y. Cheung, A. W. H. Chan, Corruption across countries: Impacts from education and cultural dimensions. *Soc. Sci. J.* **45**, 223–239 (2008).

95. N. Ellemers, D. de Gilder, "Categorization and Identity as Motivational Principles in Intergroup Relations" in *Social Psychology: Handbook of Basic Principles*, P. A. M. Van Lange, E. T. Higgins, A. W. Kruglanski, Eds. (Guilford Publications, 2020), pp. 452–472.

96. R. Ysseldyk, K. Matheson, H. Anisman, Religiosity as identity: Toward an understanding of religion from a social identity perspective. *Personal. Soc. Psychol. Rev.* **14**, 60–71 (2010).

97. W. Easterly, R. Levine, Africa's Growth Tragedy: Policies and Ethnic Divisions. *Q. J. Econ.* **112**, 1203–1250 (1997).

98. B. Gershman, U. Ameesh, Fragmentation or Inequality? Ethnic Divisions and Conflict in Sub-Saharan Africa. [Preprint] (2025). Available at: https://papers.ssrn.com/abstract=5226633 [Accessed 3 December 2025].

99. B. Gershman, D. Rivera, Subnational diversity in Sub-Saharan Africa: Insights from a new dataset. *J. Dev. Econ.* **133**, 231–263 (2018).

100. R. Bhavnani, D. Miodownik, Ethnic Polarization, Ethnic Salience, and Civil War. *J. Confl. Resolut.* **53**, 30–49 (2009).

101. A. V. Bell, P. J. Richerson, R. McElreath, Culture rather than genes provides greater scope for the evolution of large-scale human prosociality. *Proc. Natl. Acad. Sci. U. S. A.* **106**, 17671–17674 (2009).

102. C. Chen, S. Lee, H. W. Stevenson, Response Style and Cross-Cultural Comparisons of Rating Scales Among East Asian and North American Students. *Psychol. Sci.* **6**, 170–175 (1995).

103. D. J. Hruschka, S. Munira, K. Jesmin, J. Hackman, L. Tiokhin, Learning from failures of protocol in cross-cultural research. *Proc. Natl. Acad. Sci.* **115**, 11428–11434 (2018).

104. Polity IV, Polity IV Annual Time Series: 1800-2018. (2018).

105. The Fund for Peace, Fragile States Index. (2023).

106. M. Coppedge, *et al.*, V-Dem Codebook v9. (2019).

107. Corruption Perceptions Index. (2022).

108. M. R. Sarkees, F. Wayman, Resort to War: 1816 - 2007. (2010).

109. E. Melander, F. Möller, M. Öberg, Managing Intrastate Low-Intensity Armed Conflict 1993-2004: A New Dataset. *Int. Interact.* **35** (2009).

110. World Bank, Gini Index. (2022).

111. GDIM, Global Database on Intergenerational Mobility. (2018).

112. A. Narayan, *et al.*, *Fair progress?: Economic mobility across generations around the world* (The World Bank, 2018).

113. J. F. Schulz, D. Bahrami-Rad, J. P. Beauchamp, J. Henrich, The Church, intensive kinship, and global psychological variation. *Science* **366** (2019).

Supplementary Materials for

Geographically Segregated Culture is associated with Lower Mobility, Weaker Democracy, and Risk of Civil Conflict

Table S1. Bivariate correlations between variables. Black values are significant at p < .05, while grey values are non-significant. Values are mirrored in lower and upper triangle of the table.

	Education distance	*Status distance*	*Income distance*	*Region distance*	*Ethnicity distance*	*Ethno-linguistic distance*	*Religion distance*	*Democracy: Polity*	*Democracy: FSI*	*Democracy: LibDem*	*Low Corruption*	*Low Inequality: GINI*	*Social Mobility: IGP avg*	*No War*	*No Conflict*	*Avg. Educational Attainment*	*GDP per capita (log)*	*Population*	*Mountainousness*	*Non-contiguous territories*	*Oil*	*State Instability*	*Kinship intensity*	*Genetic diversity*	*Distance to waterways*	*Suitability for Agriculture*	*Latitude*
Education distance		.34	.23	-.33	-.04	-.04	.28	.37	.47	.39	.42	.06	-.23	-.21	-.2	.35	.4	.01	-.01	.13	-.15	-.18	-.36	-.17	-.15	.13	.14
Status distance	.34		.44	-.08	-.06	-.14	.12	.11	.25	.27	.29	-.1	.03	-.1	-.06	.16	.18	.06	.14	-.1	.02	-.07	-.09	-.05	-.16	.03	.2
Income distance	.23	.44		.04	.14	.09	.28	.09	.18	.21	.24	-.03	.07	.1	.12	.01	.19	.06	.25	-.19	-.06	0	-.02	-.03	-.03	-.13	.1
Region distance	-.33	-.08	.04		.1	.17	-.14	-.32	-.47	-.46	-.47	-.1	.34	.26	.29	-.36	-.4	.16	.09	-.29	.11	.15	.35	.18	.22	-.11	-.11
Ethnicity distance	-.04	-.06	.14	.1		.76	.14	-.08	-.04	-.09	-.02	.08	.06	.35	.19	-.02	.03	.42	.24	.17	.02	-.21	.11	-.15	.26	-.31	-.07
Ethno-linguistic distance	-.04	-.14	.09	.17	.76		.19	.02	-.04	.02	.02	.13	.01	.19	.16	-.03	.05	.14	.03	.13	-.04	-.09	.01	-.08	.22	-.24	-.08
Religion distance	.28	.12	.28	-.14	.14	.19		.26	.46	.41	.43	-.07	-.25	-.27	-.23	.42	.43	.15	-.09	.23	-.28	-.26	-.44	-.28	-.09	.2	.2
Democracy: Polity	.37	.11	.09	-.32	-.08	.02	.26		.41	.73	.39	.06	-.16	-.19	-.1	.31	.25	-.1	-.15	.24	-.25	-.18	-.48	-.23	-.28	.3	.19
Democracy: FSI	.47	.25	.18	-.47	-.04	-.04	.46	.41		.8	.9	-.31	-.51	-.53	-.49	.78	.86	-.11	-.16	.28	-.25	-.31	-.51	-.25	-.23	.06	.56
Democracy: LibDem	.39	.27	.21	-.46	-.09	.02	.41	.73	.8		.76	-.11	-.43	-.39	-.35	.62	.64	-.14	-.12	.27	-.3	-.33	-.53	-.27	-.35	.16	.42
Low Corruption	.42	.29	.24	-.47	-.02	.02	.43	.39	.9	.76		-.27	-.43	-.44	-.38	.65	.77	-.06	-.06	.24	-.34	-.34	-.4	-.11	-.25	.01	.48
Low Inequality: GINI	-.06	.1	.03	.1	-.08	-.13	.07	-.06	.31	.11	.27		.14	.05	.11	.45	.35	-.07	-.19	.03	.19	-.13	.09	.44	0	-.04	.64
Social Mobility: IGP avg	.23	-.03	-.07	-.34	-.06	-.01	.25	.16	.51	.43	.43	.14		.31	.24	.73	.57	-.2	-.17	.34	-.02	-.24	-.39	-.15	-.02	-.16	.43
No War	.21	.1	-.1	-.26	-.35	-.19	.27	.19	.53	.39	.44	.05	.31		.61	.34	.37	-.28	-.26	-.05	-.25	-.16	-.25	-.18	-.16	.14	.18
No Conflict	.2	.06	-.12	-.29	-.19	-.16	.23	.1	.49	.35	.38	.11	.24	.61		.36	.40	-.16	-.2	-.07	-.22	-.2	-.15	-.04	-.23	.24	.31
Avg. Educational Attainment	.35	.16	.01	-.36	-.02	-.03	.42	.31	.78	.62	.65	-.45	-.73	-.34	-.36		.81	-.21	-.08	.35	-.13	-.21	-.48	-.09	-.09	.05	.66
GDP per capita (log)	.4	.18	.19	-.4	.03	.05	.43	.25	.86	.64	.77	-.35	-.57	-.37	-.4	.81		-.06	-.12	.35	-.13	-.26	-.4	-.17	-.21	-.04	.57
Population	.01	.06	.06	.16	.42	.14	.15	-.1	-.11	-.14	-.06	.07	.2	.28	.16	-.21	-.06		.06	.15	-.05	-.13	.05	-.02	.07	-.02	-.09
Mountainousness	-.01	.14	.25	.09	.24	.03	-.09	-.15	-.16	-.12	-.06	.19	.17	.26	.2	-.08	-.12	.06		-.1	-.07	.04	.01	-.06	.17	-.19	-.11

	Education distance	*Status distance*	*Income distance*	*Region distance*	*Ethnicity distance*	*Ethno-linguistic distance*	*Religion distance*	*Democracy: Polity*	*Democracy: FSI*	*Democracy: LibDem*	*Low Corruption*	*Low Inequality: GINI*	*Social Mobility: IGP avg*	*No War*	*No Conflict*	*Avg. Educational Attainment*	*GDP per capita (log)*	*Population*	*Mountainousness*	*Non-contiguous territories*	*Oil*	*State Instability*	*Kinship intensity*	*Genetic diversity*	*Distance to waterways*	*Suitability for Agriculture*	*Latitude*
Non-contiguous territories	.13	-.1	-.19	-.29	.17	.13	.23	.24	.28	.27	.24	-.03	-.34	.05	.07	.35	.35	.15	-.1		-.03	-.23	-.39	-.1	-.06	.03	.04
Oil	-.15	.02	-.06	.11	.02	-.04	-.28	-.25	-.25	-.3	-.34	-.19	.02	.25	.22	-.13	-.13	-.05	-.07	-.03		.12	.28	.04	.25	-.3	-.04
State Instability	-.18	-.07	0	.15	-.21	-.09	-.26	-.18	-.31	-.33	-.34	.13	.24	.16	.2	-.21	-.26	-.13	.04	-.23	.12		.16	.23	.24	.07	-.11
Kinship intensity	-.36	-.09	-.02	.35	.11	.01	-.44	-.48	-.51	-.53	-.4	-.09	.39	.25	.15	-.48	-.4	.05	.01	-.39	.28	.16		.45	.29	-.34	-.23
Genetic diversity	-.17	-.05	-.03	.18	-.15	-.08	-.28	-.23	-.25	-.27	-.11	-.44	.15	.18	.04	-.09	-.17	-.02	-.06	-.1	.04	.23	.45		.15	.02	.29
Distance to waterways	-.15	-.16	-.03	.22	.26	.22	-.09	-.28	-.23	-.35	-.25	0	.02	.16	.23	-.09	-.21	.07	.17	-.06	.25	.24	.29	.15		-.36	.11
Suitability for Agriculture	.13	.03	-.13	-.11	-.31	-.24	.2	.3	.06	.16	.01	.04	.16	-.14	-.24	.05	-.04	-.02	-.19	.03	-.3	.07	-.34	.02	-.36		.01
Latitude	.14	.2	.1	-.11	-.07	-.08	.2	.19	.56	.42	.48	-.64	-.43	-.18	-.31	.66	.57	-.09	-.11	.04	-.04	-.11	-.23	.29	.11	.01	

Number of groups within each country

Table S2. The number of unique groups within each country with ≥100 members, for each of the different sociodemographic groupings, based on: geographic region, educational attainment, status level, income level, ethnic group, ethnolinguistic group, religious groups. These values exclude groups with <100 members, which were not used in the multiverse analysis due to unreliability of cultural distance scores with such small sample sizes per group.

Country	Region	Education	Status	Income	Ethnicity	Ethnolinguistic	Religion
Algeria	5	3	3	3	3	2	1
Andorra	5	3	3	3	1	4	2
Argentina	6	3	3	3	2	2	3
Armenia	4	2	3	3	1	1	2
Australia	7	3	3	3	3	3	3
Azerbaijan	3	2	3	1	1	1	1
Bangladesh	5	3	2	3	1	1	2
Belarus	7	2	3	2	2	2	3
Bolivia	7	3	3	3	3	3	3
Brazil	11	3	3	3	3	3	4
Bulgaria	5	3	3	2	1	1	2
Burkina Faso	9	2	2	2	1	4	3
Canada	8	3	3	3	6	3	5
Chile	4	3	3	3	4	4	3
China	32	3	3	3	1	1	4
Colombia	9	3	3	3	6	6	3
Cyprus	8	3	3	3	1	2	3
Czechia	4	2	3	3	1	1	2
Ecuador	4	3	3	3	4	4	3
Egypt	16	3	3	3	1	1	2
Estonia	5	2	3	2	1	2	3
Ethiopia	9	3	3	3	4	4	3
Finland	2	3	3	3	1	1	2
France	5	3	NA	2	1	1	2
Georgia	9	2	3	2	NA	1	1
Germany	13	3	3	3	1	2	4
Ghana	8	3	3	3	5	5	5
Greece	2	3	3	2	1	1	1
Guatemala	4	3	3	3	4	4	3
Haiti	NA	2	1	2	1	1	4
Hong Kong	14	3	3	3	1	1	4
Hungary	2	3	2	2	1	1	3
India	17	3	3	3	2	16	4
Indonesia	6	3	3	3	5	5	4
Iran	15	3	3	3	5	5	1

Country	Region	Education	Status	Income	Ethnicity	Ethnolinguistic	Religion
Iraq	18	3	3	3	3	3	1
Italy	2	3	3	3	1	1	2
Japan	5	3	3	3	1	1	3
Jordan	10	3	3	3	1	1	1
Kazakhstan	11	2	3	3	3	3	3
Kenya	NA	3	3	2	5	5	3
Kuwait	6	2	3	3	NA	NA	1
Kyrgyzstan	8	2	3	3	6	3	3
Lebanon	9	3	3	3	1	1	5
Libya	12	3	3	3	2	2	1
Macau	1	3	3	2	1	1	2
Malaysia	13	3	3	3	3	3	4
Maldives	1	3	3	3	1	1	1
Mali	6	3	3	3	1	1	1
Mexico	20	3	3	3	3	3	3
Moldova	3	2	3	3	1	1	1
Mongolia	4	2	3	3	1	1	2
Morocco	15	3	3	3	3	2	1
Myanmar	6	3	3	3	1	1	1
Netherlands	12	3	3	3	2	2	5
New Zealand	8	2	3	3	2	1	3
Nicaragua	3	3	2	3	1	1	3
Nigeria	8	3	3	3	4	6	4
Northern Ireland	NA	2	NA	1	2	2	2
Norway	6	3	3	3	NA	1	2
Pakistan	4	3	3	3	5	5	1
Palestine	2	3	3	2	NA	NA	1
Peru	16	3	3	3	4	4	4
Philippines	4	3	3	3	3	3	4
Poland	2	3	3	2	1	1	1
Puerto Rico	6	2	3	3	3	3	3
Qatar	3	3	2	2	NA	NA	1
Romania	18	3	3	3	1	1	3
Russia	9	3	3	3	3	3	3
Rwanda	5	3	3	3	1	1	4
Serbia	5	3	3	3	1	1	2
Singapore	4	3	3	3	3	3	7
Slovakia	NA	2	3	3	1	1	3
Slovenia	8	3	3	3	NA	1	2
South Africa	9	3	3	3	4	9	7
South Korea	12	3	3	3	1	1	4
Spain	8	3	2	2	NA	2	2
Sweden	10	3	3	3	1	1	2

Country	Region	Education	Status	Income	Ethnicity	Ethnolinguistic	Religion
Switzerland	3	3	3	3	NA	NA	3
Taiwan	7	3	3	3	3	3	7
Tajikistan	4	2	3	2	2	2	1
Thailand	5	3	3	3	1	6	2
Trinidad and Tobago	8	3	3	3	3	3	5
Tunisia	12	3	3	3	1	1	1
Turkey	18	3	3	3	NA	2	1
Ukraine	12	3	3	3	2	2	4
United Kingdom	4	2	NA	3	2	2	4
United States	9	2	3	3	5	5	5
Uruguay	3	3	3	3	2	2	4
Uzbekistan	8	2	3	3	1	1	1
Venezuela	4	3	3	2	3	3	3
Vietnam	7	3	3	3	2	2	4
Yemen	3	3	3	2	1	1	1
Zambia	6	3	3	3	1	4	3
Zimbabwe	10	3	3	3	2	2	4

Control variables in specifications

Due to power concerns given the relatively small sample size, we ran models with several different clusters of control variables, rather than running all possible combinations of all control variables. We created models that included every possible combination of clusters of control variables, listed in Table S3 (but did not test every possible combination of covariates within each cluster).

Table S3. Clusters of control variables used in the multiverse of analyses

Cluster	Variables	Details
A	One or none of the following: • GDP per capita • average educational attainment • population size • GDP per capita + average educational attainment + population size	Drawn from V-Dem Version 10 dataset (Coppedge et al., 2019)
B	All or none of the following: • Mountainousness + contiguity + oil resources + instability	Drawn from Desmet et al. (2017), averaged across the years ≥ 1990, which most closely align with the timeframe of other variables in this dataset.
C	One or none of the following: • legal origin • genetic diversity • kinship intensity • waterways + agricultural suitability + and latitude	Legal origin and genetic diversity was taken from Desmet et al., (2017). Mean distance to waterways, caloric suitability of land for agriculture, absolute latitude, and kinship intensity were taken from (Schulz et al., 2019).
D	Continent fixed effects or no continent fixed effects[1]	

[1] Only in linear models (Multiverses A and B) that did not include continent as a random factor (see Multiverse C)

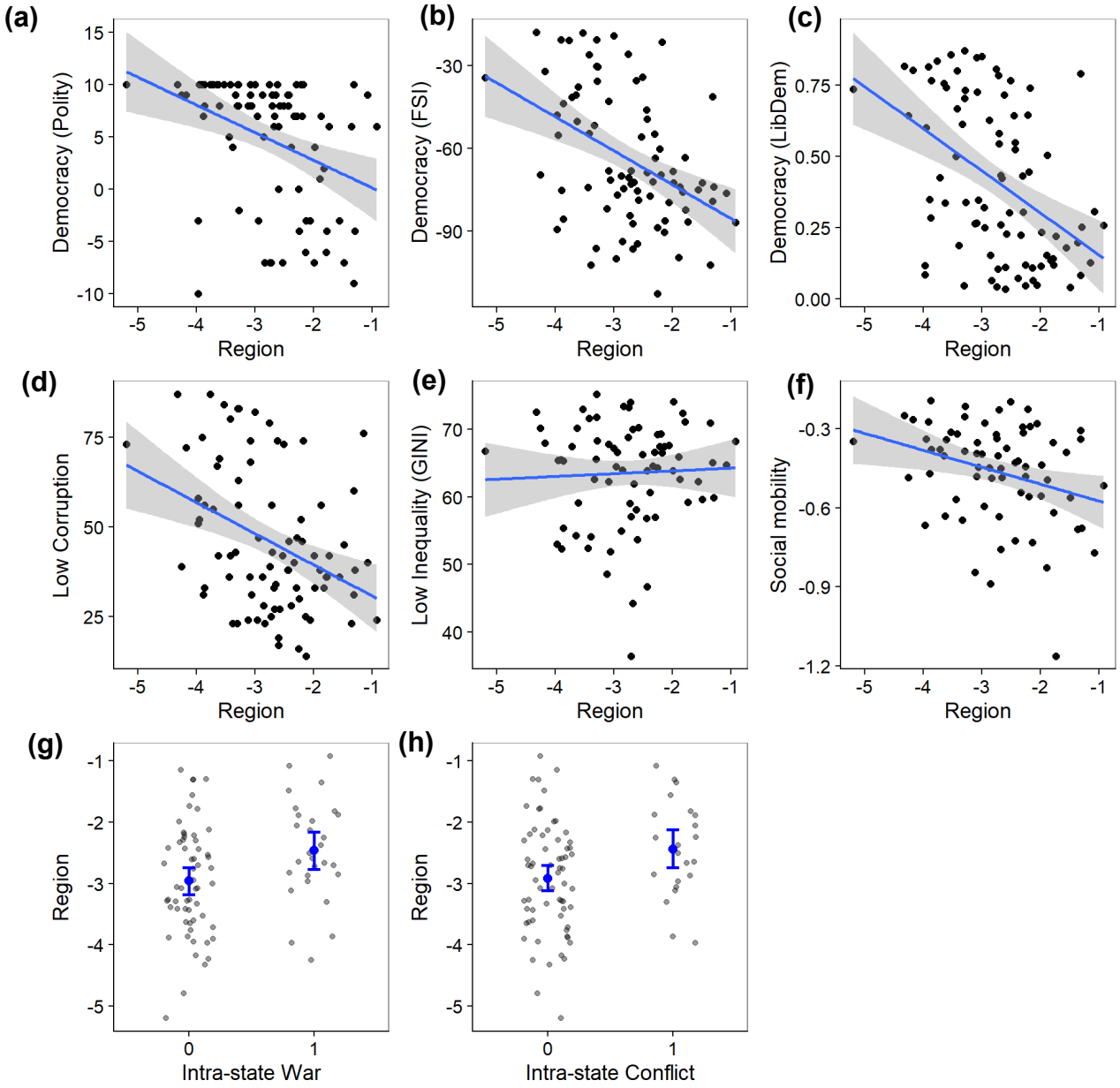
Table S4. Summary of multiverse analyses based on (a) models that replace culturally homogeneous countries with the smallest non-zero cultural distance for each variable, (b) models that drop culturally homogeneous countries from analyses, and (c) models that include clustering by continent in a multilevel model, rather than continent fixed-effects. Summaries include mean model estimates (Mean est.), percent of models with $p < .05$ and $p < .01$, percent of effects above zero (% pos effects) and below zero (% neg. effects). Multilevel models with clustering by continent also relied on replacing zeros (indicating homogeneous countries) with the minimum value for each variable. Intensity of shading indicates the proportion of effects that are significant or in a positive/negative direction.

		Multiverse A: Zero replaced with minimum					Multiverse B: Zero dropped from dataset					Multiverse C: MLM clustered by continent				
Predictor	DV	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects
Region	Low Corruption	-0.223	58.5	28.0	0.0	100.0	-0.223	58.5	28.0	0.0	100.0	-0.222	71.0	24.0	0.0	100.0
Region	Democracy (Overall)	-0.189	42.2	18.5	1.0	99.0	-0.189	42.2	18.5	1.0	99.0	-0.162	33.0	6.7	0.7	99.3
Region	Democracy (Polity)	-0.183	26.0	9.0	1.5	98.5	-0.183	26.0	9.0	1.5	98.5	-0.164	19.0	0.0	1.0	99.0
Region	Democracy (LibDem)	-0.220	56.0	25.5	0.0	100.0	-0.220	56.0	25.5	0.0	100.0	-0.194	53.0	15.0	0.0	100.0
Region	Democracy (FSI)	-0.164	44.5	21.0	1.5	98.5	-0.164	44.5	21.0	1.5	98.5	-0.129	27.0	5.0	1.0	99.0
Region	Low Inequality	0.129	7.5	0.0	95.0	5.0	0.129	7.5	0.0	95.0	5.0	0.115	4.0	0.0	100.0	0.0
Region	Mobility	-0.219	36.8	9.8	1.6	98.4	-0.219	36.8	9.8	1.6	98.4	-0.223	36.3	13.5	0.5	99.5
Region	No War	-0.187	2.5	0.0	18.5	81.5	-0.187	2.5	0.0	18.5	81.5	-0.281	0.0	0.0	2.0	98.0
Region	No Conflict	-0.408	3.0	0.0	0.0	100.0	-0.408	3.0	0.0	0.0	100.0	-0.448	6.0	0.0	0.0	100.0
Education	Low Corruption	0.237	41.5	25.0	90.0	10.0	0.332	53.5	37.5	98.0	2.0	0.222	38.0	27.0	88.0	12.0
Education	Democracy (Overall)	0.285	53.3	34.0	98.7	1.3	0.319	56.0	39.8	94.2	5.8	0.253	46.3	24.3	99.3	0.7
Education	Democracy (Polity)	0.251	33.0	15.5	99.0	1.0	0.219	30.0	16.0	86.5	13.5	0.235	30.0	3.0	100.0	0.0
Education	Democracy (LibDem)	0.288	54.5	31.0	97.0	3.0	0.364	66.5	43.5	97.5	2.5	0.254	44.0	26.0	98.0	2.0
Education	Democracy (FSI)	0.317	72.5	55.5	100.0	0.0	0.374	71.5	60.0	98.5	1.5	0.271	65.0	44.0	100.0	0.0

		Multiverse A: Zero replaced with minimum					Multiverse B: Zero dropped from dataset					Multiverse C: MLM clustered by continent				
Predictor	DV	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects
Education	Low Inequality	-0.168	13.5	3.0	9.0	91.0	-0.103	11.0	2.0	28.0	72.0	-0.150	3.0	0.0	0.0	100.0
Education	Mobility	-0.013	1.7	0.3	41.8	58.2	0.067	9.8	3.8	58.3	41.8	-0.008	1.8	0.0	38.2	61.8
Education	No War	0.399	6.5	0.0	89.0	11.0	0.270	7.0	3.0	74.5	25.5	0.436	10.0	0.0	93.0	7.0
Education	No Conflict	0.556	4.0	0.0	99.5	0.5	0.548	11.5	2.0	93.5	6.5	0.539	11.0	0.0	100.0	0.0
Status	Low Corruption	0.119	10.5	2.5	87.0	13.0	0.206	25.5	11.5	96.0	4.0	0.101	6.0	0.0	88.0	12.0
Status	Democracy (Overall)	0.082	10.5	1.3	75.8	24.2	0.108	21.7	9.3	73.7	26.3	0.035	2.0	0.3	65.3	34.7
Status	Democracy (Polity)	-0.004	0.0	0.0	47.0	53.0	-0.052	0.0	0.0	39.5	60.5	-0.046	0.0	0.0	23.0	77.0
Status	Democracy (LibDem)	0.099	10.5	1.0	82.5	17.5	0.147	17.0	6.5	82.0	18.0	0.044	0.0	0.0	76.0	24.0
Status	Democracy (FSI)	0.152	21.0	3.0	98.0	2.0	0.228	48.0	21.5	99.5	0.5	0.107	6.0	1.0	97.0	3.0
Status	Low Inequality	0.018	0.0	0.0	54.0	46.0	0.064	0.0	0.0	74.0	26.0	0.013	0.0	0.0	49.0	51.0
Status	Mobility	-0.084	0.9	0.0	36.5	63.5	-0.099	6.2	0.2	32.8	67.3	-0.078	0.7	0.0	36.8	63.2
Status	No War	0.632	4.0	0.0	99.5	0.5	0.718	2.0	0.0	100.0	0.0	0.644	4.0	0.0	100.0	0.0
Status	No Conflict	0.337	0.0	0.0	86.0	14.0	0.111	0.0	0.0	68.0	32.0	0.370	0.0	0.0	92.0	8.0
Income	Low Corruption	0.111	10.0	1.5	87.0	13.0	0.086	5.0	0.0	82.5	17.5	0.098	9.0	1.0	78.0	22.0
Income	Democracy (Overall)	0.074	2.2	0.0	82.2	17.8	0.007	0.8	0.0	53.7	46.3	0.047	0.7	0.0	76.0	24.0
Income	Democracy (Polity)	0.071	0.0	0.0	85.0	15.0	-0.052	0.0	0.0	29.5	70.5	0.050	0.0	0.0	84.0	16.0
Income	Democracy (LibDem)	0.088	3.5	0.0	82.0	18.0	0.018	1.5	0.0	61.0	39.0	0.053	0.0	0.0	78.0	22.0
Income	Democracy (FSI)	0.063	3.0	0.0	79.5	20.5	0.055	1.0	0.0	70.5	29.5	0.039	2.0	0.0	66.0	34.0
Income	Low Inequality	0.007	0.0	0.0	57.5	42.5	0.105	0.0	0.0	92.5	7.5	0.031	0.0	0.0	79.0	21.0
Income	Mobility	-0.031	0.1	0.0	43.1	56.9	-0.097	1.8	0.0	20.0	80.0	-0.027	0.2	0.0	43.8	56.2
Income	No War	-0.594	10.0	0.0	0.0	100.0	-0.642	0.5	0.0	0.5	99.5	-0.515	1.0	0.0	0.0	100.0

		Multiverse A: Zero replaced with minimum					Multiverse B: Zero dropped from dataset					Multiverse C: MLM clustered by continent				
Predictor	DV	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects	Mean est.	% p < .05	% p < .01	% pos. effects	% neg. effects
Income	No Conflict	-1.127	59.5	4.5	0.0	100.0	-1.239	30.5	0.0	0.0	100.0	-1.036	56.0	2.0	0.0	100.0
Religion	Low Corruption	0.128	22.5	16.0	86.5	13.5	0.017	10.0	4.0	51.0	49.0	0.124	22.0	14.0	85.0	15.0
Religion	Democracy (Overall)	0.076	14.7	8.3	71.2	28.8	-0.060	5.2	1.2	24.2	75.8	0.059	11.3	7.3	67.0	33.0
Religion	Democracy (Polity)	0.030	5.0	0.0	58.5	41.5	-0.122	3.0	0.0	9.5	90.5	0.018	0.0	0.0	50.0	50.0
Religion	Democracy (LibDem)	0.075	13.5	9.0	67.0	33.0	-0.055	4.0	0.0	26.5	73.5	0.055	14.0	8.0	64.0	36.0
Religion	Democracy (FSI)	0.123	25.5	16.0	88.0	12.0	-0.002	8.5	3.5	36.5	63.5	0.102	20.0	14.0	87.0	13.0
Religion	Low Inequality	-0.022	0.0	0.0	40.0	60.0	0.134	9.5	4.0	97.5	2.5	-0.017	0.0	0.0	39.0	61.0
Religion	Mobility	0.137	13.9	3.1	91.3	8.8	0.201	21.8	5.7	97.6	2.4	0.142	16.0	3.3	92.2	7.8
Religion	No War	0.291	9.5	1.5	87.0	13.0	-0.643	17.5	1.0	8.5	91.5	0.322	12.0	2.0	88.0	12.0
Religion	No Conflict	0.010	3.0	0.0	56.5	43.5	-0.584	0.5	0.5	17.0	83.0	0.022	6.0	0.0	58.0	42.0
Ethnicity	Low Corruption	-0.009	0.0	0.0	36.5	63.5	0.153	6.3	0.5	95.3	4.8	-0.003	0.0	0.0	39.5	60.5
Ethnicity	Democracy (Overall)	0.020	3.3	0.3	53.3	46.7	0.122	9.3	0.5	78.8	21.2	0.034	4.0	0.3	58.8	41.2
Ethnicity	Democracy (Polity)	0.102	7.3	0.3	91.5	8.5	0.201	19.0	1.5	91.5	8.5	0.113	9.5	0.0	95.5	4.5
Ethnicity	Democracy (LibDem)	-0.008	2.3	0.5	49.0	51.0	0.114	8.5	0.0	77.8	22.3	0.009	2.5	1.0	57.5	42.5
Ethnicity	Democracy (FSI)	-0.033	0.5	0.0	19.5	80.5	0.051	0.5	0.0	67.3	32.8	-0.019	0.0	0.0	23.5	76.5
Ethnicity	Low Inequality	-0.024	0.0	0.0	35.3	64.8	0.265	16.3	4.3	91.5	8.5	-0.003	0.0	0.0	42.5	57.5
Ethnicity	Mobility	0.008	0.1	0.0	55.2	44.8	-0.188	19.3	7.3	12.4	87.6	0.010	0.0	0.0	56.2	43.8
Ethnicity	No War	-0.694	50.3	19.5	0.0	100.0	-1.132	42.3	5.5	0.0	100.0	-0.650	51.0	16.5	0.0	100.0
Ethnicity	No Conflict	-0.551	23.8	0.0	0.3	99.8	-2.410	31.4	0.0	0.3	99.7	-0.546	28.5	0.0	0.5	99.5

Figure S1. Associations between cultural distance across geographic regions and outcome variables. Dots represent individual countries. In Figures a – f, blue lines represent the bivariate association (with 95% confidence band) between education cultural differences and each outcome; in Figures g-h, blue dots represent the mean level of education group differences (with 95% confidence interval).



Note on specification curve plots: Top panel depicts effect size estimates across all models, and bottom panel indicates significant based on whether control variables were included as covariates in the model: GDP = log GDP, Edu = average educational attainment, Pop = population, GenDiv = genetic diversity, Legal = legal origin, KII = kinship intensity index, Geo1 = geographic controls (fraction mountainous, non-connected territories, oil, new state, instability), Geo2 = geographic controls (distance to waterways, caloric suitability of land, latitude), Continent = continent.

Fig S2. Specification curve of multiverse of analyses that predict democracy from cultural distance across regions. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

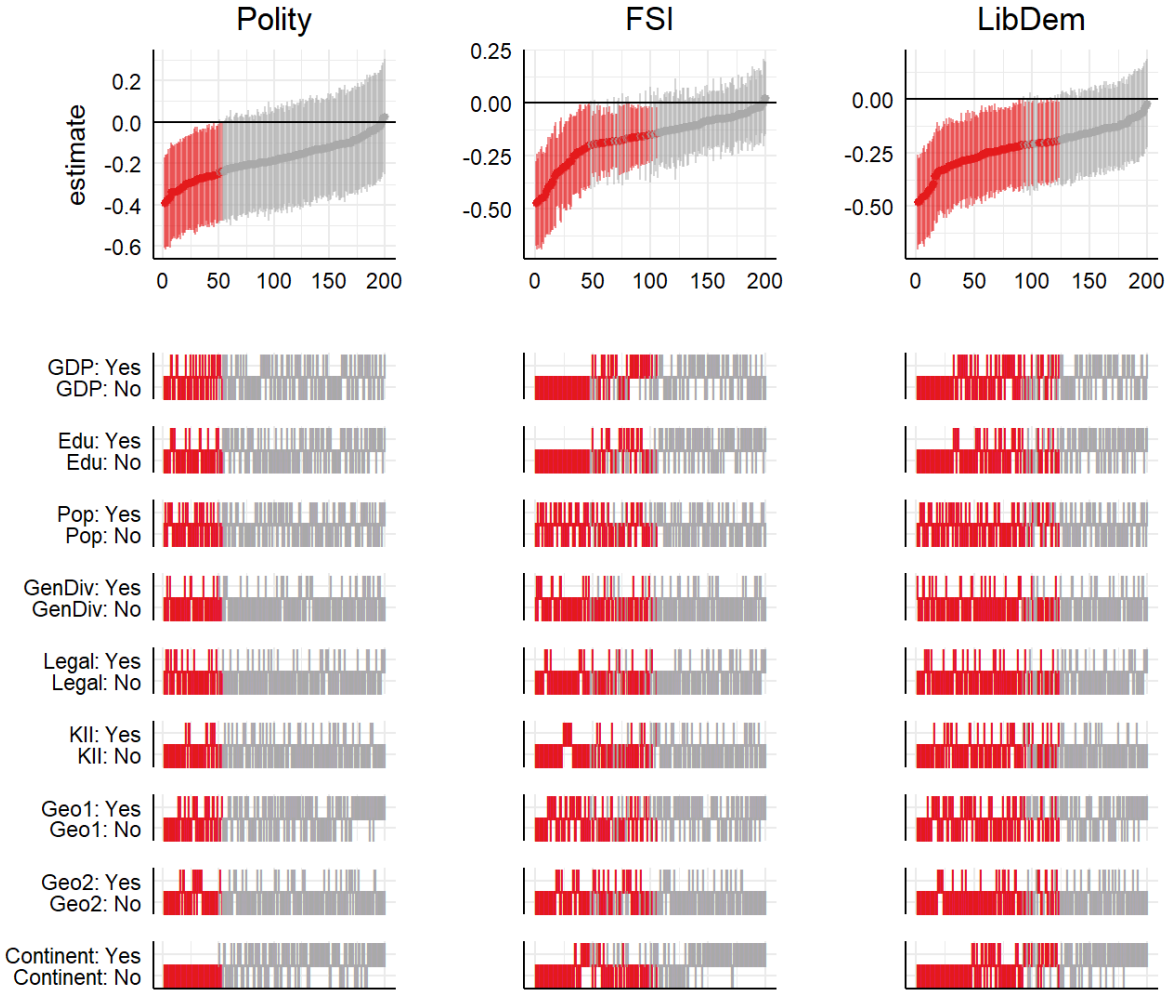


Fig S3. Specification curve of multiverse of analyses that predicts low corruption, inequality, and low social mobility from cultural distance across regions. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

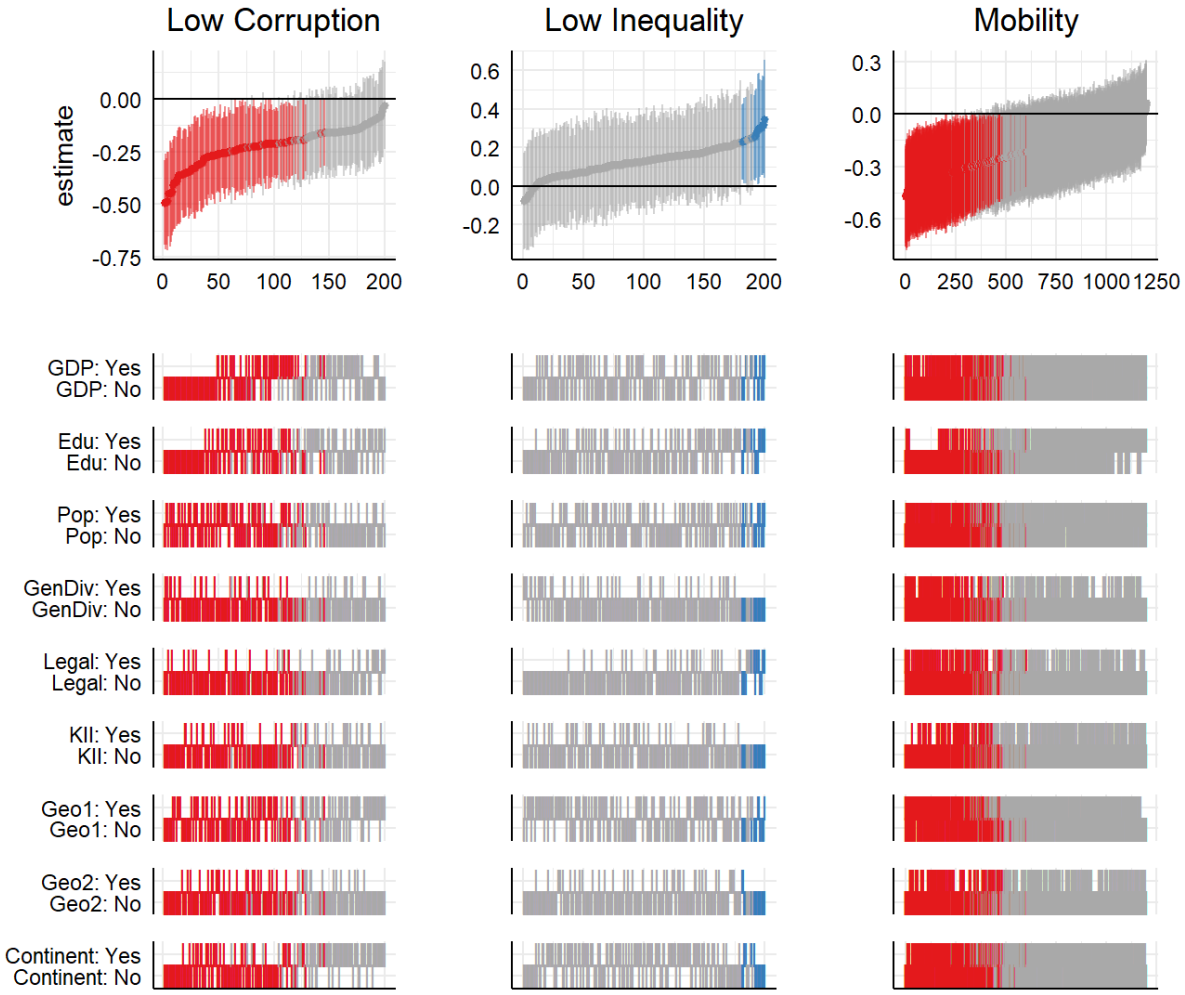


Fig S4. Specification curve of multiverse of analyses that predicts intrastate war and conflict from cultural distance across regions. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

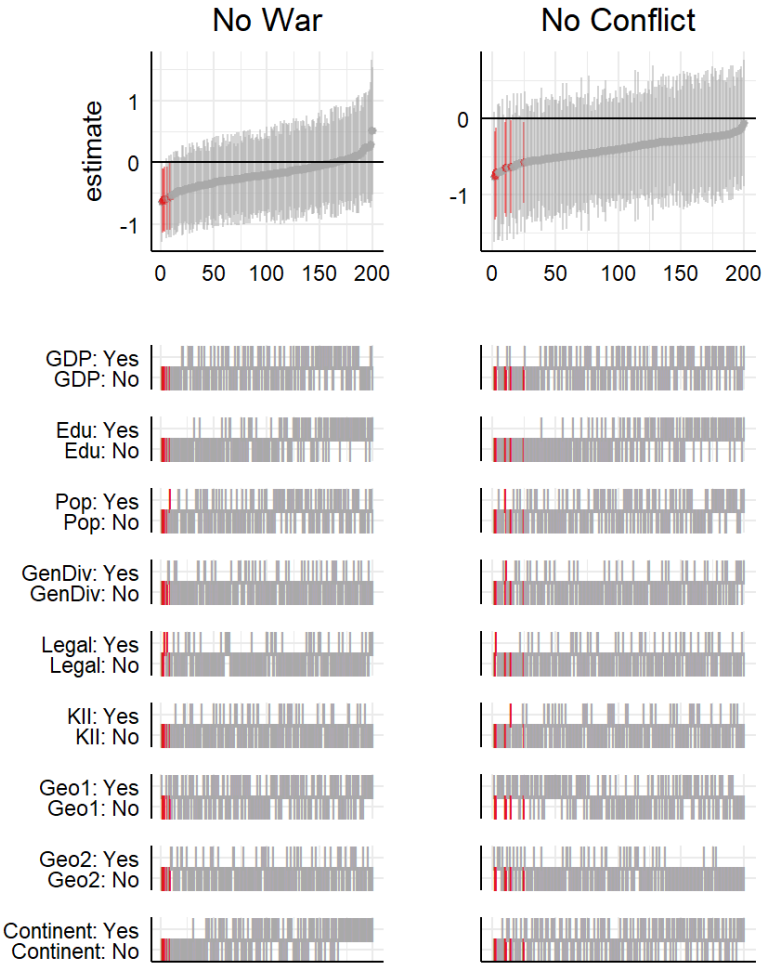


Fig S5. Associations between cultural distance across education levels and outcome variables. Dots represent individual countries. In Figures a – f, blue lines represent the bivariate association (with 95% confidence band) between education cultural differences and each outcome; in Figures g-h, blue dots represent the mean level of education group differences (with 95% confidence interval).

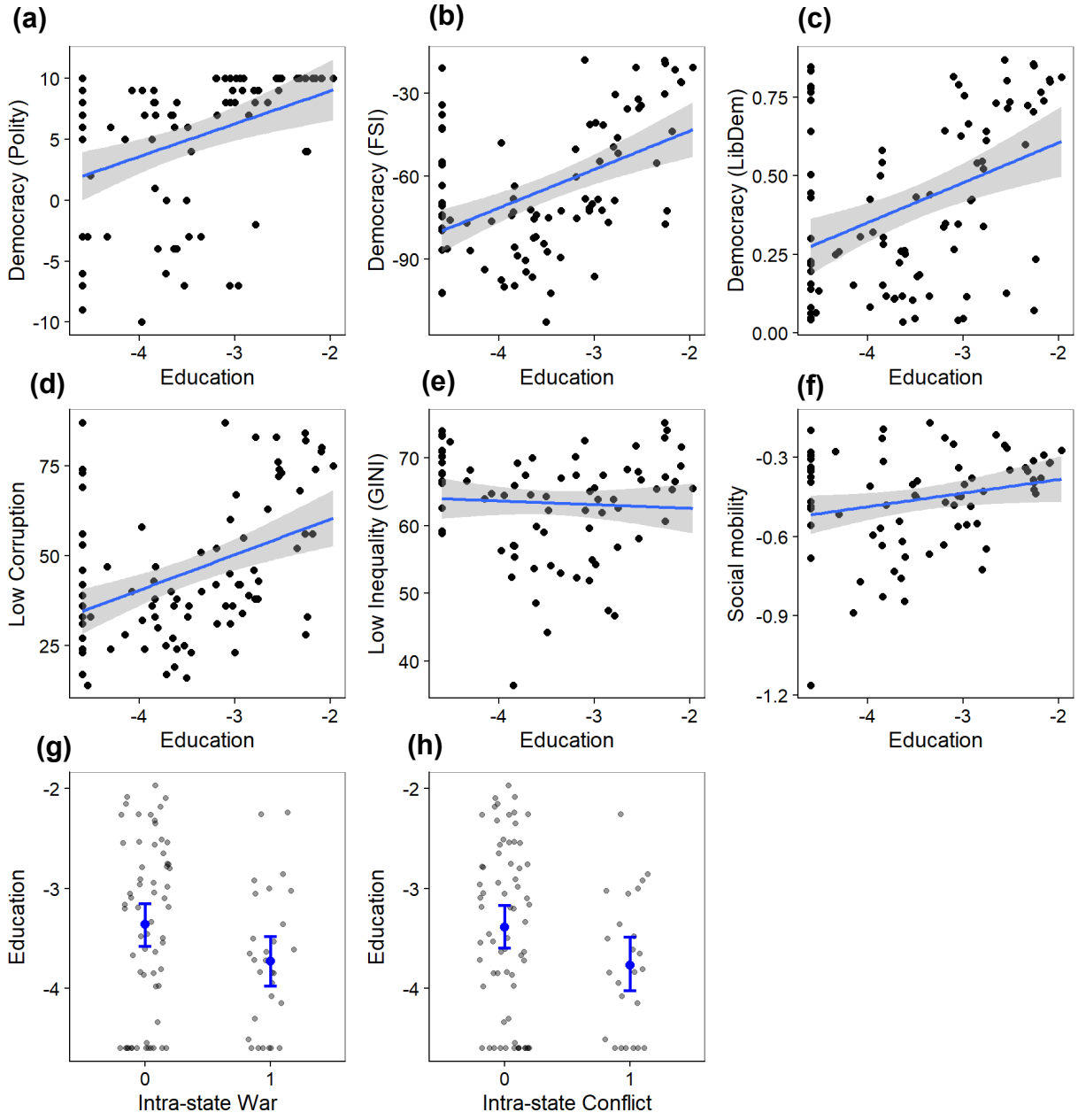


Fig S6. Specification curve of multiverse of analyses that predict democracy from cultural distance across education levels. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

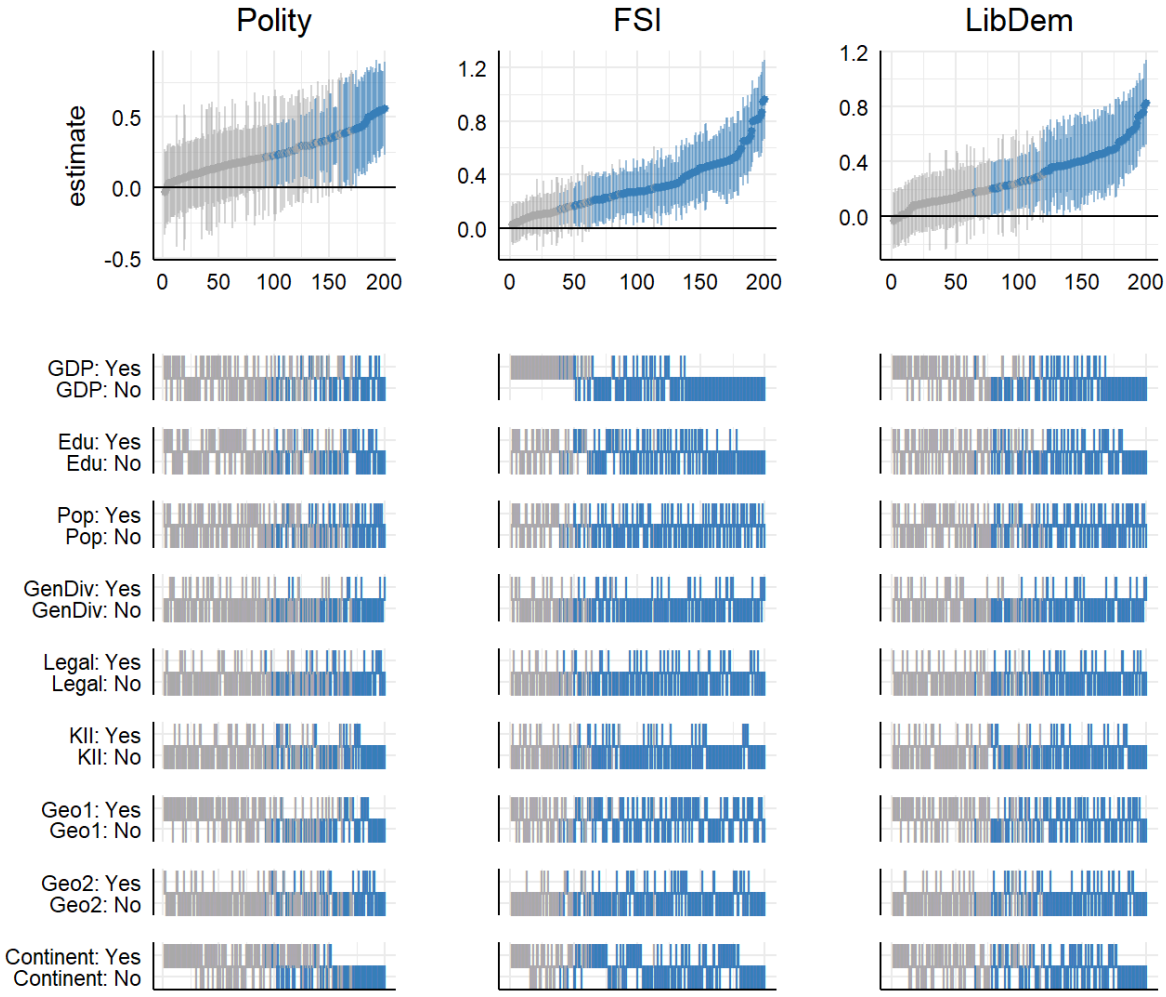


Fig S7. Specification curve of multiverse of analyses that predicts low corruption, inequality, and low social mobility from cultural distance across education levels. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

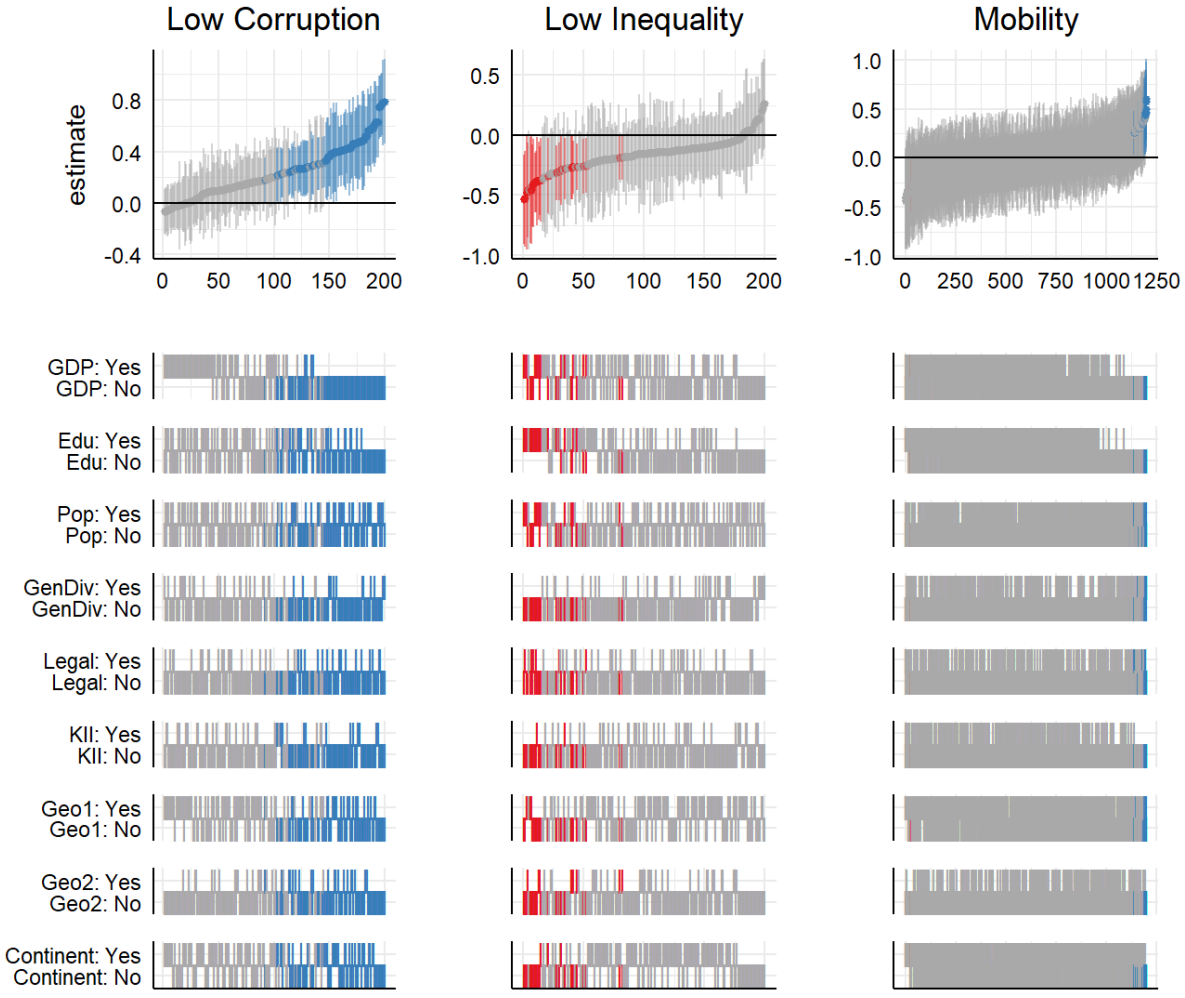


Fig S8. Specification curve of multiverse of analyses that predicts intrastate war and conflict from cultural distance across education levels. Plots exclude results from analyses that resulted in exceptionally-small estimates (b < -100). Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

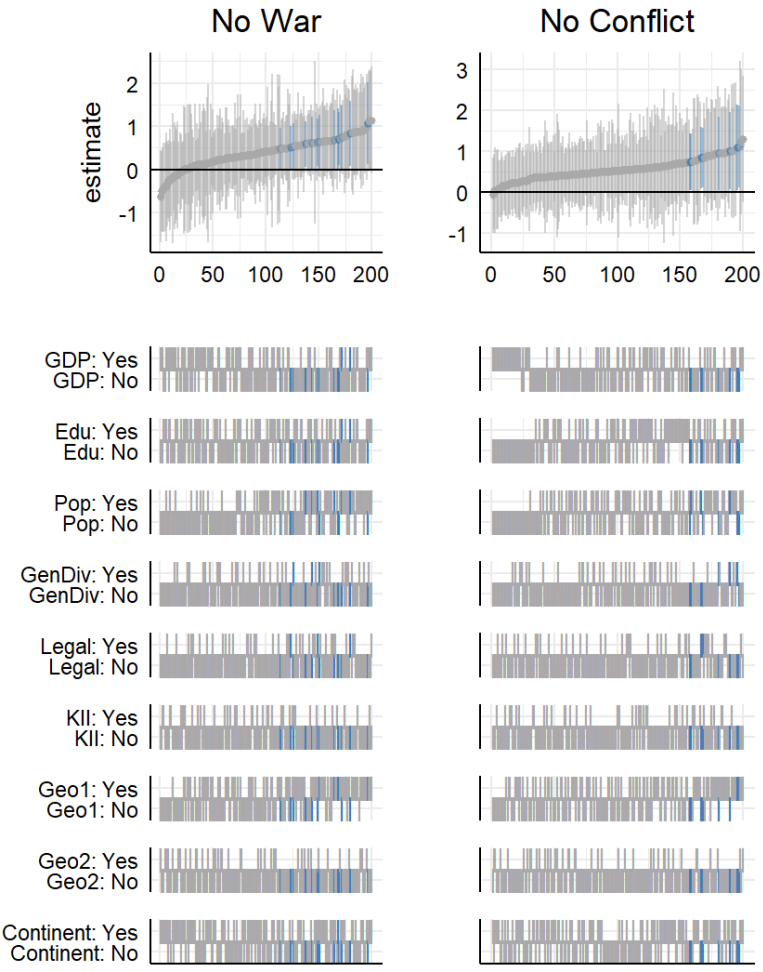


Fig S9. Associations between cultural distance across status levels and outcome variables. Dots represent individual countries. In Figures a – f, blue lines represent the bivariate association (with 95% confidence band) between education cultural differences and each outcome; in Figures g-h, blue dots represent the mean level of education group differences (with 95% confidence interval).

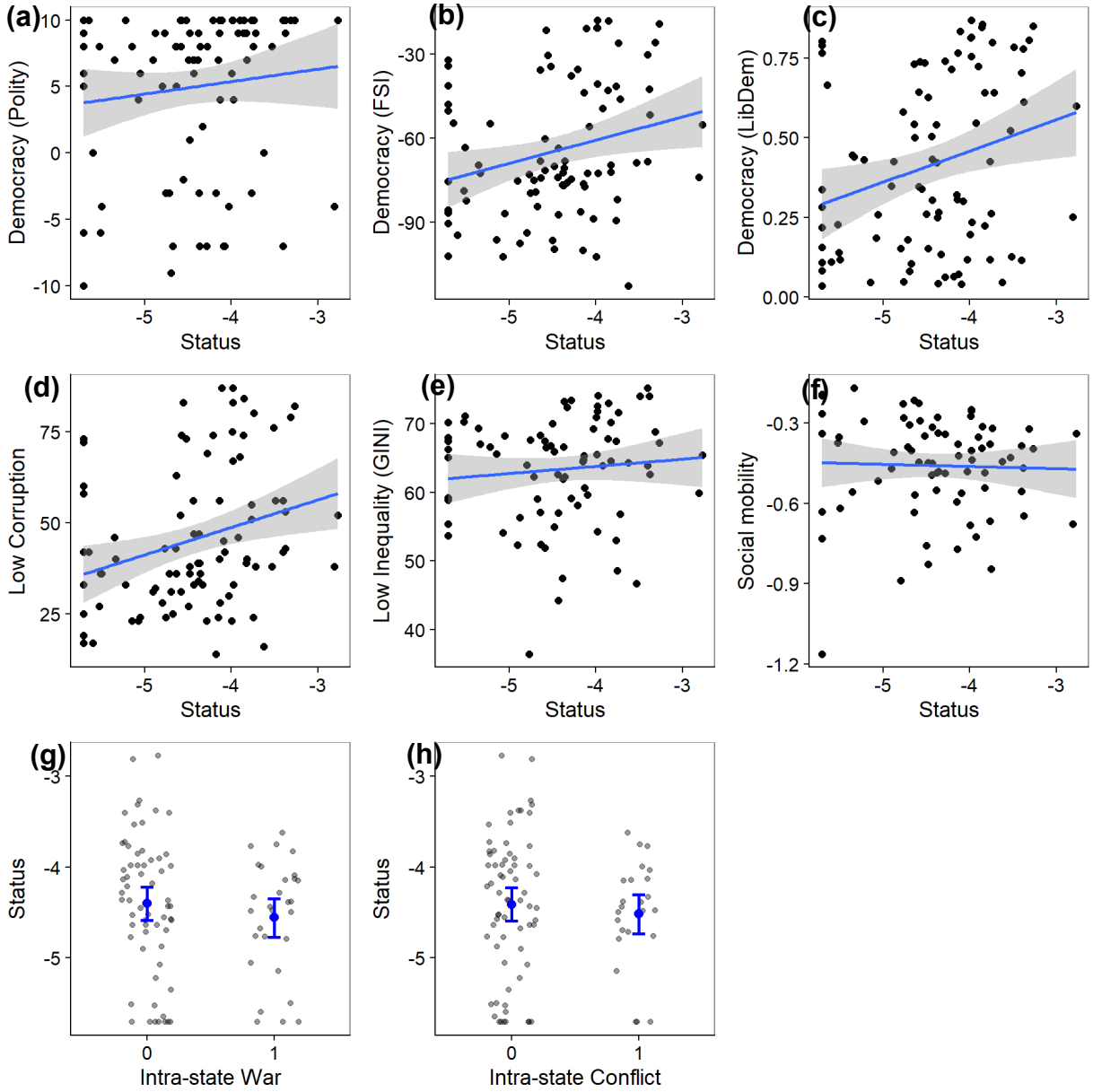


Fig S10. Specification curve of multiverse of analyses that predict democracy from cultural distance across status levels. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

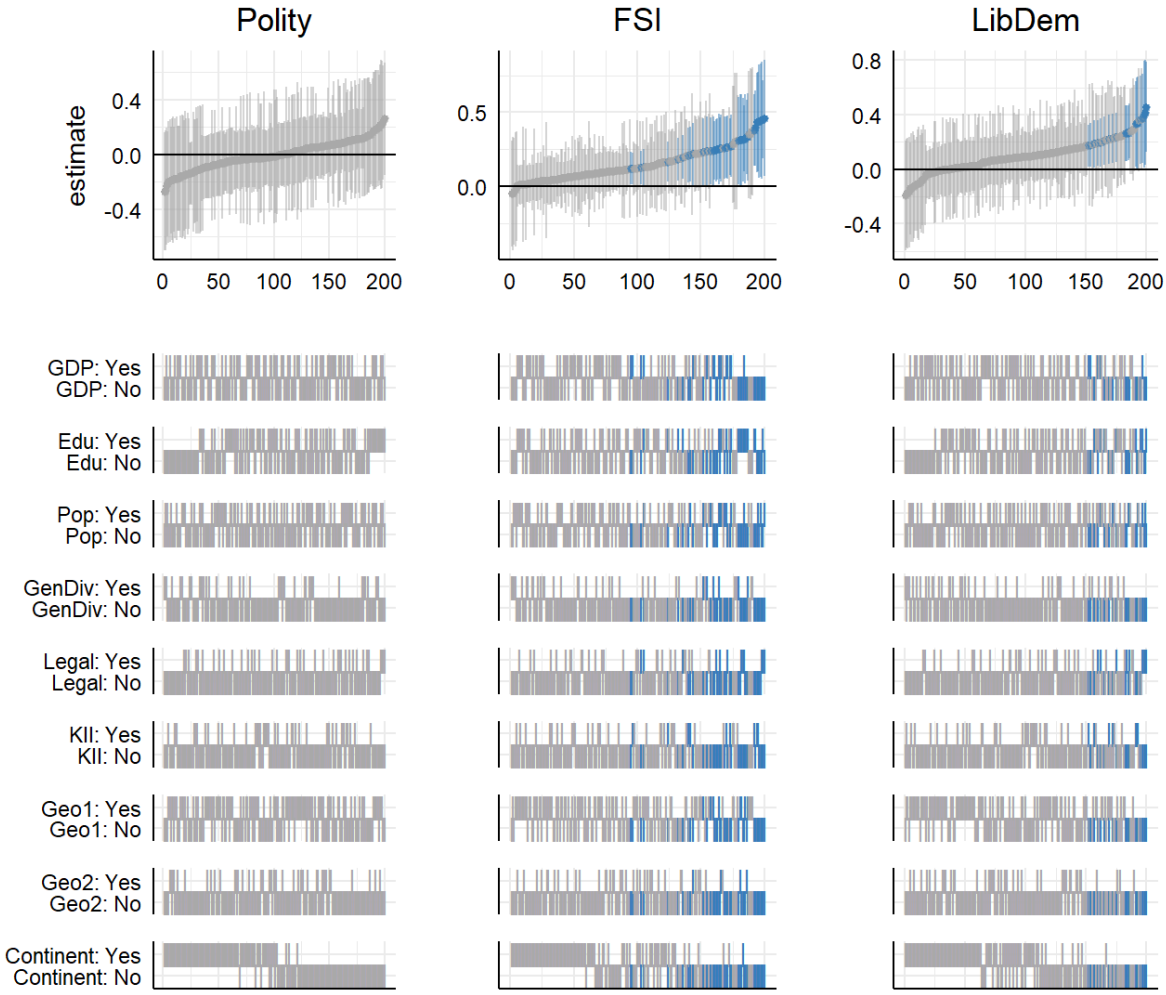


Fig S11. Specification curve of multiverse of analyses that predicts low corruption, inequality, and low social mobility from cultural distance across status levels. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

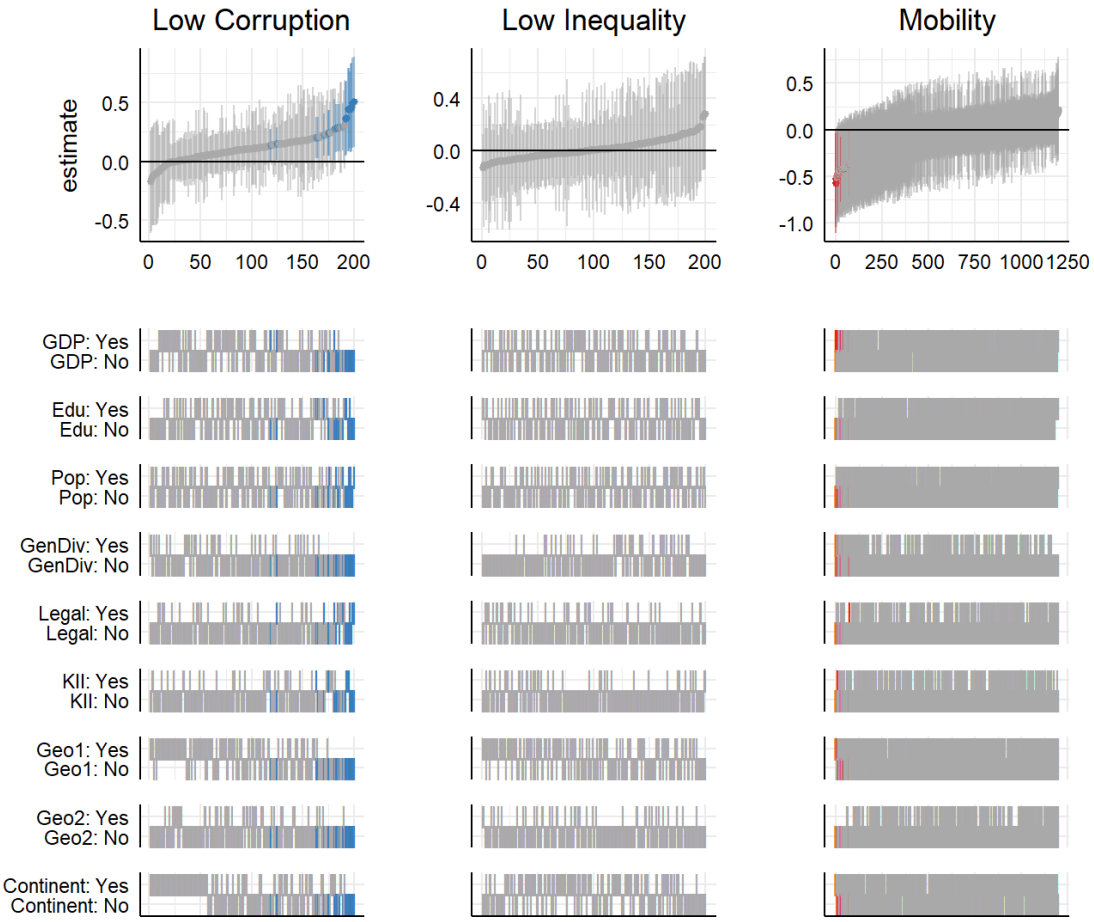


Fig S12. Specification curve of multiverse of analyses that predicts intrastate war and conflict from cultural distance across status levels. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

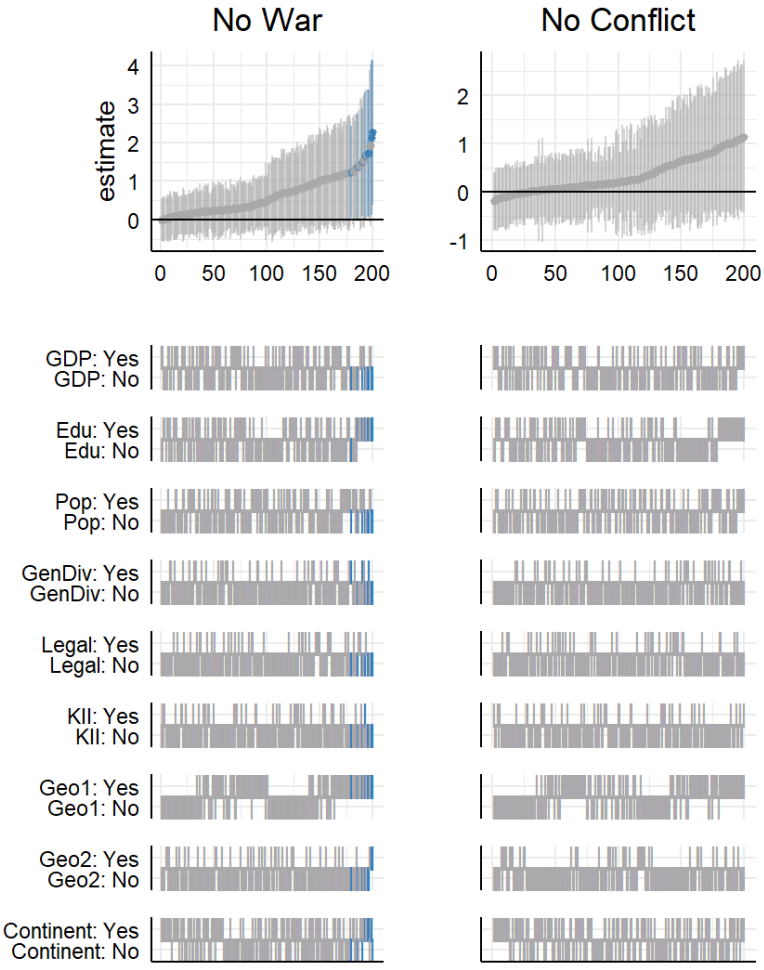


Fig S13. Associations between cultural distance across income levels and outcome variables. Dots represent individual countries. In Figures a – f, blue lines represent the bivariate association (with 95% confidence band) between education cultural differences and each outcome; in Figures g-h, blue dots represent the mean level of education group differences (with 95% confidence interval).

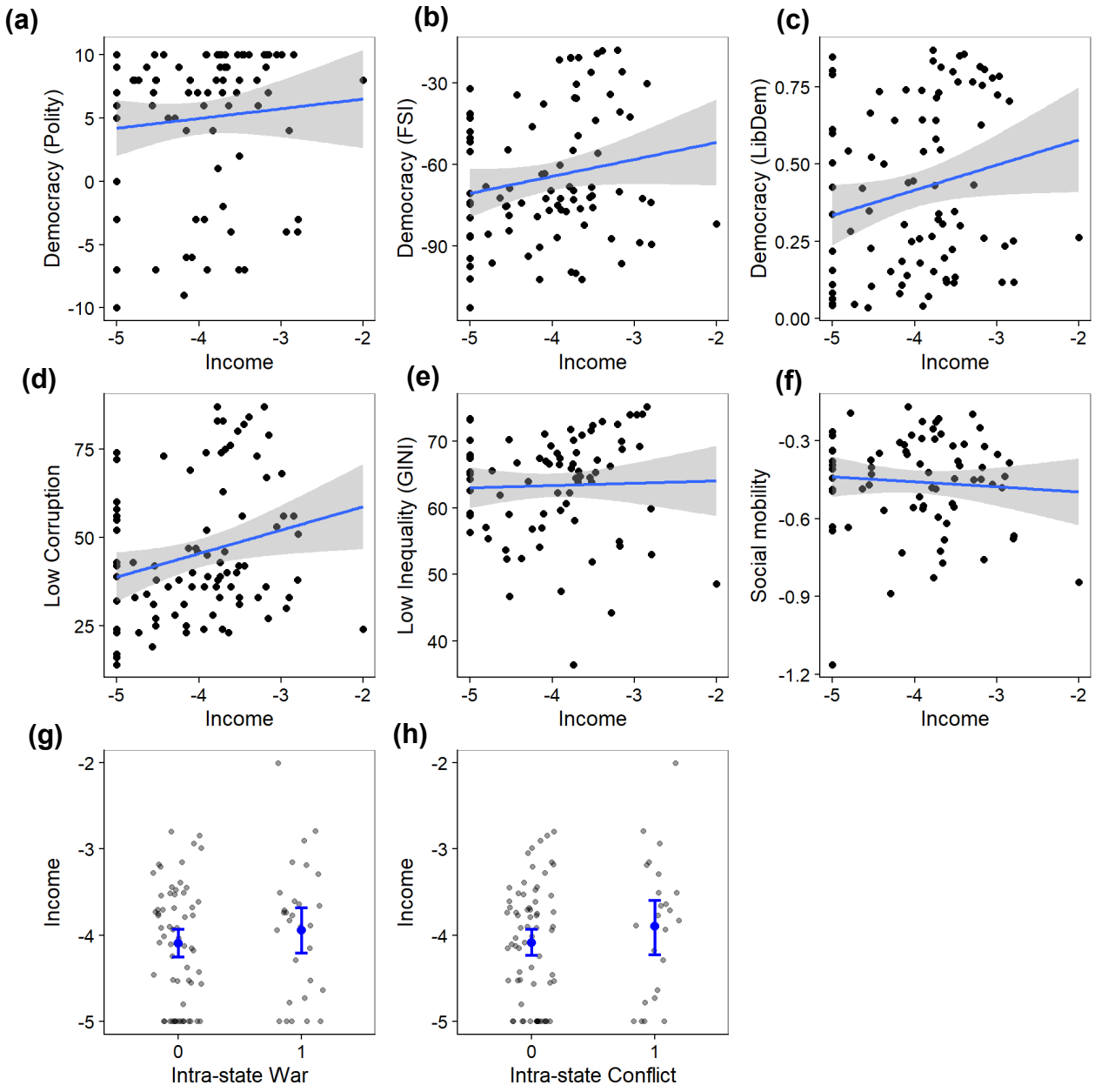


Fig S14. Specification curve of multiverse of analyses that predict democracy from cultural distance across income levels. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

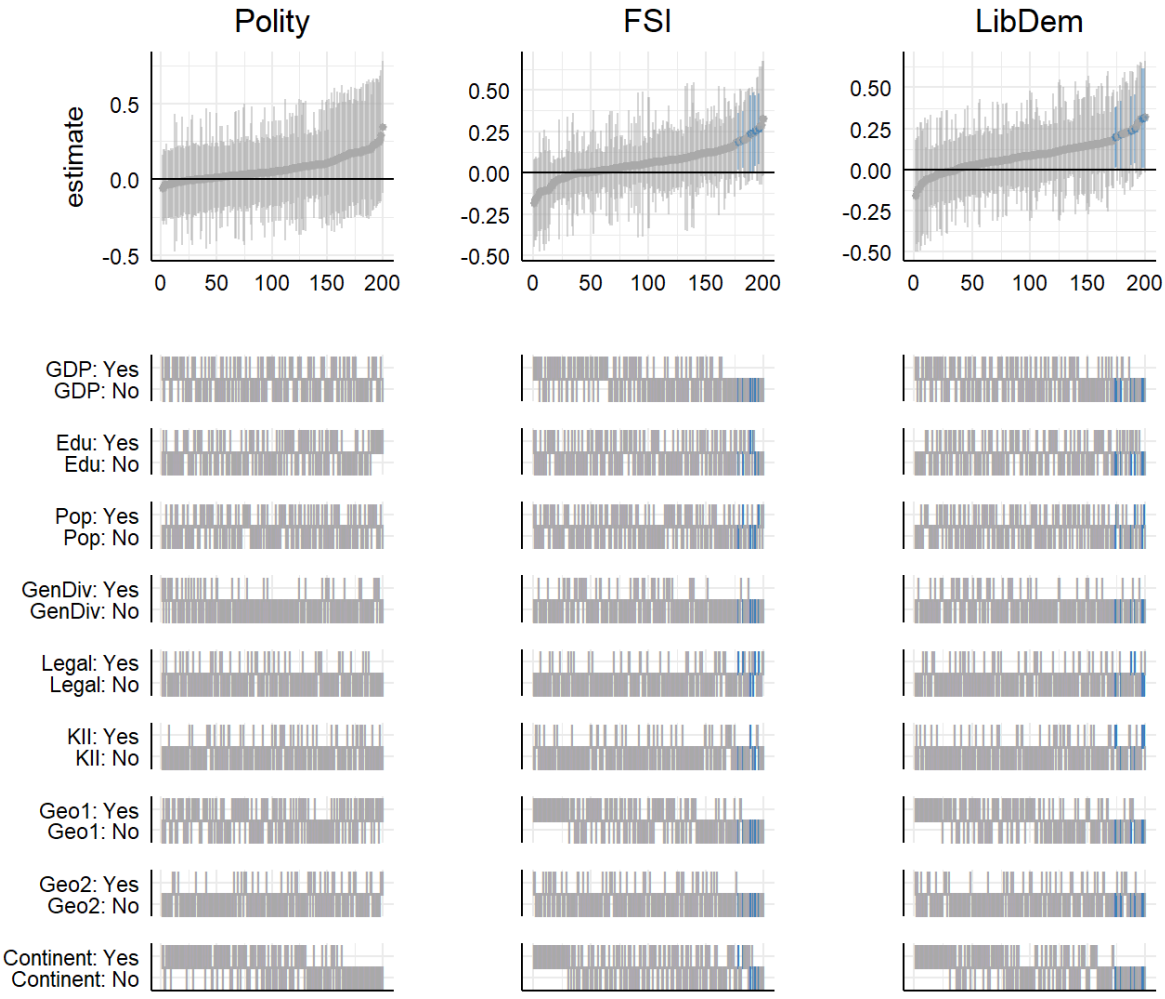


Fig S15. Specification curve of multiverse of analyses that predicts low corruption, inequality, and low social mobility from cultural distance across income levels. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

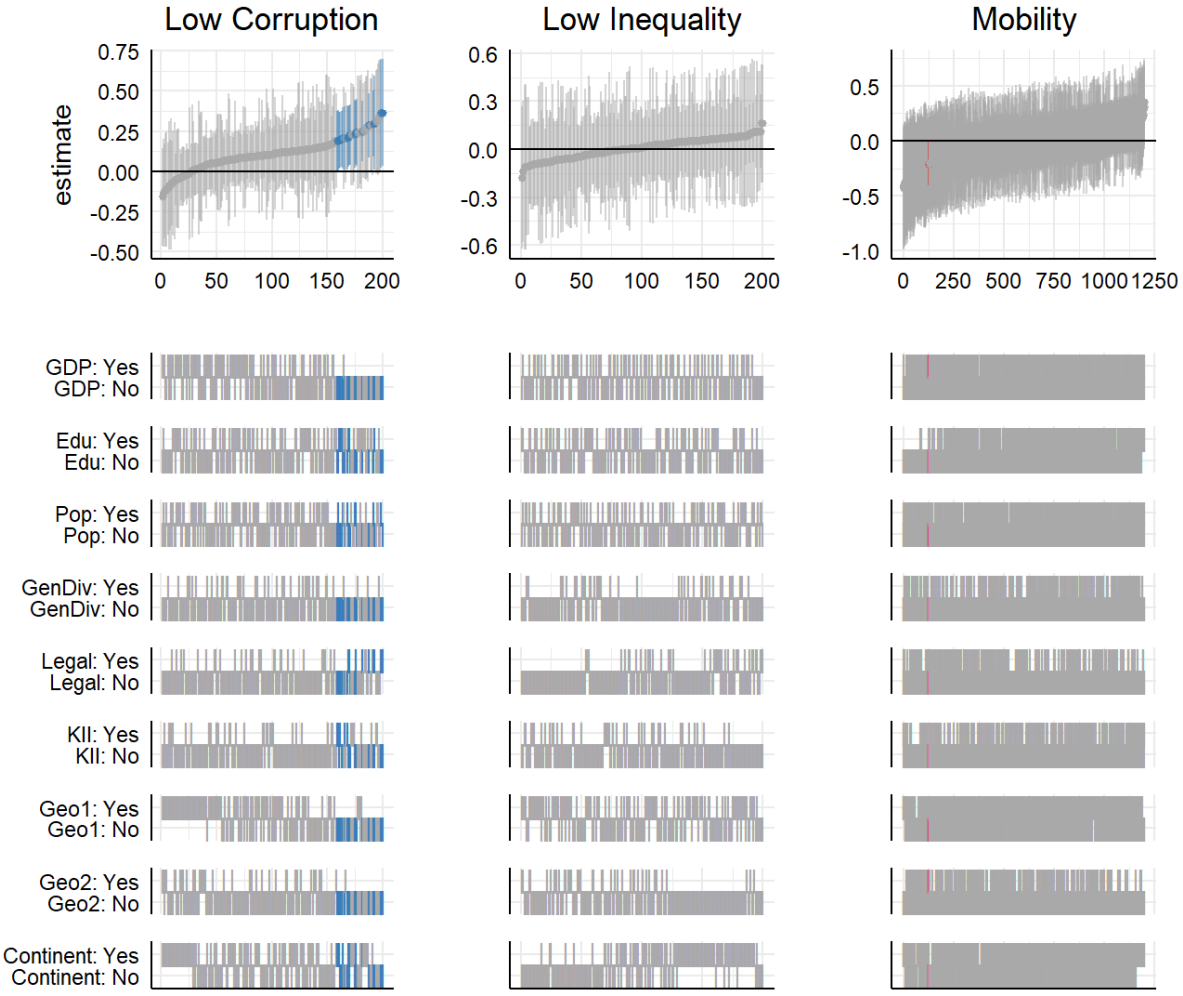


Fig S16. Specification curve of multiverse of analyses that predicts intrastate war and conflict from cultural distance across income levels. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

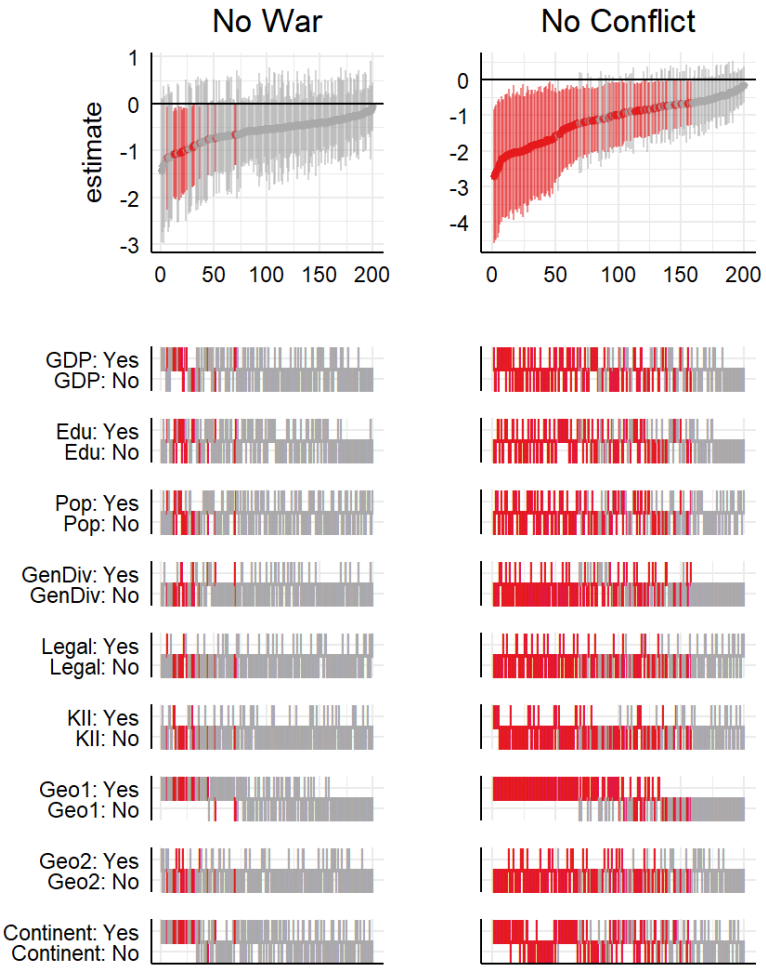


Figure S17. Associations between cultural distance across ethnic groups and outcome variables. Dots represent individual countries. In Figures a – f, blue lines represent the bivariate association (with 95% confidence band) between education cultural differences and each outcome; in Figures g-h, blue dots represent the mean level of education group differences (with 95% confidence interval).

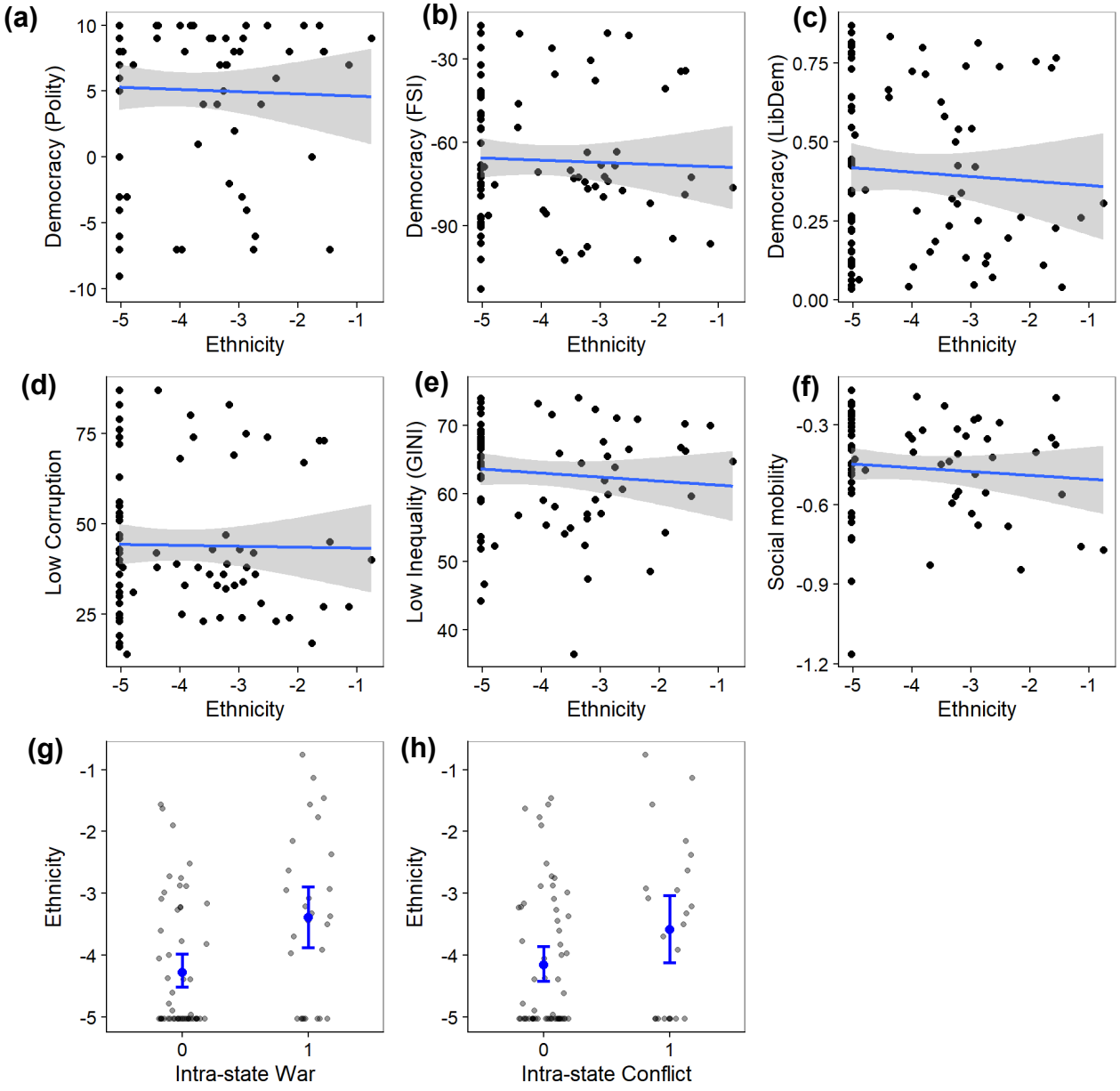


Fig S18. Specification curve of multiverse of analyses that predict democracy from cultural distance across ethnic groups. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

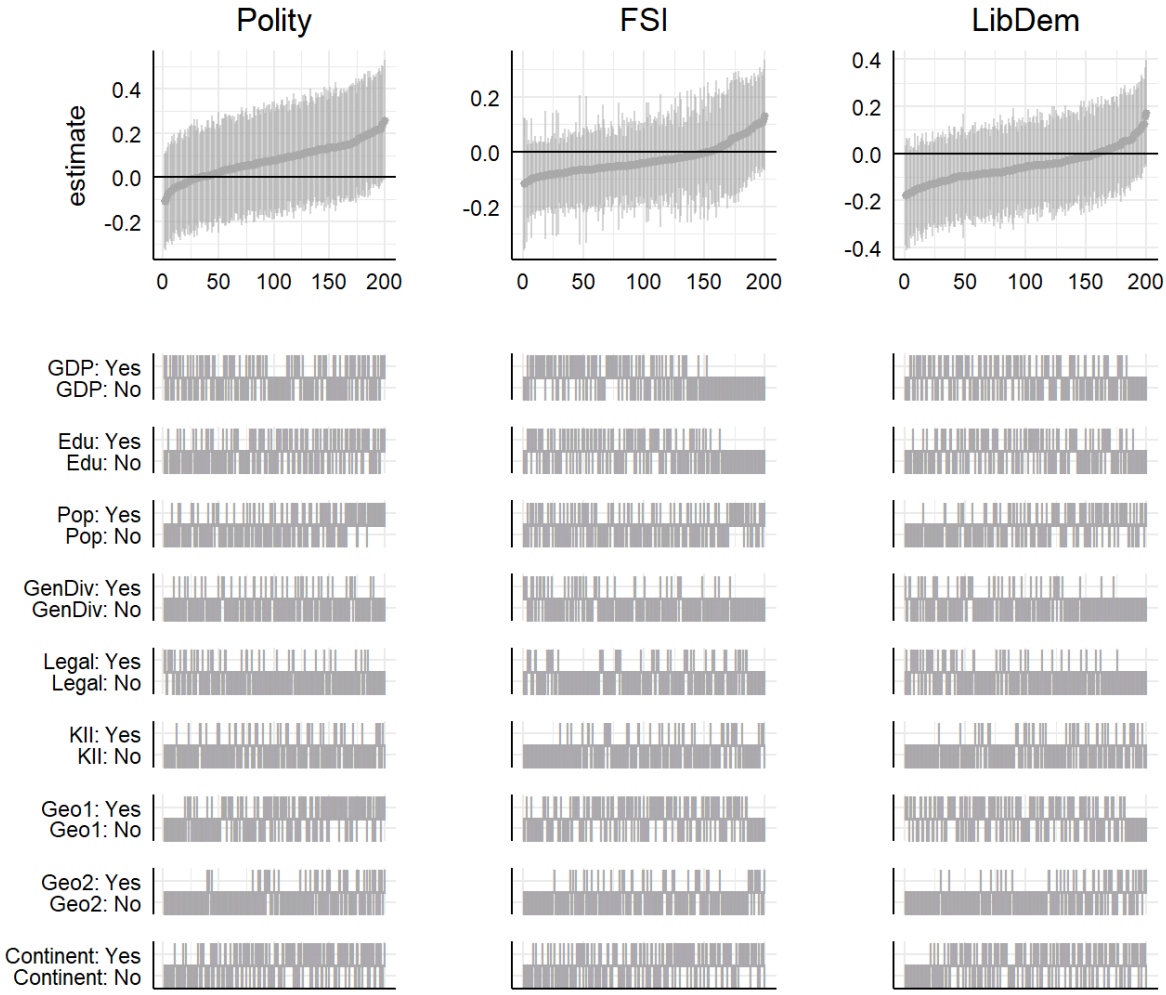


Fig S19. Specification curve of multiverse of analyses that predicts low corruption, inequality, and low social mobility from cultural distance across ethnic groups. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

Fig S20. Specification curve of multiverse of analyses that predicts intrastate war and conflict from cultural distance across ethnic groups. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

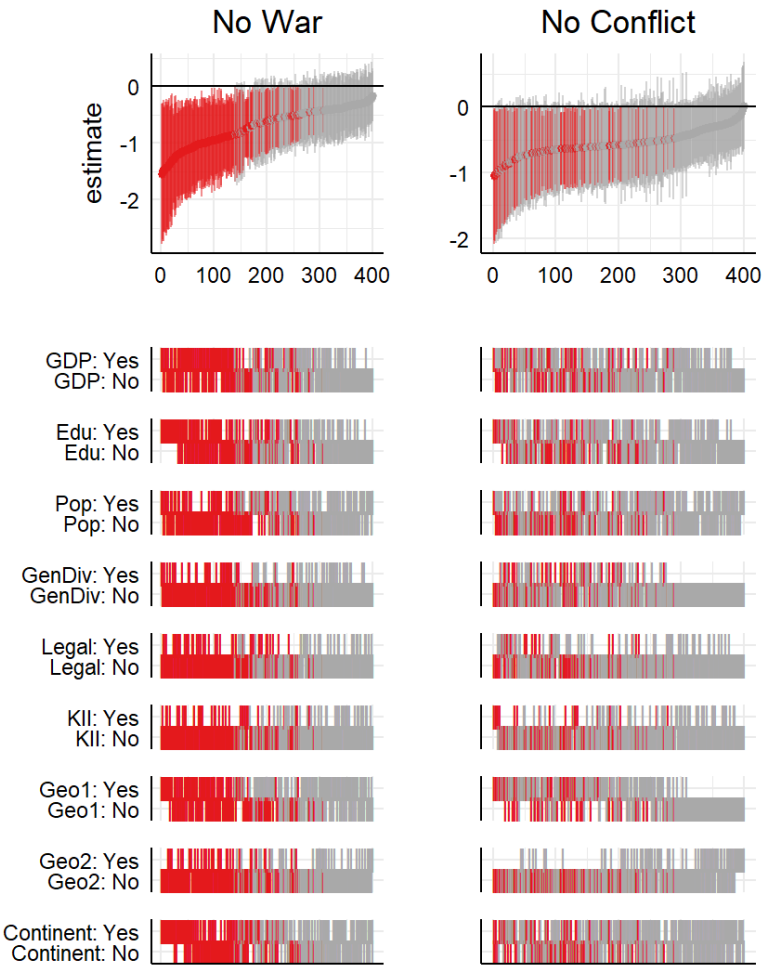


Fig S21. Associations between cultural distance across religious groups and outcome variables. Dots represent individual countries. In Figures a – f, blue lines represent the bivariate association (with 95% confidence band) between education cultural differences and each outcome; in Figures g-h, blue dots represent the mean level of education group differences (with 95% confidence interval).

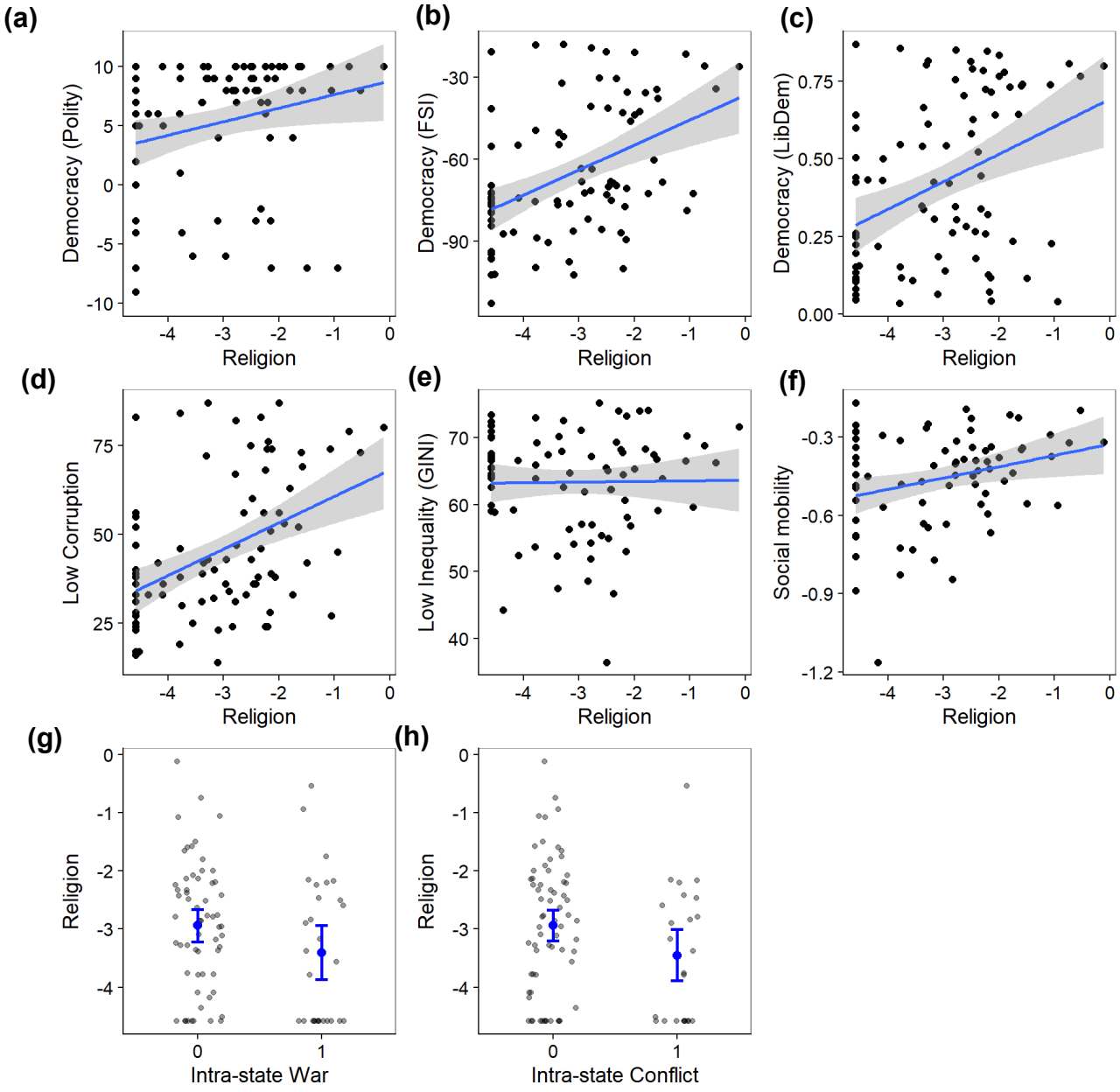


Fig S22. Specification curve of multiverse of analyses that predict democracy from cultural distance across religious denominations. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

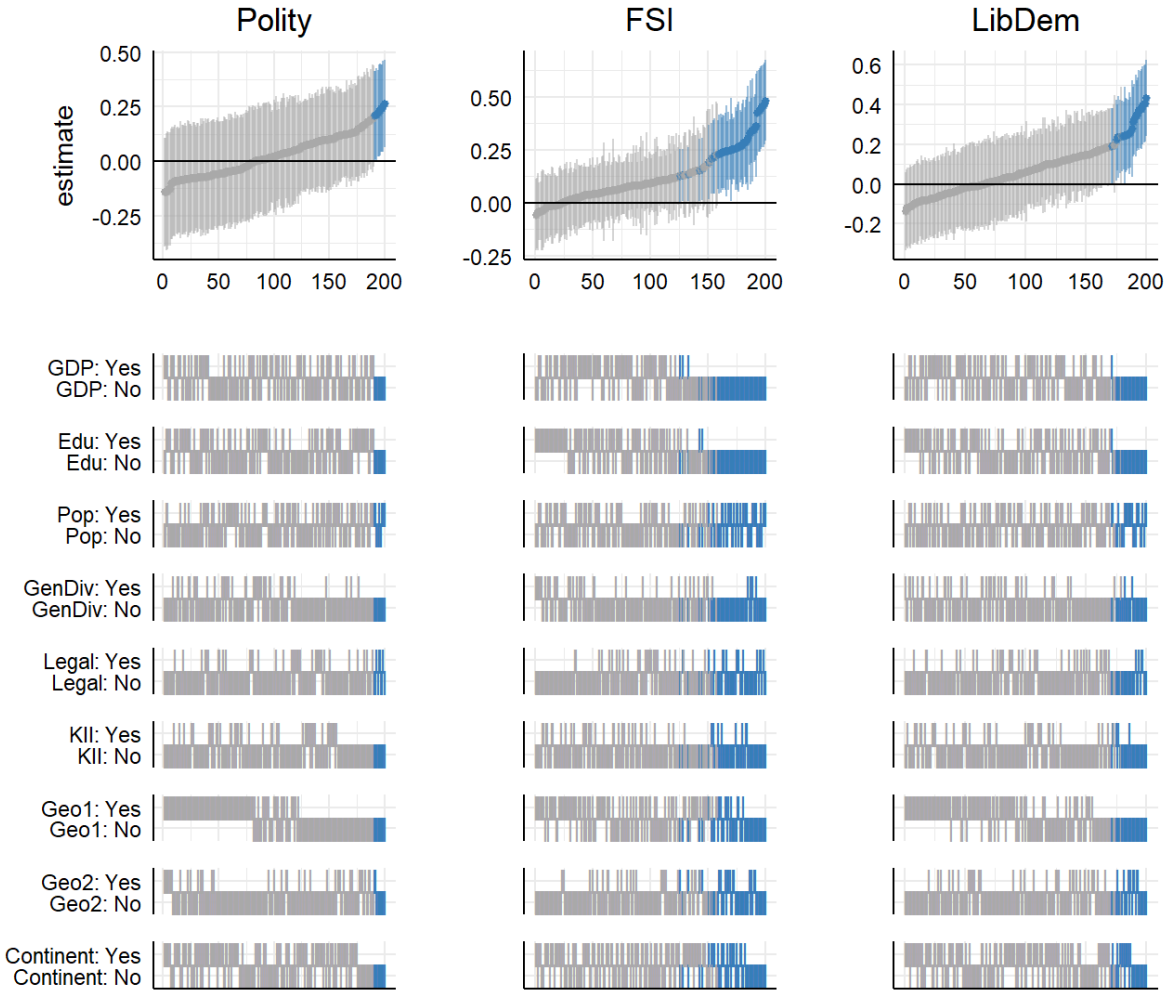
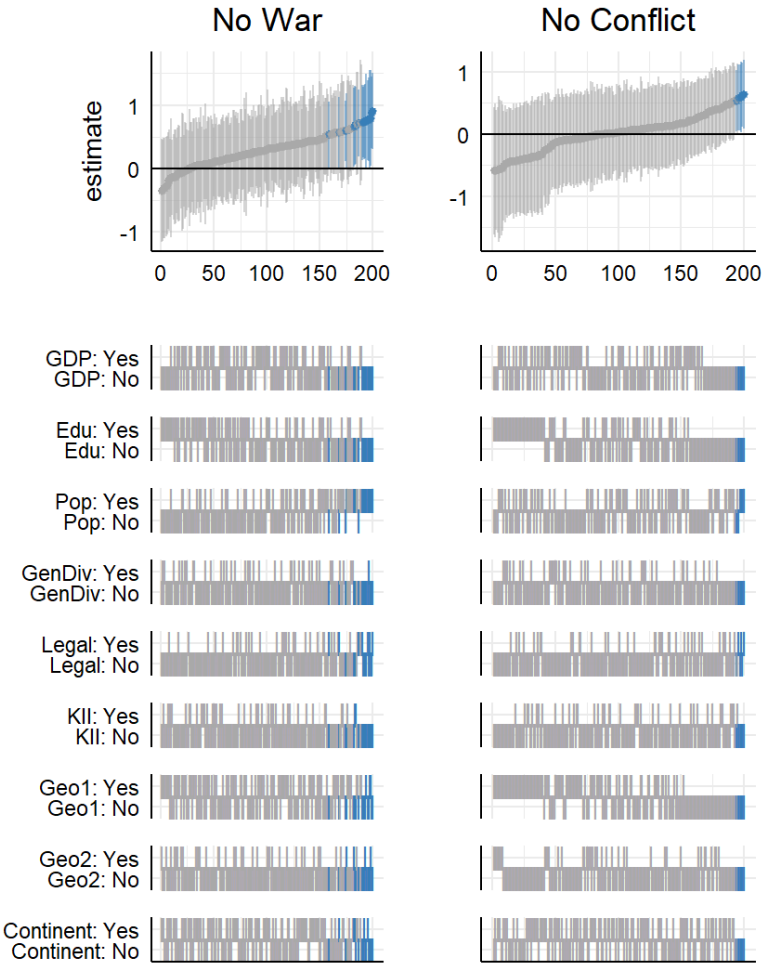


Fig S23. Specification curve of multiverse of analyses that predicts low corruption, inequality, and low social mobility from cultural distance across religious denominations. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

Fig S24. Specification curve of multiverse of analyses that predicts intrastate war and conflict from cultural distance across religious denominations. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.



Specification curve inferences

To assess the likelihood that our results reflect meaningful patterns in the data, we followed recommendations from Simonsohn et al. (2020) and test whether the observed average effect sizes are more extreme than would be expected if the null hypothesis were true, that is, if there were truly no association between the focal predictor and outcome. For models with continuous outcome variables (i.e., when predicting democracy, corruption, mobility, and inequality), we used the *specr* package in R (Masur & Scharkow, 2020) to test whether the observed average effect size from all specifications is significantly larger than would be expected if one forces the null on the data (see Simonsohn et al., 2020). Figures S25 – S28 below show the results of these inference tests, by comparing the expected specifications from a null model to the observed specification curve in the data. The specr package did not have any comparable function for testing the significance of specification curves involving binary outcome variables, therefore we instead relied on an alternative bootstrapping test for specification curves predicting war and conflict. We also did not conduct full inference tests with status and income groupings, because these models were almost always non-significant in the data.

Figure S25. Plot of regional cultural distances' observed specification curve (blue) compared to the expected under-the-null specification curves. The three curves here represent the 2.5th (low), the 50th (mid) and the 97.5th percentiles of these resamples under-the-null.

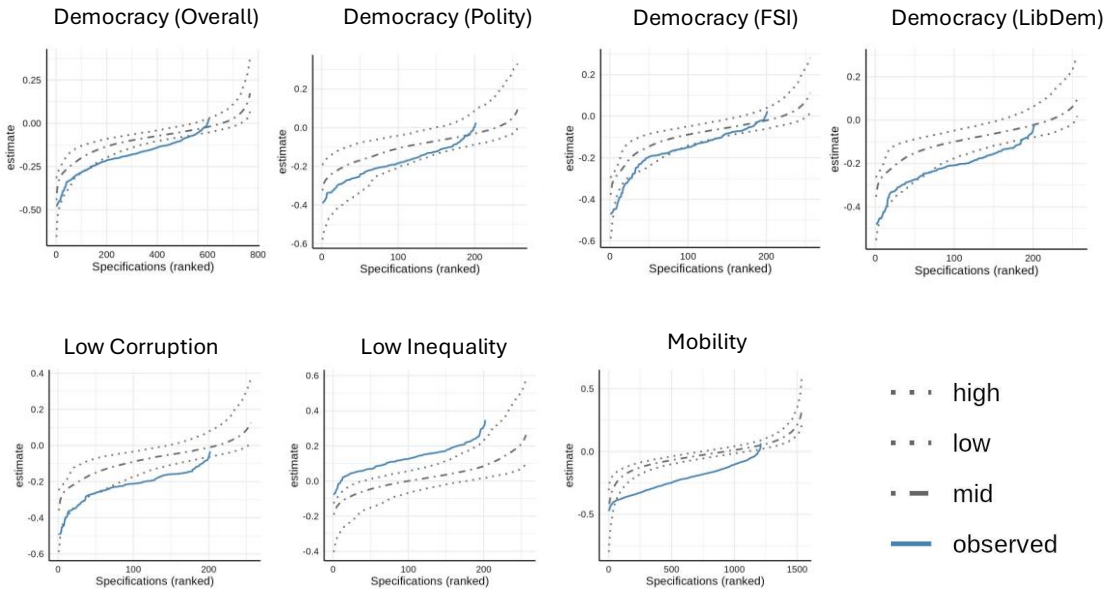


Figure S26. Plot of religious cultural distances' observed specification curve (blue) compared to the expected under-the-null specification curves. The three curves here represent the 2.5th (low), the 50th (mid) and the 97.5th percentiles of these resamples under-the-null.

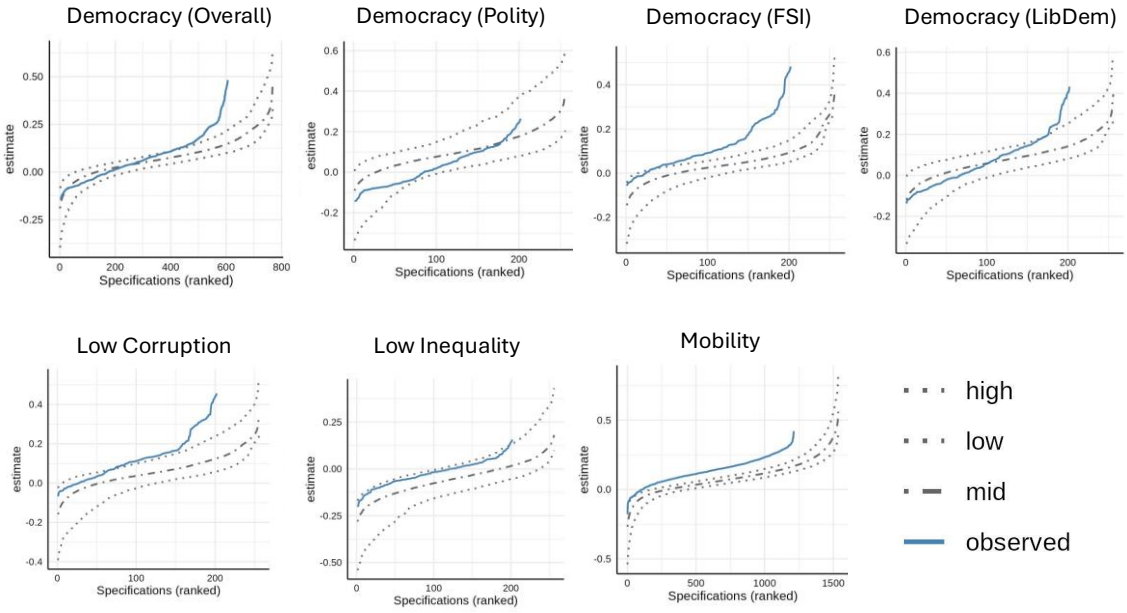


Figure S27. Plot of ethnic cultural distances' observed specification curve (blue) compared to the expected under-the-null specification curves. The three curves here represent the 2.5th (low), the 50th (mid) and the 97.5th percentiles of these resamples under-the-null.

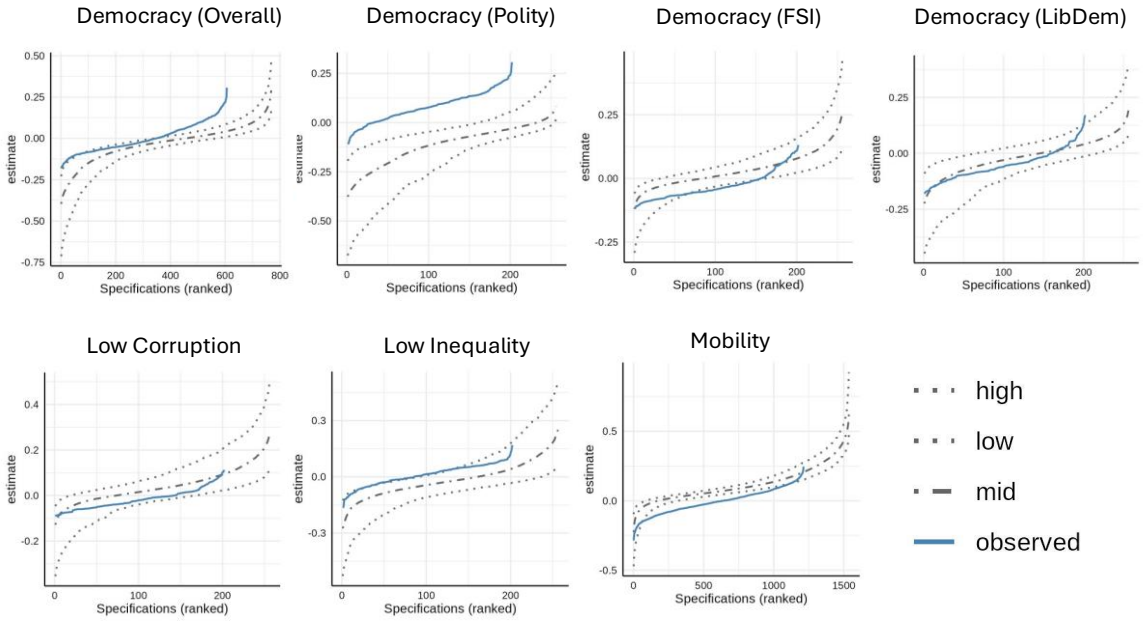
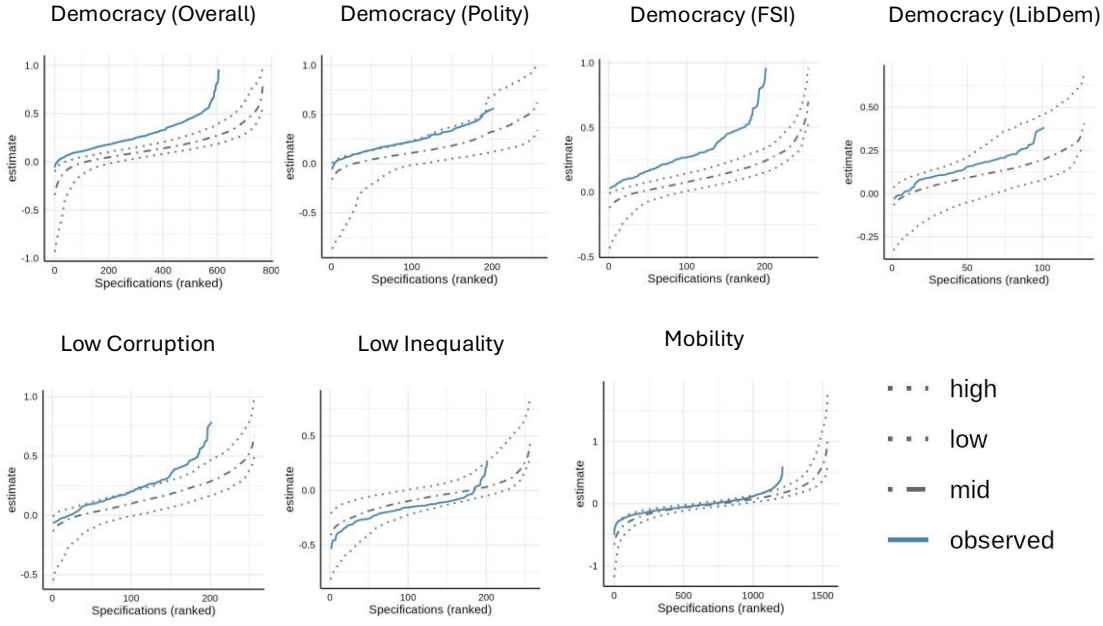


Figure S28. Plot of educational cultural distances' observed specification curve (blue) compared to the expected under-the-null specification curves. The three curves here represent the 2.5th (low), the 50th (mid) and the 97.5th percentiles of these resamples under-the-null.



Exploring Non-Linear Associations

Fig S29. Associations between cultural distance across education groups and outcome variables, from models allowing non-linear associations. Dots represent individual countries. Blue lines represent the association (with 95% confidence band) between education cultural differences and each outcome.

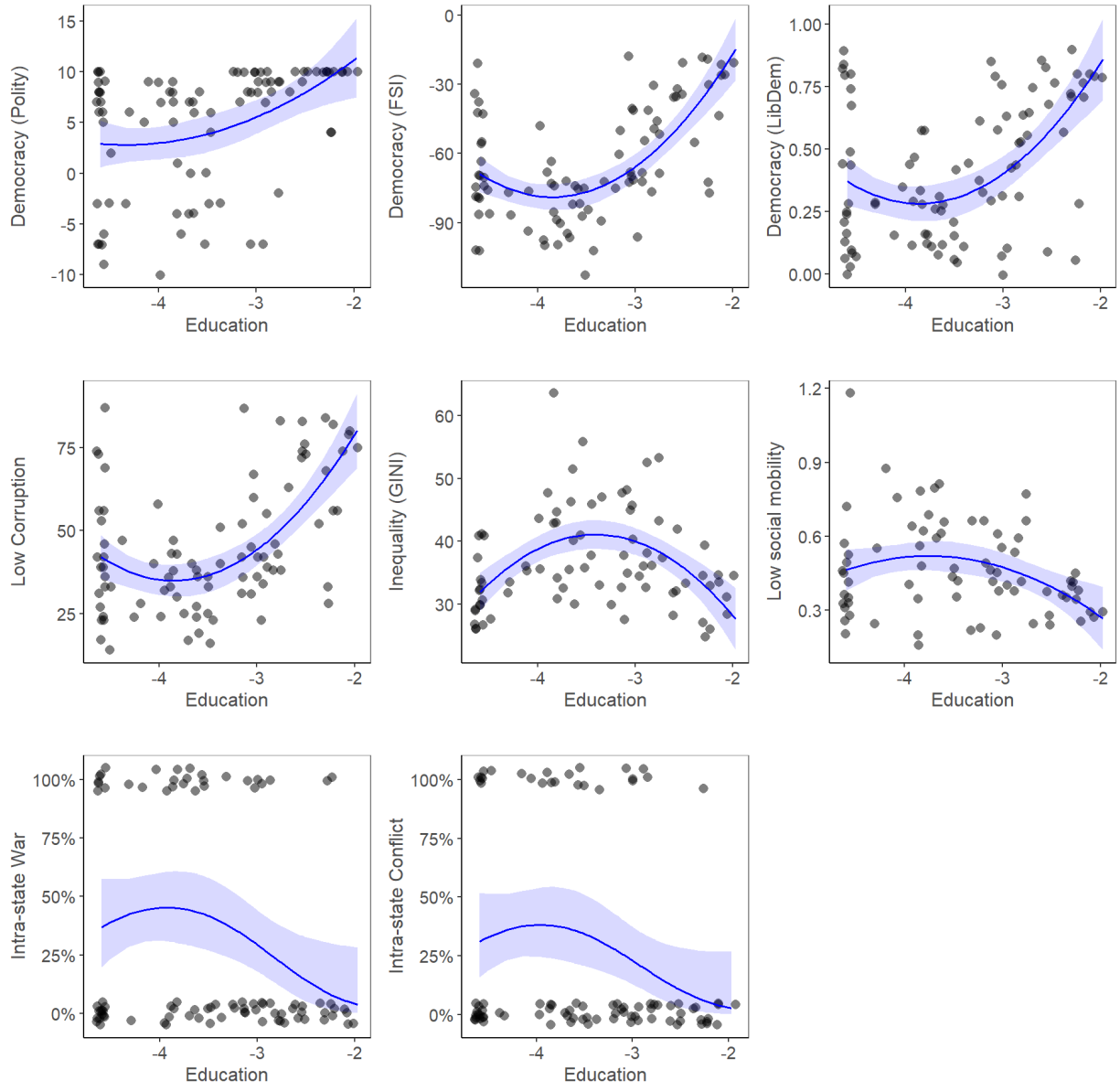


Table S5. Regression model testing for a quadratic association between education group cultural differences and democracy.

	Democracy (Polity)		**Democracy (FSI)**		**Democracy (LibDem)**	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
Intercept	-0.18 (-0.48, 0.12)	0.229	-0.50 (-0.75, -0.26)	**<0.001**	-0.42 (-0.69, -0.14)	**0.003**
Education	0.35 (0.15, 0.55)	**0.001**	0.42 (0.25, 0.59)	**<0.001**	0.34 (0.16, 0.52)	**<0.001**
Education^2	0.17 (-0.05, 0.40)	0.128	0.51 (0.32, 0.70)	**<0.001**	0.41 (0.20, 0.61)	**<0.001**
Observations	87		87		90	
R^2 / R^2 adjusted	0.163 / 0.143		0.423 / 0.410		0.277 / 0.261	

Table S6. Regression model testing for a quadratic association between education group cultural differences and corruption, inequality, and social mobility.

	Low Corruption		**Inequality (GINI)**		**Low Mobility**	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
Intercept	-0.46 (-0.72, -0.20)	**0.001**	-0.56 (-0.85, -0.27)	**<0.001**	-0.31 (-0.64, 0.02)	0.068
Education	0.37 (0.20, 0.54)	**<0.001**	-0.14 (-0.34, 0.06)	0.169	0.17 (-0.05, 0.40)	0.13
Education^2	0.45 (0.25, 0.65)	**<0.001**	0.57 (0.35, 0.79)	**<0.001**	0.29 (0.05, 0.54)	**0.021**
Observations	90		79		74	
R^2 / R^2 adjusted	0.333 / 0.317		0.261 / 0.242		0.122 / 0.098	

Table S7. Regression model testing for a quadratic association between education group cultural differences and intra-state war and conflict.

	Intra-state War		**Intra-state Conflict**	
Predictors	*Odds Ratios*	*p*	*Odds Ratios*	*p*
Intercept	1.39	0.33	1.90	0.069
	(0.72, 2.73)		(0.97, 3.91)	
Education	1.73	**0.049**	1.81	0.055
	(1.03, 3.15)		(1.03, 3.57)	
Education^2	1.72	0.089	1.71	0.121
	(0.96, 3.37)		(0.91, 3.60)	
Observations	91		92	
R^2 Tjur	0.076		0.062	

Robustness Check: Does number of categorized groups matter?

The number of geographic regions, ethnicities, or religious denominations within each country varied across different nations. These groups are based on those groupings considered most relevant by the WVS survey coordinators, such as geographic regions reflecting census or administrative units as defined by each country. Across countries, the number of groups within each country was positively correlated with the size of mean cultural distances between these groups (Region $r = 0.28$, Ethnicity $r = 0.63$, Religion $r = 0.68$, ps $< .01$), and the maximum cultural distance between these groups (Region $r = 0.50$, Ethnicity $r = 0.65$, Religion $r = 0.74$, ps $< .001$). To assess whether the number of groups was relevant to our results, we conducted exploratory multiverses that included the number of groupings within each country as a separate, independent predictor variable, in addition to the previously specified set of predictor variables. Table S8 displays the multiverse of results for models including vs. excluding number of groups as a focal predictor. Figure S30 displays specification curves for the association between cultural distance and outcomes, when controlling for number of groups. Figures S31 – S32 display specification curves for the associations between number of groups and outcomes, from these same models. Across the multiverse of specifications, including the number of groups did not substantively change the strength of associations between cultural distance and the outcome variables, and number of groups was generally a weak predictor of outcomes in its own right.

Table S8. Summary of multiverse analyses based on (a) original models with estimates for cultural distance predicting outcomes, not including number of groups. Models (b) and (c) are based on models that include both cultural distance and number of groups as predictors of outcomes. Estimates under (b) reflect the association between cultural distance and outcomes when controlling for number of groups. Estimates under (c) reflect the associations between number of groups and outcomes, when controlling for cultural distance. Summaries include mean model estimates (Mean est.), percent of models with $p < .05$ and $p < .01$, percent of effects above zero (% pos effects) and below zero (% neg. effects). Intensity of shading indicates the proportion of effects that are significant or in a positive/negative direction.

		(A) Original Results: Focal Predictor = CF_{ST}					(B) Results controlling for number of groups: Focal Predictor = CF_{ST}					(C)Results controlling for number of groups: Focal Predictor = Number of groups				
Predictor	**DV**	**Mean est.**	**% p < .05**	**% p < .01**	**% pos. effects**	**% neg. effects**	**Mean est.**	**% p < .05**	**% p < .01**	**% pos. effects**	**% neg. effects**	**Mean est.**	**% p < .05**	**% p < .01**	**% pos. effects**	**% neg. effects**
Ethnicity	No Conflict	-0.55	23.8	0.0	0.3	99.8	-0.62	6.5	0.0	0.8	99.3	0.14	0.3	0.0	54.0	46.0
Ethnicity	Democracy (FSI)	-0.03	0.5	0.0	19.5	80.5	0.03	2.0	0.0	60.3	39.8	-0.17	13.0	4.8	21.5	78.5
Ethnicity	Democracy (LibDem)	-0.01	2.3	0.5	49.0	51.0	-0.04	4.0	0.0	35.5	64.5	0.09	6.3	1.3	69.3	30.8
Ethnicity	Democracy (Overall)	0.02	3.3	0.3	53.3	46.7	0.00	2.0	0.0	51.3	48.7	0.05	9.1	2.3	60.6	39.4
Ethnicity	Democracy (Polity)	0.10	7.3	0.3	91.5	8.5	0.02	0.0	0.0	58.3	41.8	0.23	8.0	1.0	91.0	9.0
Ethnicity	Low Inequality	-0.02	0.0	0.0	35.3	64.8	0.26	39.8	7.0	99.5	0.5	-0.71	70.3	57.3	0.0	100.0
Ethnicity	Low Corruption	-0.01	0.0	0.0	36.5	63.5	0.10	4.0	0.3	94.0	6.0	-0.29	14.8	4.5	4.0	96.0
Ethnicity	Mobility	0.01	0.1	0.0	55.2	44.8	-0.03	6.0	0.9	44.1	55.9	0.11	8.5	1.8	65.4	34.6
Ethnicity	No War	-0.69	50.3	19.5	0.0	100.0	-0.72	34.0	4.8	1.3	98.8	0.07	0.0	0.0	58.0	42.0
Region	No Conflict	-0.41	3.0	0.0	0.0	100.0	-0.42	3.5	0.0	0.0	100.0	0.07	0.0	0.0	55.0	45.0
Region	Democracy (FSI)	-0.16	44.5	21.0	1.5	98.5	-0.14	25.0	11.5	5.0	95.0	-0.12	22.5	0.0	14.0	86.0
Region	Democracy (LibDem)	-0.22	56.0	25.5	0.0	100.0	-0.21	45.0	19.5	0.0	100.0	-0.03	0.0	0.0	32.5	67.5
Region	Democracy (Overall)	-0.19	42.2	18.5	1.0	99.0	-0.17	28.7	11.7	3.2	96.8	-0.08	7.5	0.0	20.0	80.0

		(A) Original Results: Focal Predictor = CF_{ST}					(B) Results controlling for number of groups: Focal Predictor = CF_{ST}					(C)Results controlling for number of groups: Focal Predictor = Number of groups				
Predictor	**DV**	**Mean est.**	**% p < .05**	**% p < .01**	**% pos. effects**	**% neg. effects**	**Mean est.**	**% p < .05**	**% p < .01**	**% pos. effects**	**% neg. effects**	**Mean est.**	**% p < .05**	**% p < .01**	**% pos. effects**	**% neg. effects**
Region	Democracy (Polity)	-0.18	26.0	9.0	1.5	98.5	-0.16	16.0	4.0	4.5	95.5	-0.10	0.0	0.0	13.5	86.5
Region	Low Inequality	0.13	7.5	0.0	95.0	5.0	0.19	16.5	0.5	100.0	0.0	-0.26	5.0	0.0	0.0	100.0
Region	Low Corruption	-0.22	58.5	28.0	0.0	100.0	-0.21	46.0	20.0	0.5	99.5	-0.06	0.5	0.0	26.0	74.0
Region	Mobility	-0.22	36.8	9.8	1.6	98.4	-0.23	30.9	5.6	1.7	98.3	0.04	0.2	0.0	61.2	38.8
Region	No War	-0.19	2.5	0.0	18.5	81.5	-0.17	2.5	0.0	24.0	76.0	-0.04	0.0	0.0	40.5	59.5
Religion	No Conflict	0.01	3.0	0.0	56.5	43.5	-0.35	0.0	0.0	23.0	77.0	0.88	0.0	0.0	90.0	10.0
Religion	Democracy (FSI)	0.12	25.5	16.0	88.0	12.0	0.08	10.0	7.0	61.0	39.0	0.12	8.5	0.5	79.5	20.5
Religion	Democracy (LibDem)	0.07	13.5	9.0	67.0	33.0	-0.02	6.0	2.5	38.5	61.5	0.24	11.5	2.0	89.0	11.0
Religion	Democracy (Overall)	0.08	14.7	8.3	71.2	28.8	-0.04	7.2	3.2	35.2	64.8	0.28	13.8	2.2	89.5	10.5
Religion	Democracy (Polity)	0.03	5.0	0.0	58.5	41.5	-0.16	5.5	0.0	6.0	94.0	0.48	21.5	4.0	100.0	0.0
Religion	Low Inequality	-0.02	0.0	0.0	40.0	60.0	0.41	80.5	37.0	100.0	0.0	-1.11	98.0	87.5	0.0	100.0
Religion	Low Corruption	0.13	22.5	16.0	86.5	13.5	0.04	6.5	6.0	57.0	43.0	0.23	7.0	1.5	88.5	11.5
Religion	Mobility	0.14	13.9	3.1	91.3	8.8	0.17	9.8	3.2	86.7	13.3	-0.07	1.9	0.3	38.8	61.2
Religion	No War	0.29	9.5	1.5	87.0	13.0	0.20	0.0	0.0	68.5	31.5	0.18	0.5	0.0	62.0	38.0

Figure S30. Specification curve of multiverse of analyses that predicts outcome variables from cultural distance between geographic regions, when also controlling for number of geographic regions within each country. Blue lines indicate positive significant effects (p < .05), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

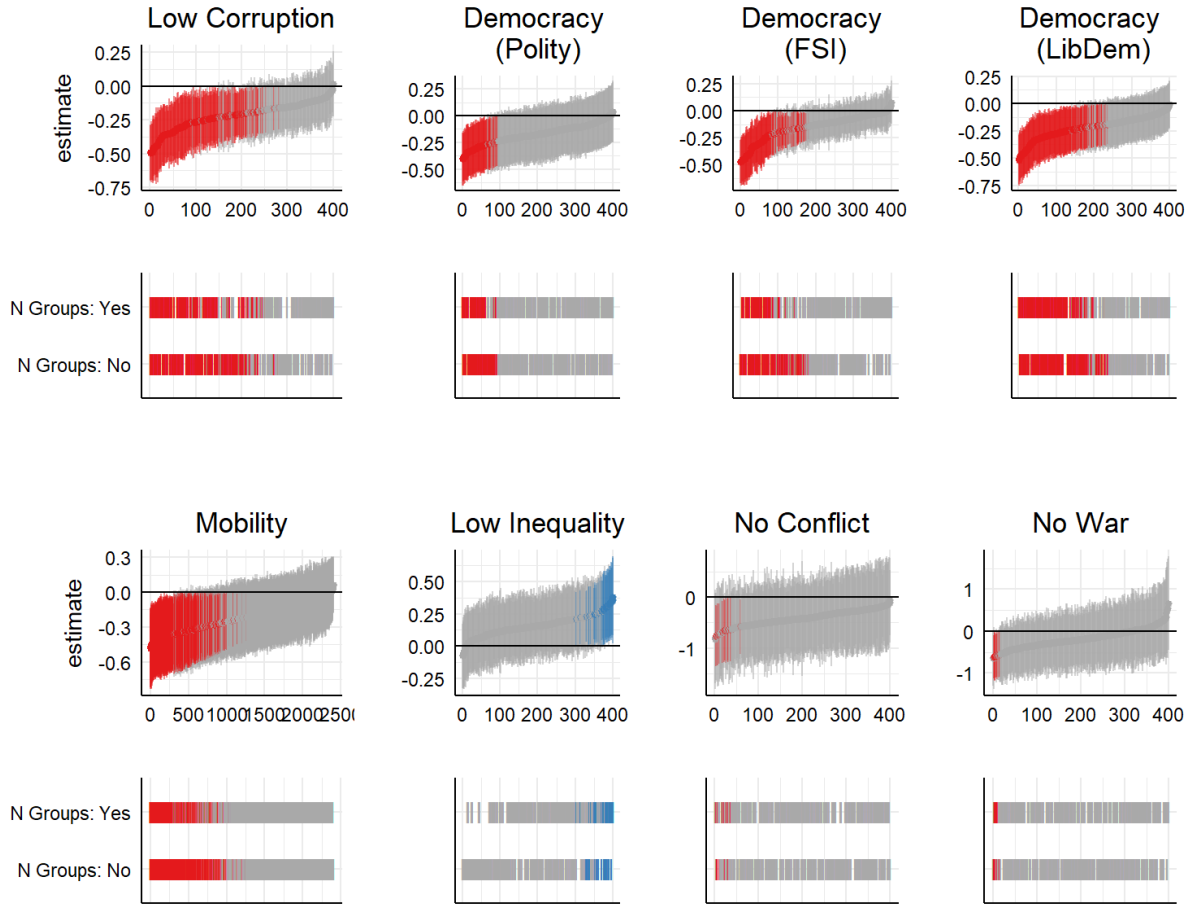


Figure S31. Specification curve of multiverse of analyses that predict democracy and corruption from the number of geographic regions within each country. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

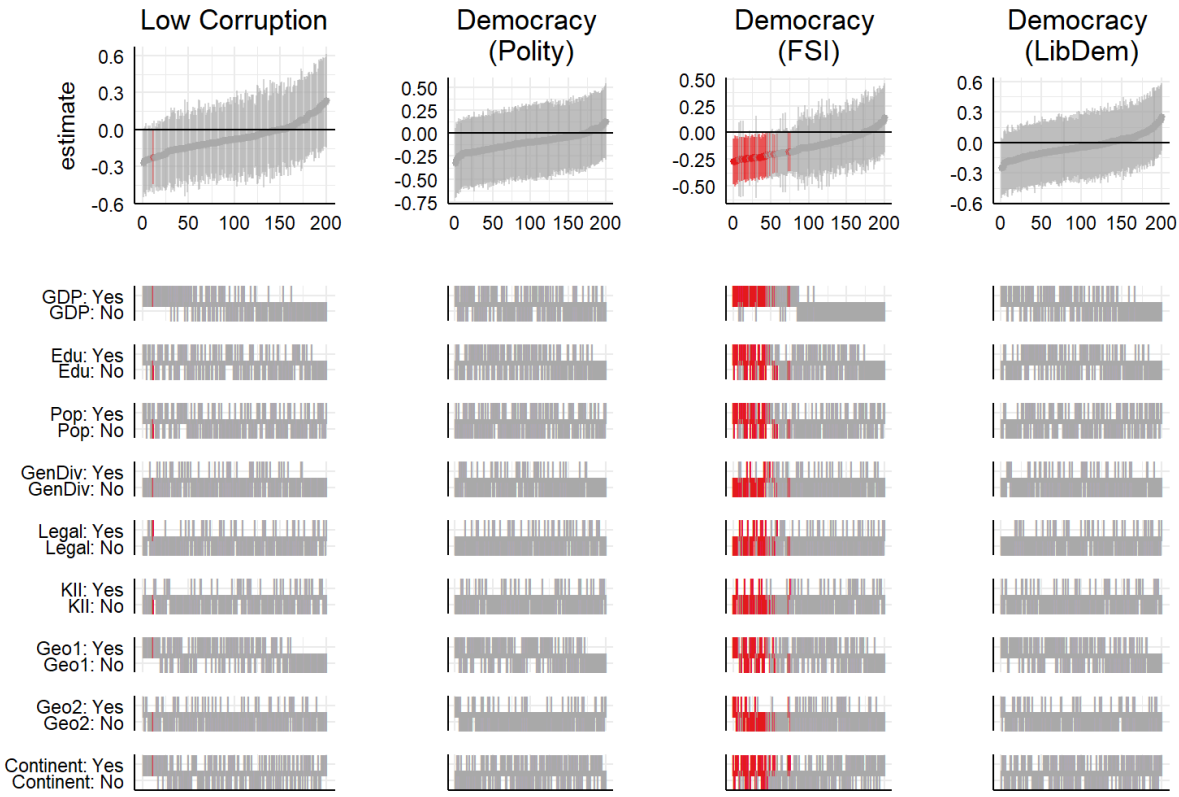


Figure S32. Specification curve of multiverse of analyses that predict mobility, inequality, conflict, and war from the number of geographic regions within each country. Blue lines indicate positive significant effects ($p < .05$), red indicates negative significant effects, and grey lines indicate non-significant models estimates.

References

Coppedge, M., Gerring, J., Knutsen, C. H., Staffan, L. I., Teorell, J., & Altman, D. (2019). *V-Dem Codebook v9*. Varieties of Democracy (V-Dem) Project.

Desmet, K., Ortuño-Ortín, I., & Wacziarg, R. (2017). Culture, Ethnicity, and Diversity. *The American Economic Review*, *107*(9), 2479–2513.

Schulz, J. F., Bahrami-Rad, D., Beauchamp, J. P., & Henrich, J. (2019). The Church, intensive kinship, and global psychological variation. *Science*, *366*(6466). https://doi.org/10.1126/science.aau5141

Simonsohn, U., Simmons, J. P., & Nelson, L. D. (2020). Specification curve analysis. *Nature Human Behaviour*, *4*(11), Article 11. https://doi.org/10.1038/s41562-020-0912-z