Individualism-Collectivism and Risk Perception around the World

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Abstract

Understanding cultural differences in risk perception is critical in an increasingly uncertain world. Here we examine the relationship between the individualism-collectivism continuum and risk perception around the world using a recently available dataset from the Lloyd's Register Foundation World Risk Poll. With a representative sample of 150,000 participants from 142 countries, the dataset contains rich information including risk perception in terms of perceived likelihood and worry along with personal experiences for a range of risks in daily life. We observe that participants from countries with a more individualist culture perceive lower risks relative to their personal experiences. Using historical kinship tightness to proxy individualism or adopt genetic distance as an instrumental variable linked to individualism, we find that more individualist culture is associated with lower perceived risks. Our study sheds light on the importance of culture in shaping risk perception and contributes to the understanding of global differences in behavioral traits.

Keyword: risk perception, belief, individualism, culture, global differences

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1. Introduction

Risk perception is a cornerstone of decision-making in the present, ranging from trying a new product to investing in the stock market, as well as in the distant past, when exposure to dangerous situations was commonplace (Slovic, 1987). Individuals differ substantially in how they perceive risk in their surroundings and how they generalize their own perceived risk to others. Consequently, differences in risk perception can lead to disagreement, polarization, and conflict (Bostrom et al., 1994). For example, both public and scientific communities around the world have divergent views about how best to respond to the COVID-19 pandemic, in part because they hold different beliefs about the risks associated with the pandemic (Lu, Jin, and English, 2021). Among the studies on the underpinnings of risk perception, much attention has been paid to the cultural explanation of the individualism-collectivism continuum—that is, the degree to which people focus on their internal attributes and differentiate themselves from others (Hofstede, 2001).

Central to the relationship between the individualism-collectivism continuum and risk perception is that social groups entail mutual insurance and provide protection for individual members. Two strands of hypotheses have been proposed in the literature. In the first hypothesis, collectivist cultures are linked to pessimism and high perceived risks, compared to individualist cultures (Markus and Kitayama, 1991). As elaborated on in the uncertainty-identity theory (Hogg, 2007), when people are more uncertain, insecure, and pessimistic about themselves and their surroundings, they are more likely to seek group identification. The exposure to risk also motivates pessimistic people to seek for mutual insurance in their social networks (Fafchamps and Lund, 2003). In this regard, pessimism can contribute to the formation of collectivist cultures; conversely when people feel more confident and optimistic, individualist cultures prevail (Fischer and Chalmers, 2008). In the second hypothesis, often known as the cushion hypothesis, people in collectivist cultures are better insured and supported by their nuclear and extended family members as well as friends in their social networks (Townsend, 1994; Fafchamps and Gubert, 2007). Consequently, collectivist culture acts as a form of implicit mutual insurance to protect people from catastrophic losses, which leads to fewer perceived risks compared with individualist culture (Hsee and Weber, 1999; Weber and Hsee, 1998). Building on these two hypotheses, here we provide the first study on the relationship between individualism-collectivism and risk perception on a global scale.

We make use of a recently available dataset from the Lloyd's Register Foundation World Risk Poll (WRP), conducted by Gallup in 2019 as part of its World Poll (Lloyd's Register Foundation, 2021). As the first global overview of how the world's citizens perceive risk and safety, the rich data provide a unique opportunity to address our research question for several reasons. First, the data consist of a large-scale and systematic measure of risk perception using a representative sample across 142 countries with a total of 150,000 participants. Second, the poll covers a wide range of risks including the food they eat, the water they drink, violent crime, severe weather events, electrical power lines, household appliances, and mental health issues. These seven domains of risk are central to daily life across societies. Third, the poll asks participants about two aspects of risk perception—perceived likelihood and worry—with respect to serious harm caused by the seven domains of risks, and personal experiences of serious harm from these risks, which we can control for when examining risk perception.

We combine the risk perception dataset with the classic scale of Hofstede (2001): the extent to which people feel independent as opposed to being interdependent as members of a larger whole. We find that participants from countries with stronger contemporary individualism perceive less risks relative to personal experiences, and the observation is robust after controlling for biogeographic variables and continent dummies as well as demographic, economic, institutional, and religious variables. Depending on the specification, an increase of one standard deviation in Hofstede's individualism score is associated with a decrease in the likelihood-experience gap by between 31.2% and 55.3% of a standard deviation and a decrease in the worry-experience gap by between 26.3% and 45.8% of a standard deviation. Additionally, we use an alternative measure of individualism—the family ties scale constructed by Alesina and Giuliano (2013). This scale is based on the World Value Survey (WVS) and captures the importance of family, parental duty and responsibility, and the love and respect expected from children. Using this scale, we find a similar pattern where participants from countries with weaker family ties perceive lower risks.

We conduct two further analyses to examine the relationship between the transmission of individualist culture and risk perception at the present date, attempting to rule out reverse causality and omitted variables issues. First, we use the kinship tightness scale recently developed by Enke (2019) as an adverse proxy of historical individualism. This scale is developed based on the Ethnographic Atlas (EA), an ethnographic dataset on the cultural

practices of ethnic groups around the world (Murdock, 1967; Giuliano and Nunn, 2021). It measures the extent to which individuals in preindustrial societies were embedded in interconnected extended family networks, which is unlikely to be influenced by how people perceive risk in current days. We find that participants from countries with lower scores of historical kinship tightness perceive lower risks.

Second, we further examine the relationship using the genetic distance between countries as an instrumental variable (IV) (Gorodnichenko and Roland, 2011; 2017). To deal with the concern that there might be omitted variables driving both individualism and risk perception, Gorodnichenko and Roland (2011; 2017) suggest that the genetic distance provides an indirect measure of cultural transmission, as parents transmit both their culture and genes to their children. Exploiting such a correlation between genetic and cultural transmission, genetic distance can be used as an IV for distance in the individualism-collectivism continuum. In specific, genetic distance is measured using the Mahalanobis distance between the frequency of blood types in each country and the frequency of blood types in the United Kingdom. Because there is no clearly identified evidence showing that blood types have a direct impact on risk perception, it is hence arguably acceptable that genetic distance based on blood types satisfies the exclusion restriction. [1] Using this IV approach, we observe that individualist culture is linked to lower perceived risk. While both evidence from historical individualism and IV approach can help rule out some omitted variables, it remains possible that there could be channels such as other cultural dimensions that can be indirectly related to risk perception. Nevertheless, these analyses help exclude the reverse causality to some extent and provide additional support for the optimism-individualism hypothesis.

Our study adds to the growing literature on global differences in behavioral traits. Existing studies have explored a wide range of behavioral traits, and investigate the correlations of across country variations such as biogeographic conditions, macroeconomic characteristics, and cultural factors.[2] In a study of risk preference with more than 5,000 subjects from 53 countries, Rieger, Wang and Hens (2015) show that higher Hofstede's individualism score at

[1] Gorodnichenko and Roland (2011, 2017) also use specific genetic variations of the serotonin transporter gene and the u-opoid receptor gene. We do not use these two genes in our analyses, because these two genetic variations may be linked to risk perception. Moreover, as increasingly recognized, the effect size of single genetic polymorphisms is generally small.

[2] See, for example, Herrmann, Thöni, and Gächter (2008), Gelfand et al (2011), Vieider et al (2015), Rieger, Wang and Hens (2015), Wang, Rieger, and Hens (2016), Gächter and Schulz (2016), Mata, Josef, and Hertwig (2016), Falk et al (2018), Falk and Hermle (2018), l'Haridon et al (2018), l'Haridon, and Vieider (2019).

the country level predicts more risk seeking for lotteries of gains and more risk aversion for lotteries with losses. In the global preference survey with 80,000 people from 76 countries, Falk et al (2018) show that risk-taking behavior is positively correlated with the WVS family ties score but not with Hofstede's individualism score. Studies using data on financial markets show that countries with individualist cultures tend to take more risks, have higher trading volume and volatility, and overpay stocks with positive extreme returns (Chui, Titman, and Wei, 2010; Li et al., 2013; Cheon and Lee, 2018). Given the distinction between risk perception and attitudes toward perceived risk (Weber et al., 2002), it is of importance to study the cross-cultural variation in risk perception across the globe. Overall, these studies on risk taking behavior together with ours on risk perception provide empirical support for the optimism-individualism hypothesis.

The cushion hypothesis has been supported by numerous experimental studies that compare risk perception across multiple countries (Weber and Hsee, 1998; Hsee and Weber, 1999). Nevertheless, it has been suggested that the cushion hypothesis is more specific regarding financial risk, since people in collectivist cultures are more likely to receive financial support from their social group. For example, the difference between the United States and China is only observed in the domain of investment, but not in the domain of medical and academic decisions (Hsee and Weber, 1999).[3] Adding to these prior multinational studies, here we examine the link between individualism and risk perception in daily life across the globe.

More broadly, this paper contributes to the literature on the importance of culture in economic behavior and outcomes (Henrich et al., 2011; Guiso et al., 2006; Spolaore and Wacziarg, 2013; Alesina and Giuliano, 2015; Ahern et al., 2015; Nunn, 2020; Bazzi et al., 2020). Gorodnichenko and Roland (2011, 2017) propose that individualism promotes long-run growth through innovation, and provide empirical support for the hypothesis showing that individualism has a positive effect on income per worker, total factor productivity and innovation. Here our study shows that individualism is positively linked to optimism in risk perception in various domains. Because optimism in risk perception is central to entrepreneurship and innovation (Doepke and Zilibotti, 2013), it could be an important behavioral factor underlying the effect of individualism on long-run growth. Relatedly, it has

[3] For instance, the intra-clan financing is mostly based on the closely connected lineages (Chen, Ma, and Sinclair, 2021).

been observed that individualist culture is associated with response to COVID-19, namely, more individualist counties in the United States are associated with less in social distancing and mask uses, less willing to receive COVID-19 vaccines, and weaker local government effort to control the virus (Bazzi et al., 2021; Bian et al., 2022). These are consistent with our observed link between optimism and individualism.

The rest of the paper is organized as follows. Section 2 presents the data used in our empirical analysis. Section 3 reports the results with several robustness checks. Section 4 offers some concluding remarks.

2. Data

2.1. Risk perception

Risk perception indices are constructed from data of the Lloyd's Register Foundation World Risk Poll (WRP). The WRP was conducted as part of the 2019 Gallup World Poll, which is a worldwide survey that gathers data on a representative population sample in a wide range of countries. The WRP was designed to measure global attitudes toward risk and safety and is the first global survey of how people around the world experience and perceive risk.

Three critical features of the WRP data facilitate our analysis. First, the representativeness of country samples. The survey was conducted in 142 countries and territories with around 150,000 participants. Several remote countries and territories where surveys had been rarely conducted were also included. Typically, a probability-based randomly selected sample of 1,000 adults aged 15 or above were interviewed in each country. In China, Russia, and India, larger samples were used. Ex post representativeness is ensured using weights calculated by Gallup. Second, the reliability risk measures on both subjective and objective aspects. Participants' subjective view of daily risk is investigated from two perspectives: perceived likelihood - "How likely do you think it is that each of the following things could cause you serious harm in the next two years?"; and worry - "In general, how worried are you that each of the following things could cause you serious harm? Are you very worried, somewhat worried, or not worried?" Apart from subjective view, a self-reported experience of risk is also available in the dataset – "Have you or someone you personally know experienced serious harm from any of the following things in the past two years?" This self-reported experience of risk reflects a relatively objective measure of daily risks. This feature of the dataset makes it possible to

measure how participants in the survey perceived risks relative to what they had experienced. Third, the extensiveness of domains captured in the daily contexts. Unlike most surveys that only focus on financial risks, the WRP covers a wide range of risks encountered in daily life. In relation to our study, seven domains of daily risk are asked regarding the food they eat, the water they drink, violent crime, severe weather events (such as floods or violent storms), electrical power lines, household appliances (such as a washing machine, dryer, or refrigerator), and mental health issues. Such an extensive range guarantees the comprehensiveness of risk measures in the daily context. Given that the responses to these seven domains are highly correlated (Table S1), we use the average scores of the seven domains to construct three risk indices at the country level: the perceived likelihood index, the worry index, and the experience index.

For each of the three indices—perceived likelihood, worry, and experience—an unweighted average of the seven domains is computed as the measure adopted. With perceived likelihood, worry, and experience, the likelihood-experience gap is constructed by the difference between perceived likelihood and experience and the worry-experience gap is constructed by the difference between worry and experience. The country-level summary index is computed as the sample average of individuals in each country, weighted by the sampling weights provided by Gallup. The resulting indices are first rescaled to [0,1], and then standardized into z-scores with mean of 0 and variance of 1 to facilitate further analysis and interpretation of the results.

The perceived likelihood index and the worry index measure cognitive judgment of risk and emotional response to risk, respectively (Sjöberg, 1998; Shiloh et al, 2013), and the experience index yields a relatively objective measure of the risks respondents have experienced.[4] Consequently, we measure risk perception by the likelihood-experience gap and the worry-experience gap, which are constructed by the perceived likelihood index and the worry index less the experience index, respectively. The two gaps are our preferred measure for risk perception to proxy for the extent to which people perceive risks relative to their experience (see Appendix for details). While these two gaps are supposed to capture different aspects of risk perception, the degree of their correlation varies substantially across studies (Sjöberg, 1998; Shiloh et al, 2013). In the WRP, the two gaps are highly correlated across countries (Pearson

[4] Because risk perception is influenced by actual experience of risk, both the perceived likelihood index and the worry index are highly correlated with the experience index (Pearson correlation $= 0.738$, $p < 0.001$ for likelihood; Pearson correlation $= 0.732$ for worry, $p < 0.001$).

correlation $= 0.894, p < 0.001$). Nevertheless, given that it is important to distinguish the cognitive and emotional aspects of risk perception (Loewenstein et al. 2001), we separately examine the two gaps in subsequent analyses.

2.2. Proxies for Individualism and Collectivism

Individualism-collectivism describes the degree to which people value independency and freedom, reflected in how people live together and interconnect with others in a group. Our main analysis adopts the widely used Hofstede's individualism scale. Further analysis involves several alternative measures including the family ties scale from the World Values Survey (WVS), the kinship tightness score from Enke (2019), and the genetic distance as an instrumental variable. These measures are at the country level and enable us to capture individualism-collectivism disparities in a broad frame.

Hofstede's individualism scale. The widely used individualism scale is developed by Hofstede (2001) as one of the 6-dimensional cultural measures. The scale is based on factor analysis using a set of fourteen questions on work goals, which reveal employees' attitudes about the relative importance of individual goals versus collective goals. Hofstede's individualism scale was initially based on from surveys of IBM employees and expanded to 107 countries with new waves or reasonable estimation (Hofstede, 2021).

WVS family ties scale. The family ties scale is constructed by Alesina and Giuliano (2013) from questions in the World Values Survey (WVS). This scale captures three dimensions that reflect the strength of family ties, including beliefs about the importance of family in one's life, the love and respect for one's own parents, and the duties and responsibilities of parents and children. Revealing the extent to which people in a society are connected to their nuclear family members, this scale serves as a proxy for collectivism in contemporary societies, averse to Hofstede's individualism scale. Multiple waves of the WVS data enable us to construct this scale for 66 countries.

Enke's kinship tightness score. For historical origins, we use the historical kinship tightness scale recently developed by Enke (2019). Kinship tightness is based on a leading anthropological dataset, the Ethnographic Atlas (EA). Using observations with an average of 1,990 years, this scale provides information on the extent to which people are interconnected

in tightly structured, extended family networks along two dimensions. It consists of two components: the family structure component measuring domestic organization and post-wedding residence, and the descent systems component capturing lineages and segmented communities. The kinship tightness scale and the two components are available for 133 countries in the WRP sample.

Genetic distance. We additionally use genetic distance as an IV linked to individualism to provide a possibly more accurate estimation. Following Gorodnichenko and Roland (2011, 2017), we adopt the Mahalanobis distance between the frequencies of blood types in each country and that in the United Kingdom—one of the most individualist countries around the world. The idea of this IV is originally borrowed from what is called the epidemiological approach (Fernández, 2010). Since both genes and culture transmissions take place from parents to offspring, genetic origins help to distinguish between cultural versus environmental factors on individuals' variations. Hence, genetic distance is used to proxy cultural attributes like individualism not because genes can be seen as a determinant of culture but rather a correlated factor. As the United Kingdom has the third largest Hofstede's individualism scale, a larger genetic distance implies a lower level of individualism culture.

2.3. Control variables

Country-level controls in our main analysis consist of a wide scope of bio-geographic variables, demographic variables, economic and institutional variables, and religious variables. Also, we include continental fixed effects in the analysis. We list the control variables briefly below and provide detailed data sources in the online appendix.

Bio-geographic variables. Bio-geographic control variables include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land.

Demographic variables. Demographic controls are the country-level aggregation of individual demographics in our sample. Individual-level demographics include gender, age, years of education, and urbanicity dummy. As a result, the aggregated country-level variables consist of gender ratio, average age, average years of education, and urbanicity rate.

Economic, institutional, and religious variables. The economic control refers to the logarithm of GDP per capita, averaged over 2010-2019. A democracy scale following Marshall et al. (2002) is adopted as the institutional control. We also consider religious impacts: the fraction of the population with no religion adherence is used as an adverse proxy for religious population; the fraction of protestants is included as an additional control considering the connection between protestants and individualism.

3. Results

Figure 1 shows the maps of these five indices at the country level (see Figure S1 and S2 for the distribution plots). In each figure, darker colors represent higher values of the index; lighter colors represent lower values; and white represents countries that are not included in the WRP. Substantial variations are observed across continents and countries. Populations living in South American, African, and Pacific countries are observed to perceive higher likelihood of risk and worry more (Figure 1A and Figure 1B). While the pattern across continents is generally similar (Figure 1C), experience of risky incidents does not vary substantially in North America and South America. Moreover, East Asian countries are among those that have the lowest experience index, though their perceived likelihood and worry are moderate. For the likelihood-experience gap (Figure 1D), most countries in Asia and South America perceive a higher likelihood of risk relative to their experience. Countries in North America and Oceania have a smaller gap, while countries in Africa and Europe exhibit a less straightforward pattern. Despite the high degree of similarity between the likelihood-experience gap and the worry-experience gap (Figure 1E), some disparities can be seen, especially in Europe and Africa.

[Insert Figure 1]

We examine the cross-country correlation between these risk indices and several measures of risk taking in the literature. These measures include Hofstede's uncertainty avoidance scale (Hofstede, 2001), risk taking in the Global Preference Survey (Falk et al., 2018), and the WVS value of stimulation derived from the Schwartz Values Survey (Schwartz, 2012). While these scales are related to our risk indices to some extent, the correlations are generally either small or moderate (Table S2). Overall, these measures of risk-taking behavior do not fully reflect

how people perceive daily risks, in support of the distinction between risk perception and risk-taking behavior (Fox and Tversky, 1998; Weber, Blais, and Betz, 2002; Wakker, 2004)

Table 1 displays a group of variables and reports their Pearson correlations with the risk indices at the country level. Panel A shows correlations between our risk indices and proxies of individualism-collectivism. In our main analysis, we use Hofstede's individualism score to measure individualism in the contemporary society (Hofstede, 2001). Furthermore, we use a group of proxies for collectivism to provide supplementary evidence. The WVS family ties scale captures to what extent people attach importance to their family as well as the strength of love and responsibility in a family (Alesina and Giuliano, 2013). While the WVS family ties scale reveals an important component of collectivism in contemporary societies, collectivism culture dating back to the pre-industrial societies can be reflected in the recently developed kinship tightness scale (Enke, 2019). We also consider the two components of kinship tightness: family structure scale and descent systems scale. The former is constructed from domestic organization and post-wedding residence, and the latter from lineages and segmented communities (Enke, 2019).

We also consider bio-geographic, demographic, economic, institutional, and religious variables. Of these sets of factors, bio-geographic variables are unlikely to be subject to the influence of risk perception and individualism, so we control for them in our preferred specification. The demographic, institutional and economic, and religious variables are more likely to influence or be influenced by risk perception and individualism, and hence should be treated more cautiously.

[Insert Table 1]

3.1. Baseline results: Hofstede's individualism and risk perception

Figure 2 plots the cross-country relationship between the two gap indices and Hofstede's individualism across countries (see Figure S3 for the other three indices). Both the likelihood-experience gap and the worry-experience gap decrease with Hofstede's individualism score. Specifically, the likelihood-experience gap is correlated negatively with Hofstede's individualism score (Pearson correlation $= -0.539, p < 0.001$) and so is for the worry-

experience gap (Pearson correlation $= -0.464$, $p < 0.001$). From the descriptive result, people in a more individualist culture perceive fewer risks relative to their actual experiences.

[Insert Figure 2]

We further perform OLS regression analyses using the likelihood-experience gap and the worry-experience gap indices as the dependent variable and Hofstede's individualism scale as the main independent variable. Regressions are conducted at country level. In the basic specification, we do not include any controls. Then we consider a series of control variables and continental fixed effects. The country-level regression equation is as follows:

$$Perception_c = \beta_0 + \beta_1 Individualism_c + X_c\beta_2 + Continent_c\beta_3 + \epsilon_c,$$

where Perception_c is the risk perception index, represented by either perceived likelihood-experience gap or worry-experience gap; $Individualism_c$ is the individualism scale for country c; X_c is the country-level controls; and $Continent_c$ is the continental dummies. Both the risk perceptions measures and individualism measures are standardized into z-scores at the country level to facilitate interpretation and comparison of the results (see Appendix for details).

Table 2 reports results from the regression analyses. Panel A reveals results for likelihood-experience gap, followed by panel B for worry-experience gap. In each panel, Columns 1 is the basic regressions without any controls. Columns 2 is our preferred specification, controlling for bio-geographic variables and continental fixed effects. Columns 3-5 sequentially bring in more controls including demographic controls, economic and institutional controls, and religious controls.

[Insert Table 2]

Overall, both likelihood-experience gap and worry-experience gap significantly increase with Hofstede's individualism score. In the basic specification (Column 1), an increase of one standard deviation in Hofstede's individualism score is associated with a decrease in the likelihood-experience gap by 55.3% of a standard deviation and a decrease in the worry-experience gap by 45.8% of a standard deviation. In our preferred specification where bio-geographic variables and continental fixed effects are considered, the quantitative magnitudes shrink to 36.6% and 31.5% respectively. The results reveal that people's perceived risk drops

by over 30% of a standard deviation when individualism culture is raised by one standard deviation. More specifically, a larger effect is observed for the likelihood-experience gap compared to the worry-experience gap. The estimates are not sensitive when controlling for demographic, economic and institutional, and religious variables (Columns 3-5). The coefficients remain significant, and the magnitudes vary little, showing a stable estimation across specifications.[5]

Albeit the stable results across specifications under a series of controls, we notice that the share of protestants the share of protestants is correlated with individualism and explains a substantial portion of the across-country differences in risk perception (Table S3 and S4). Our observations corroborate the notion that religion plays an important role in the rise of individualism (Henrich, 2020). For example, societies with longer historical exposure to the medieval Western Church are more individualist today (Schulz et al., 2019). These results suggest that perceived likelihood can be influenced by deep cultural evolutionary processes of individualism-collectivism (Alesina and Giuliano, 2015; Nunn, 2020).

3.2. Family ties, historical kinship tightness, and risk perception

Figure 3 plots the cross-country association between risk perception and supplementary proxies of individualism, including family ties as a measure of contemporary individualism and kinship tightness as a measure of historical individualism. We find that the WVS family ties scores exhibit a positive association with the likelihood-experience gap (Pearson correlation $= 0.410$, $p < 0.001$) and worry-experience gap (Pearson correlation $= 0.336$, $p = 0.006$).

A similar pattern is observed for the historical measures, but the coefficients are much less sizable and show a weaker correlation. In specific, kinship tightness scores exhibit a positive correlation with both the likelihood-experience gap and the worry-experience gap, though neither is statistically significant (likelihood-experience gap: Pearson correlation $= 0.047$, $p = 0.587$; worry-experience gap: Pearson correlation $= 0.035$, $p = 0.692$). We separately examine the two components of kinship tightness—family structure and descent systems—to gain more thorough understanding. The family structure score is observed to be positively

[5] As Hofstede's individualism score has a more complete data and appears to have the strongest association with our measure of risk perception, in the following analysis, we use Hofstede's individual score as our independent variable of interest in the baseline specification, and WVS family ties score, Enke's kinship tightness scare, family structure score, and descent systems score as a group of supplements.

correlated, though not significantly, with both the likelihood-experience gap (Pearson correlation = 0.084, $p = 0.338$) and the worry-experience gap (Pearson correlation $= 0.061$, $p = 0.488$). In contrast, the descent systems score shows a smaller and negligible association (Pearson correlation $= 0.004$, $p = 0.963$ for the likelihood-experience gap; Pearson correlation $= 0.003$, $p = 0.969$ for the worry-experience gap).

Overall, results from WVS family ties add on the evidence that contemporary individualist cultures are more associated with lower risk perception and that collectivist cultures are more linked with higher risk perception. Moreover, results from kinship tightness suggest that pre-industrial individualism has substantially weaker association with risk perception nowadays.

[Insert Figure 3]

We further conduct regression analysis using the basic specification and our preferred specification in Section 3.1 and report the results in Table 3. WVS family ties score shows an opposite sign to Hofstede's individualism. In the preferred specification (Columns 3 and 4), an increase of one standard deviation in the WVS family ties score inflates the likelihood-experience gap by 45.8% of a standard deviation and the worry-experience gap by 37.6% of a standard deviation, both significant at 5% significance level. These estimates provide a strong supplement for our main results, supporting that people in a less individualist and more collectivist culture tend to perceive higher risk relative to their experience of risky incidents.

[Insert Table 3]

To investigate whether individualist cultures in pre-industrial societies also shapes today's risk perception, we investigate the regression results for historical kinship tightness (Panel B, C, and D). The kinship tightness scores exhibit positive but insignificant coefficients to both the likelihood-experience gap and the worry-experience. To break out into more details, we investigate the two components of kinship tightness. The first component of kinship tightness—family structure—has a significant coefficient for likelihood-experience gap in the preferred specification. An increase of one standard deviation in the family structure score is associated with a significant increase in the likelihood-experience gap by 23.1% of a standard deviation. This implies that people in a tighter family structure setting tend to perceive a

relatively higher likelihood of risky incidents, and less so for worry. The second component of kinship tightness, the descent systems score—which captures more extended kinship relative to family structure—exhibits a trivial and insignificant association with both risk perception measures. Hence the positive albeit insignificant coefficient in kinship tightness is most likely driven by family structure.

3.3. IV Estimates

Table 4 displays the IV estimates using genetic distance as an instrument for Hofstede's individualism scale. Panel B presents the first stage, showing that countries less genetically distant from the United Kingdom tend to have more individualist culture. The first stage is strong in both specifications. In the basic specification where no additional controls are imposed (columns 1 and 2), 1 unit increase in the blood distance from the UK is associated with a 0.723 standard deviation decrease in Hofstede's individualism scale. Blood distance picks up a major variation in individualism. We show that the partial R-squared is 0.323 whereas the Kleibergen-Paap rk Wald F-statistic is 43.679, considerably large to reject the weak IV test. The first stage also survives the under-identification test, with a Kleibergen-Paap rk LM statistic of 22.469. Introducing bio-geographic controls and continental fixed effects (columns 3 and 4), the coefficient of blood distance becomes -0.436, shrinking in magnitudes but still sizable and significant. Under this preferred specification, the IV also survives the weak IV test and the under-identification test, with a Kleibergen-Paap rk Wald F-statistic of 17.070 and a Kleibergen-Paap rk LM statistic of 14.131.

[Insert Table 4]

In panel A we show the 2SLS estimates where individualism is characterized by Hofstede's individualism scale. Without additional controls (columns 1 and 2), the 2SLS estimates yield similar results to the OLS estimates, negative and significant. A one standard deviation increase in individualism leads to a 0.601 standard deviation decrease in likelihood-experience gap and a 0.514 decrease in worry-experience gap. This is consistent with our baseline OLS results that more individualist cultures are closely associated with lower risk perception. Controlling for bio-geographic variables and continental fixed effects, we find a strong and robust results for likelihood-experience gap (column 3), though the coefficient -0.622 is larger than the OLS estimates in magnitudes. Worry-experience gap (column 4), on the other hand, has an

insignificant but sizable coefficient. Overall, the IV results provide further support for the link between individualism and risk perception.

3.4. Robustness Checks

We conduct several alternative specifications to examine the robustness of our main results. First, instead of the country-level likelihood-experience gap and worry-experience gap, we use individual-level gaps as dependent variables to conduct similar analyses (Tables S5-S6). The regression equation for individualism-level analysis is as follows:

$$Perception_{ic} = \gamma_0 + \gamma_1 Individualism_c + X_c\gamma_2 + Y_i\gamma_3 + Continent_c\gamma_4 + \eta_{ic}$$

where $\mathrm{Gap_{ic}}$ is the risk gap index for individual i living in country c; $Individualism_c$ is the individualism scale for country c; and Y_i is the individual-level controls—gender, age, years of education, and urbanicity—with the rest identical to the country-level regression. A similar pattern is observed at the individual level with sizable and significant coefficients, confirming our main results at the country level.

Second, instead of using the constructed likelihood-experience gap and the worry-experience gap, we directly use the perceived likelihood index and the worry index as dependent variables and control for the experience index in the regressions (Tables S7-S8). Results show that one standard deviation increase in the experience index will raise perceived likelihood by 66.3%-72.9% of a standard deviation and raise worry by 68.3%-77.1% of a standard deviation. Under this specification, Hofstede's individualism still shows a sizable and significantly negative effect on risk perception, over 20% under bio-geographic controls and continental fixed effects.

Third, alternatively, we conduct principal component analysis for the seven domains of risk and use the first component rather than the unweighted average as a measure of risk perception (Tables S9-S10). Since the first components have a strong correlation with the unweight-average indices (Pearson correlation ≥ 0.998), it is expectable that all the estimates are close to our main results.

Lastly, we conduct regressions for the seven domains separately using our preferred specification to see if the results are only driven by a few specific domains (Tables S11-S12). Despite variation in both magnitudes and significance, we show that the relationship is compound for all the domains. Among all, perceived risk of mental health is most strongly

associated to individualism. By comparison, perceived risk on weather is affected by individualist cultures the least.

4. Concluding Remark

Using the WRP dataset, we examine the relationship between risk perception and several scales of individualism-collectivism around the world. We observe that participants from countries with stronger contemporary individualism perceive lower risks relative to personal experiences. To partially address the possibility of reverse causality and understand the effect of cultural transmission, we show that participants from countries with stronger historical kinship tightness perceive higher risks. Similar results are found when we use genetic distance as an IV for individualist cultures. Although our observations could be interpreted with cautions, because we cannot conduct randomized experiment and cannot completely rule out omitted factors, results from historical kinship and IV estimates help understand the relationship between individualism and risk perception.

On the one hand, individuals in a more secure and less worrisome environment are less likely to seek group identification or establish risk-sharing networks, which may result in the optimism-individualism link (Markus and Kitayama, 1991; Hogg, 2007; Fischer and Chalmers, 2008). On the other hand, since people in collectivist cultures receive more support from their family ties and social network, they may perceive fewer risks and worry less, as proposed by the cushion hypothesis (Hsee and Weber, 1999; Weber and Hsee, 1998). Our overall finding supports the optimism-individualism link in the perception of a range of risks.

Although the likelihood-experience gap and the worry-experience gap are closely correlated, we do observe some differences in their relationship with individualism. More specifically, the coefficient for individualism is generally larger for the likelihood-experience gap than for the worry-experience gap across different specifications and alternative measures of individualism. In particular, the coefficients from historical individualism and IV regression are only significant for the likelihood-experience gap but not for the worry-experience gap after controlling for bio-geographic variables and continental fixed effects. It has been suggested that, compared with perceived likelihood, worry as an emotional reaction to risks may be more sensitive to environmental contexts and cues (Sjöberg, 1998; Loewenstein et al., 2001), and thus less subject to the influences of cultures, and especially historical origins. Overall, these

results support the notion that to some degree, perceived likelihood and worry capture different aspects of risk perception.

We observe a weaker relationship for historical kinship tightness than for contemporary individualism. Moreover, the coefficients of both contemporary and historical individualism scales become substantially smaller after we control for the religious variable, the share of protestants in the population. In the meantime, the share of protestants is correlated with individualism and explains a substantial portion of the across-country differences in risk perception. These observations corroborate the notion that religion plays an important role in the rise of individualism (Henrich, 2020). For example, societies with longer historical exposure to the medieval Western Church are more individualist today (Schulz et al., 2019). Overall, these results suggest that risk perception can be influenced by deep cultural evolutionary processes of individualism-collectivism (Alesina and Giuliano, 2015; Nunn, 2020).

Cultural dynamics can obscure causal inferences regarding the relationship between individualism and risk perception, which is likely to be reciprocal. To this end, we acknowledge that our observations are correlational, our analyses are likely to have omitted some important variables, and the samples in this study are not necessarily representative of each nation. While it is difficult to fully understand the causal relation and the dynamics between risk perception and individualism-collectivism, our study serves as a first step toward understanding global differences in risk perception. Moreover, the diverse backgrounds of participants and the large sample size lend some confidence to the generalizability of the results.

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Figures and Tables

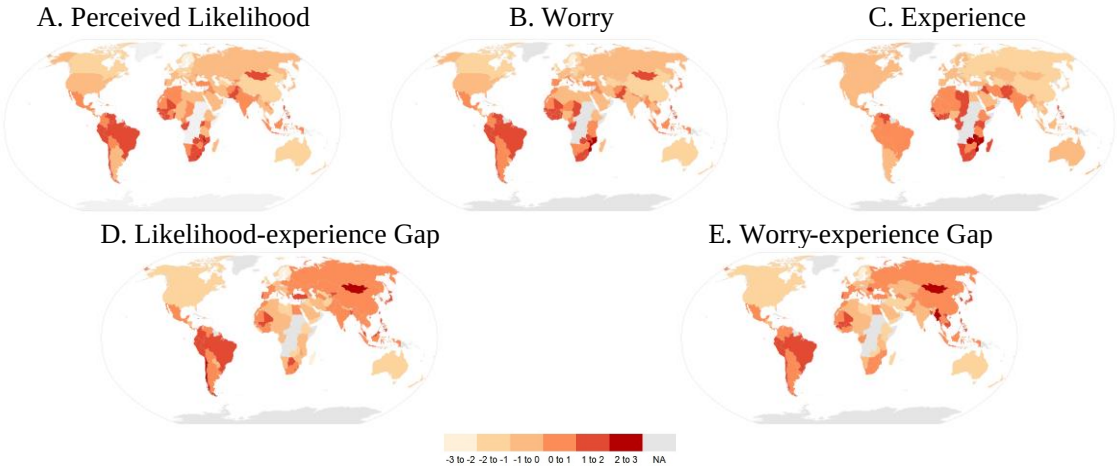

Figure 1. World Maps of Risk Perception. (A) Perceived likelihood; (B) Worry; (C) Experience; (D) Likelihood-experience gap; (E) Worry-experience gap. All indices are standardized into z-scores at the country level.

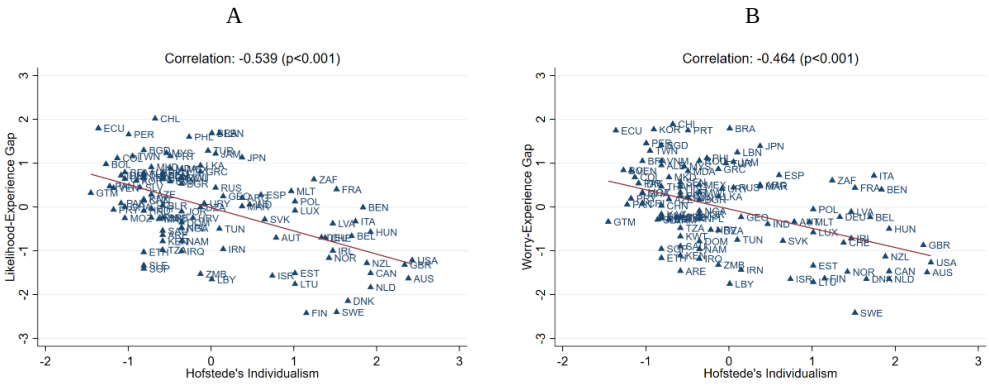

Figure 2. Hofstede's Individualism and Risk Perception. (A) Hofstede's individualism and likelihood-experience gap; (B) Hofstede's individualism and worry-experience gap. All indices are standardized into z-scores at the country level.

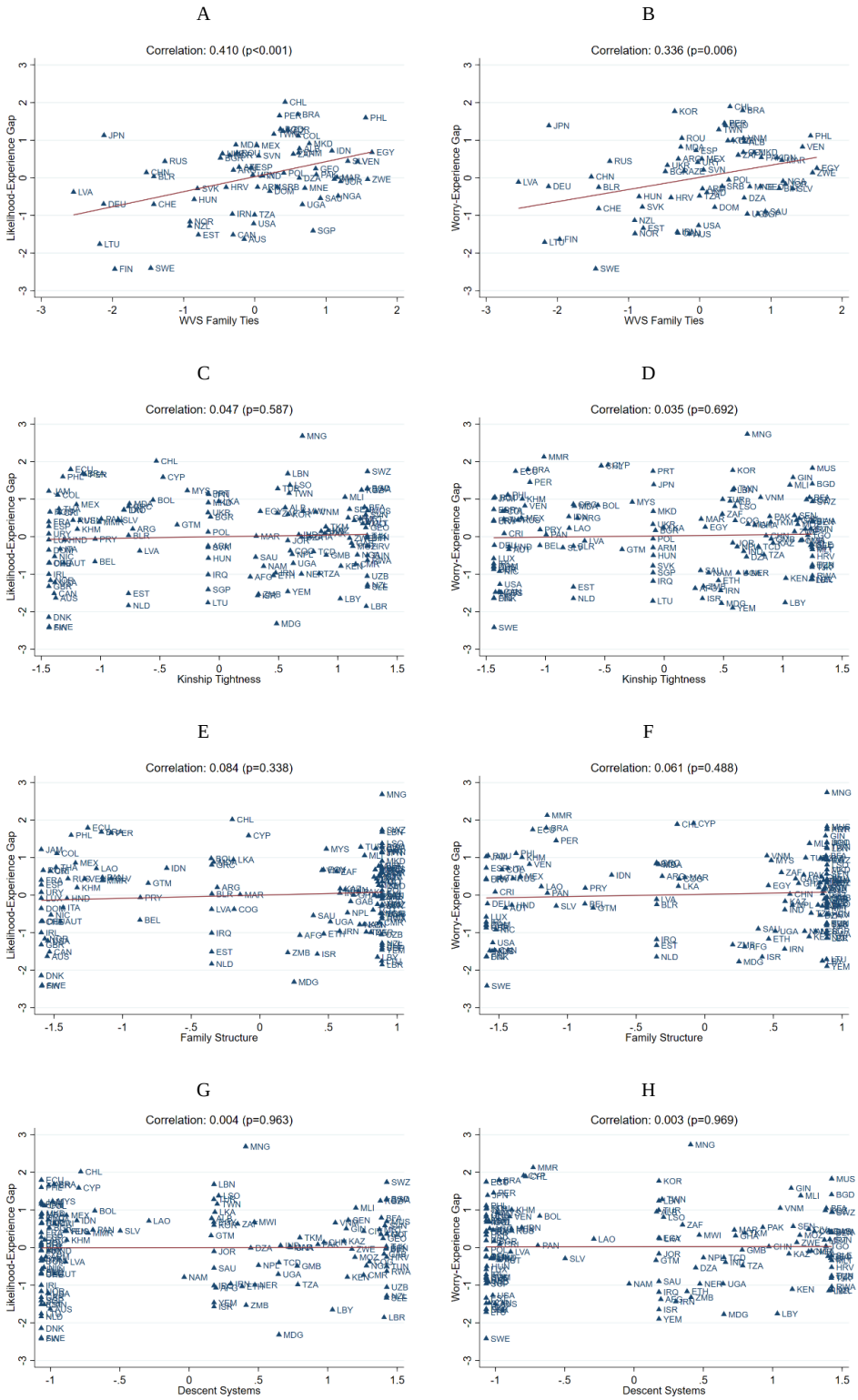

Figure 3. Family Ties, Historical Kinship Tightness, and Risk Perception. (A) WVS family ties and likelihood-experience gap; (B) WVS family ties and worry-experience gap; (C) Kinship tightness and likelihood-experience gap; (D) Kinship tightness and worry-experience gap; (E) Family Structure and likelihood-experience gap; (F) Family Structure and worry-experience gap; (G) Descent Systems and likelihood-experience gap; (H) Descent Systems and worry-experience gap. All indices are standardized into z-scores at the country level.

Table 1. Pairwise Correlations between Risk Indices and Variables of Interests

	Likelihood	Worry	Experience	Likelihood-experience Gap	Worry-experience Gap	Obs.
Panel A: Individualism and Collectivism						
Individualism (Hofstede)	-0.538***	-0.478***	-0.221**	-0.539***	-0.464***	107
Family Ties (WVS)	0.596***	0.551***	0.482***	0.410***	0.336***	66
Kinship Tightness (Enke)	0.317***	0.304***	0.348***	0.047	0.035	133
Family Structure (Enke)	0.237***	0.219**	0.221**	0.084	0.061	133
Descent Systems (Enke)	0.349***	0.344***	0.425***	0.004	0.003	133
Blood Distance to UK	0.345***	0.324***	0.191**	0.267***	0.253***	137
Panel B: Bio-geography						
Absolute latitude	-0.618***	-0.611***	-0.596***	-0.187**	-0.196**	142
Area	-0.088	-0.089	-0.075	-0.038	-0.042	142
Precipitation	0.212**	0.267***	0.106	0.186**	0.268***	142
Temperature	0.543***	0.543***	0.571***	0.101	0.125	142
Ruggedness	0.088	0.016	-0.117	0.272***	0.162*	142
Avg. Distance to Coast	-0.011	-0.030	-0.011	0.001	-0.030	142
Avg. Elevation	0.219***	0.151*	0.132	0.164*	0.066	142
St. Dev. Elevation	0.104	0.072	-0.027	0.188**	0.140	135
Agriculture Suitability	0.040	0.056	-0.180**	0.288***	0.302***	134
Crop Suitability (aa)	-0.063	0.004	-0.150*	0.102	0.183**	139
Panel C: Demography						
Female Ratio	0.024	0.086	-0.080	0.160*	0.221***	142
Avg. Age	-0.614***	-0.575***	-0.688***	-0.068	-0.034	142
Avg. Education Years	-0.557***	-0.590***	-0.593***	-0.102	-0.168**	142
Urbanicity	-0.245***	-0.232***	-0.270***	-0.037	-0.023	142
Panel D: Economics and Institution						
ln(GDP per capita)	-0.561***	-0.561***	-0.578***	-0.127	-0.144*	142
Democracy	-0.149*	-0.126	-0.240***	0.070	0.096	139
Panel E: Religion						
Fraction of Protestants	-0.270***	-0.216***	0.069	-0.473***	-0.401***	142
Fraction of Non-religion	-0.429***	-0.406***	-0.512***	-0.011	0.007	142

Notes: Pairwise Pearson correlations among average risk indices at the country level and proxies of individualism (Panel A), bio-geographic variables (Panel B), demographic variables (Panel C), economic and institutional variables (Panel D), and religious variables (Panel E). Demographic variables are the country-level aggregates of the sample. See Appendix for data sources and construction methods of these variables. Due to the lack of perceived likelihood data in Kuwait, the number of observations used for likelihood and gap 1 is less than the reported number. *p<0.10, **p<0.05, ***p<0.01.

Table 2. Hofstede's Individualism and Risk Perception

	(1)	(2)	(3)	(4)	(5)
	A. Likelihood-Experience Gap				
Hofstede's Individualism	-0.553***	-0.366***	-0.387***	-0.389**	-0.312**
	(0.070)	(0.116)	(0.126)	(0.150)	(0.129)
Constant	-0.021	0.053	-5.026**	-4.681	-2.193
	(0.081)	(1.406)	(2.497)	(2.849)	(2.561)
Observations	101	101	101	101	101
R-squared	0.324	0.523	0.555	0.557	0.602
	B. Worry-Experience Gap				
Hofstede's Individualism	-0.458***	-0.315**	-0.299**	-0.323*	-0.263*
	(0.075)	(0.126)	(0.139)	(0.169)	(0.154)
Constant	-0.035	-0.116	-4.833**	-4.604*	-2.688
	(0.084)	(1.473)	(2.314)	(2.764)	(2.624)
Observations	101	101	101	101	101
R-squared	0.234	0.458	0.510	0.517	0.546
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes

Notes: OLS estimates at the country level, robust standard errors in parentheses. Likelihood-experience Gap and Worry-experience Gap are the dependents variables of Panel A and Panel B respectively. Likelihood-experience Gap, Worry-Experience Gap and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table 3. Family Ties, Historical Kinship Tightness, and Risk Perception

	(1) Likelihood-Experience Gap	(2) Worry-Experience Gap	(3) Likelihood-Experience Gap	(4) Worry-Experience Gap
		Panel A. Family Ties		
Family Ties (WVS)	0.429***	0.345***	0.458**	0.376**
	(0.122)	(0.119)	(0.183)	(0.181)
Constant	0.068	0.039	-1.032	-0.131
	(0.109)	(0.113)	(1.672)	(1.759)
Observations	64	64	64	64
R-squared	0.198	0.128	0.601	0.527
		Panel B. Kinship Tightness		
Kinship Tightness	0.059	0.040	0.180	0.057
	(0.092)	(0.087)	(0.116)	(0.127)
Constant	-0.019	-0.003	-0.742	-0.333
	(0.090)	(0.088)	(1.506)	(1.546)
Observations	128	128	128	128
R-squared	0.003	0.002	0.324	0.256
		Panel C. Family Structure		
Family Structure	0.107	0.074	0.231**	0.119
	(0.093)	(0.090)	(0.111)	(0.126)
Constant	-0.018	-0.003	-0.830	-0.401
	(0.090)	(0.088)	(1.493)	(1.538)
Observations	128	128	128	128
R-squared	0.011	0.006	0.336	0.261
		Panel D. Descent Systems		
Descent Systems	0.001	-0.001	0.030	-0.053
	(0.089)	(0.083)	(0.112)	(0.110)
Constant	-0.019	-0.003	-0.636	-0.281
	(0.090)	(0.089)	(1.526)	(1.556)
Observations	128	128	128	128
R-squared	0.000	0.000	0.314	0.256
Continental FE	No	No	Yes	Yes
Bio-geographic Controls	No	No	Yes	Yes
Demographic Controls	No	No	No	No
Economic and Institutional Controls	No	No	No	No
Religious Controls	No	No	No	No

Notes: OLS estimates at the country level, robust standard errors in parentheses. Column (1) and (3) use Likelihood-experience Gap as the dependent variable. Column (2) and (4) use Worry-experience Gap as the dependent variable. Panel A-D respectively use Family Ties, Enke's Kinship Tightness score, Family Structure score, and Descent System score as proxies for collectivism. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. *p<0.10, **p<0.05, ***p<0.01.

Table 4. Hofstede's Individualism and Risk Perception (IV Estimates)

	(1)	(2)	(3)	(4)
	Panel A. 2SLS			
	Likelihood-Experience Gap	Worry-Experience Gap	Likelihood-Experience Gap	Worry-Experience Gap
Hofstede's Individualism	-0.601***	-0.514***	-0.622**	-0.478
	(0.119)	(0.139)	(0.292)	(0.330)
Constant	-0.020	-0.034	-0.040	-0.175
	(0.080)	(0.083)	(1.249)	(1.321)
	Panel B. First Stage			
Blood Distance	-0.723***		-0.436***	
	(0.109)		(0.106)	
Constant	1.110***		0.653	
	(0.205)		(0.995)	
Observations	101		101	
Partial R-squared	0.323		0.123	
F-stat	43.679		17.070	
Continental FE	No		Yes	
Bio-geographic Controls	No		Yes	
Demographic Controls	No		No	
Economic and Institutional Controls	No		No	
Religious Controls	No		No	

Notes: IV estimates at the country level, robust standard errors in parentheses. Panel A displays 2SLS estimates, and Panel A displays first-stage results. The instrument variable is Mahalanobis blood distance from UK. For Panel A, column (1) and (3) use Likelihood-experience Gap as the dependent variable, and column (2) and (4) use Worry-experience Gap as the dependent variable. Constant terms are included in the regression. Likelihood-experience Gap, Worry-experience Gap, and Hofstede's Individualism are standardized to z-scores. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. *p<0.10, **p<0.05, ***p<0.01.

Individualism-Collectivism and Risk Perception around the World

Online Appendix

Appendix A: Construction of WRP Risk Indices

A1. Coding of Survey Responses

The risk indices are constructed from three survey questions in the Lloyd's Register Foundation World Risk Poll (Lloyd's Register Foundation, 2021). The perceived likelihood question in WRP asked "How LIKELY do you think it is that each of the following things COULD cause you serious harm in the next TWO years?" (Q7). The worry question asked "In general, how WORRIED are you that each of the following things could cause you serious harm? Are you very worried, somewhat worried, or not worried?" (Q6). The experience question asked "Have you or someone you PERSONALLY know, experienced serious harm from any of the following things in the past two years?" (Q8).

For each of the above questions, seven domains of risks in daily life were asked respectively: the food you eat, the water you drink, violent crime, severe weather events (such as floods or violent storms), electrical power lines, household appliances (such as a washing machine, dryer, or refrigerator), and mental health issues.

All of these three questions stressed the severity of risks instead of simply the appearance of risks. Despite the high correlation between responses of the perceived likelihood question (Q7) and the worry question (Q6), these two questions reflected two aspects of risk perception.

As the perceived likelihood index and the worry index may capture both subjective perception as well as respondents' experience, the gaps are adopted as preferred measure of perception. The likelihood-experience gap is coded as the difference between perceived likelihood and experience, and the worry-experience gap is coded as the difference between worry and experience.

A2. Computation of Risk Indices at the Individual Level

First, individual responses of the risk questions were coded as follows. For perceived likelihood and worry on each of the seven domains, the variable was coded 1 if the response was "very likely/worried," 0.5 if "somewhat likely/worried," and 0 if "not likely/worried (at all)." For experience on each of the domains, a binary variable was generated and equaled 1 if the response is "yes" and 0 if "no."

Second, the unweighted average of seven domains was computed for each of the five risk indices (perceived likelihood, worry, experience, likelihood-experience gap and worry-experience gap).

Risk Index = Avg. (The food you eat, the water you drink, violent crime, severe weather events, electrical power lines, household appliances, mental health issues)

Third, to facilitate empirical analysis, each risk index is standardized to have mean 0 and standard deviation 1 at the individual level, i.e., the z-scores of each risk index were computed at the individual level using the mean and variance of the whole sample.

A3. Computation of Risk Indices at the Country Level

Indices at the country level were first computed using the individual-level indices (before standardization) weighted with the sampling weights provided by Gallup. Representativeness of population at the country level is hence ensured. Then the z-scores of each risk index were computed at the country level

A4. Discussion of Construction

Table S1 displays the Pairwise Pearson correlation at the country level among the seven domains of risks and the unweighted average. All the domains are highly and positively correlated among each other.

As an alternative measure combining the seven domains, principal component analysis (PCA) was used to extract the first principal component from these domains. For the likelihood-experience gap, the first principal component loads positively on each of the seven domains: the food you eat (0.3775), the water you drink (0.3979), violent crime (0.3853), severe weather events (0.3775), electrical power lines (0.4134), household appliances (0.3301), and mental health issues (0.3582). For the worry-experience gap, the first principal component also loads positively on each of the seven domains: the food you eat (0.3386), the water you drink (0.3593), violent crime (0.3865), severe weather events (0.4137), electrical power lines (0.4187), household appliances (0.3437), and mental health issues (0.3772). Both the first principal components for the likelihood-experience gap and the worry-experience gap are highly correlated with their respective unweighted average (0.999 and 0.998 at 1% significance level).

For the sake of simplicity, we adopt the unweighted average measure in our paper.

Appendix B: Additional Data Source

B1. Individualism and Collectivism Proxies

Hofstede's Individualism: Taken from https://geerthofstede.com/ and updated from https://www.hofstede-insights.com/. Constructed by Hofstede (2001).

WVS Family Ties: Constructed using Wave 1 to Wave 6 from the World Values Survey (WVS) following Alesina and Giuliano (2013).

Enke Kinship Tightness, Family Structure, Descent Systems: Constructed following Enke (2019) with components taken from Enke (2019).

Blood Distance to the UK: Taken from Gorodnichenko and Roland (2017).

B2. Risk Indices

Hofstede's Uncertainty Avoidance: Taken from https://geerthofstede.com/ and updated from https://www.hofstede-insights.com/. Constructed by Hofstede (2001).

WVS Value of Stimulation: Taken from Wave 5 and Wave 6 of World Values Survey (WVS).

GPS Risk Taking: Taken from GPS Dataset (Falk et al., 2018).

B3. Bio-geographic Variables

Latitude, area: Taken from the CEPII geo database.

Precipitation: Average monthly precipitation of a country in mm per month following Ashraf and Galor (2013) and weighted by area during 1980-2008. Data originally based on Geographically based Economic data (G-Econ) (Nordhaus, 2006).

Temperature: Average monthly temperature of a country in degree Celsius following Ashraf and Galor (2013) and weighted by area during 1980-2008. Data originally based on Geographically based Economic data (G-Econ) (Nordhaus, 2006).

Terrain ruggedness: Taken from Nunn and Puga (2012).

Mean distance from nearest waterway: Distance from GIS grid cell to nearest ice-free coastline or sea-navigable river, averaged across cells. Taken from Ashraf and Galor (2013).

Mean elevation, standard deviation of elevation: Taken from Michalopoulos (2012). Data originally based on Geographically based Economic data (G-Econ) (Nordhaus, 2006).

Suitability for agriculture: Taken from Michalopoulos (2012).

Crop suitability of land: Caloric Suitability Index. Taken from Galor and Özak (2016).

B4. Economic, Institutional, and Religious Variables

GDP per capita: Average annual GDP per capita over the period 2010 – 2019, in 2010US$. The World Bank

Democracy Index: Index that quantifies the extent of institutionalized democracy, as reported in the Polity IV dataset. Following Marshall et al. (2002). Average from 2001 to 2010.

Share of protestants, share of non-religion populations: Share of protestants and non-religion population in each country (Barro 2003).

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Appendix B: Additional Figures and Tables

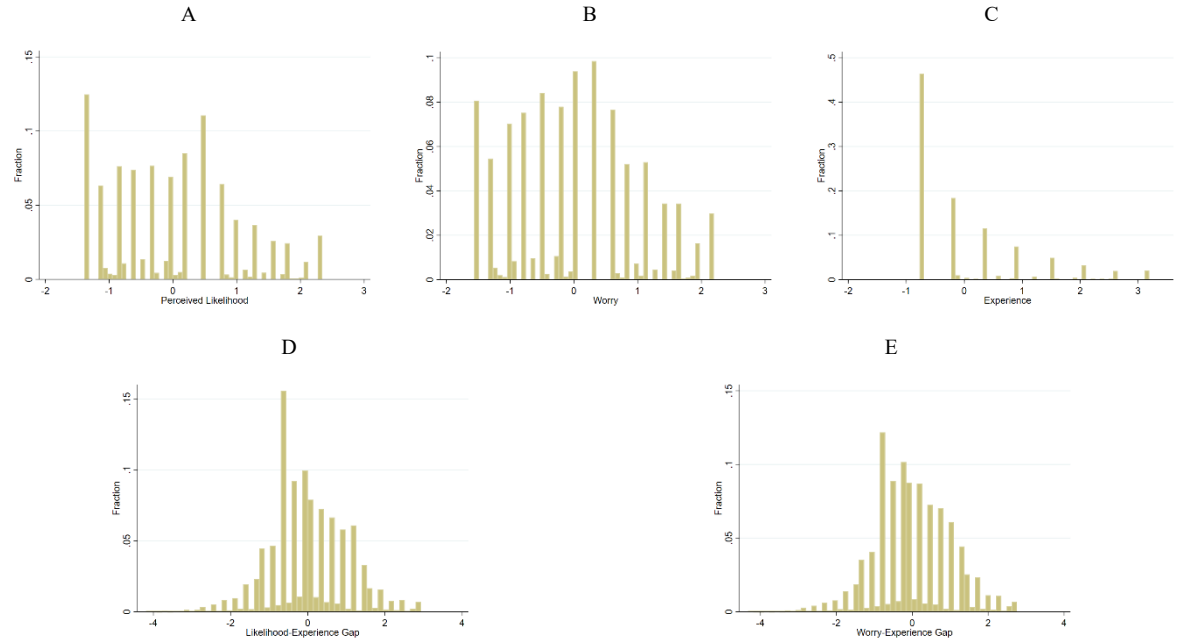

Figure S1. Distribution of Risk Indices at Individual Level. Risk Indices are standardized into z-scores at the individual level in the full sample.

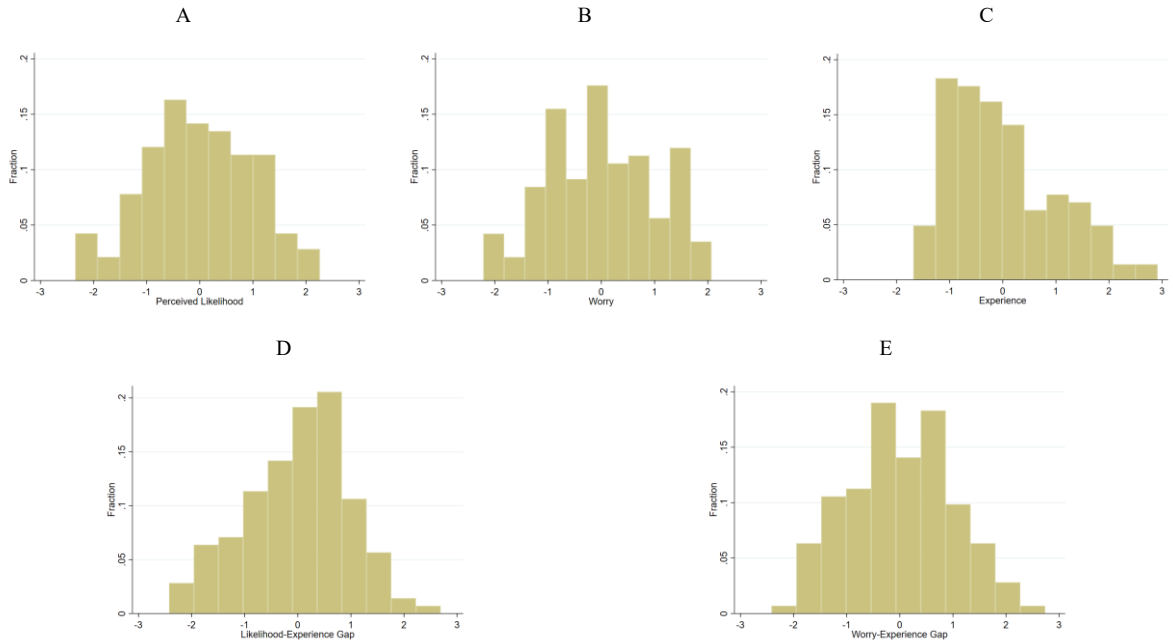

Figure S2. Distribution of Risk Indices at Country Level. Risk Indices are standardized into z-scores at the country level in the full sample.

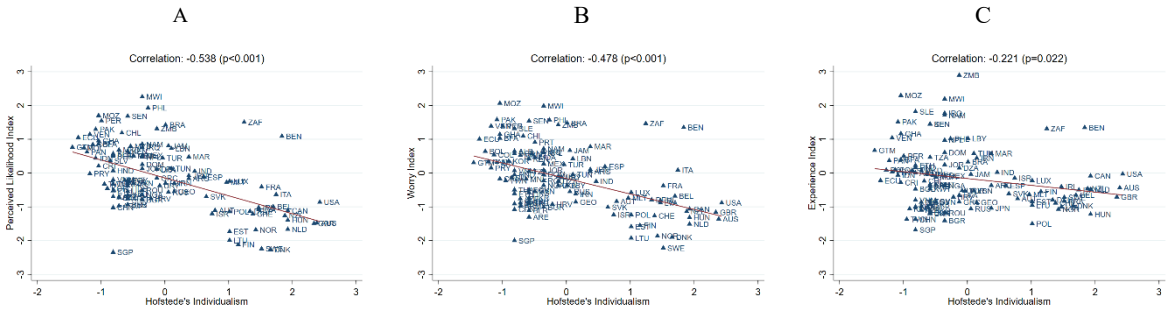

Figure S3. Hofstede's Individualism and Risk Perception. (A) Hofstede's individualism scores and perceived likelihood; (B) Hofstede's individualism scores and worry; (C) Hofstede's individualism scores and experience.

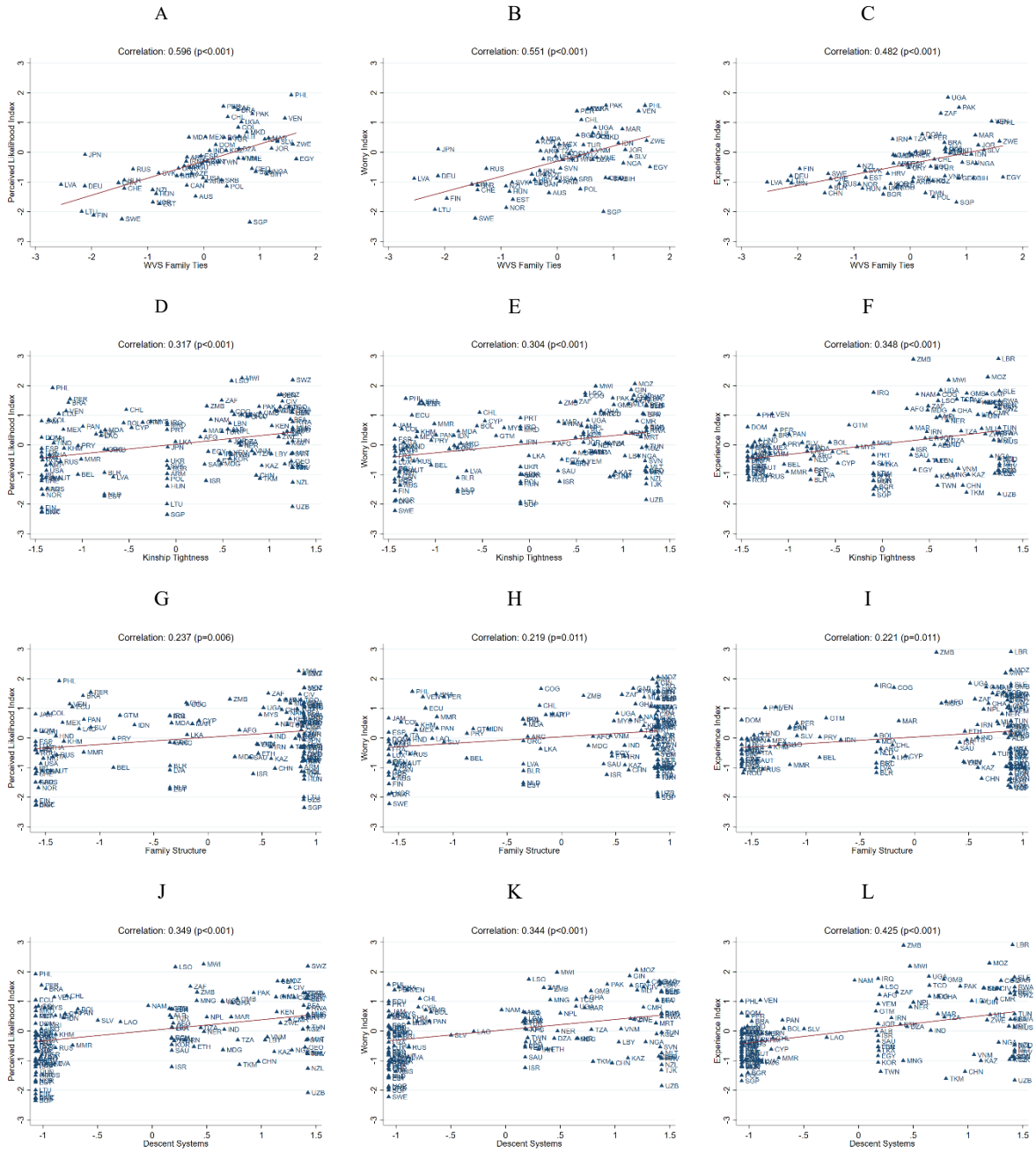

Figure S4. Family Ties, Historical Kinship Tightness, Risk Perception. (A) WVS family ties scores and perceived likelihood; (B) WVS family ties scores and worry; (C) WVS family ties scores and experience. All the indices are standardized into z-scores at the country level; (D) Kinship tightness and perceived likelihood; (E) Kinship tightness and worry; (F) Kinship tightness and experience; (G) Family Structure and perceived likelihood; (H) Family Structure and worry; (I) Family Structure and experience; (J) Descent Systems and perceived likelihood; (K) Descent Systems and worry; (L) Descent Systems and experience. All the indices are standardized into z-scores at the country level.

Table S1. Pairwise Correlation among Risk Index in Seven Domains

A. Perceived Likelihood Index

	Unweighted Average	Food	Water	Crime	Weather	Electricity	Appliance	Mental Health	Obs.
Unweighted Average	1.000								141
Food	0.885***	1.000							141
Water	0.918***	0.884***	1.000						141
Crime	0.899***	0.742***	0.805***	1.000					141
Weather	0.889***	0.735***	0.726***	0.834***	1.000				141
Electricity	0.931***	0.784***	0.839***	0.794***	0.786***	1.000			141
Appliance	0.871***	0.751***	0.801***	0.685***	0.662***	0.928***	1.000		141
Mental Health	0.804***	0.625***	0.642***	0.677***	0.737***	0.666***	0.637***	1.000	141

B. Worry Index

	Unweighted Average	Food	Water	Crime	Weather	Electricity	Appliance	Mental Health	Obs.
Unweighted Average	1.000								142
Food	0.800***	1.000							142
Water	0.852***	0.804***	1.000						142
Crime	0.875***	0.628***	0.725***	1.000					142
Weather	0.903***	0.677***	0.663***	0.808***	1.000				142
Electricity	0.902***	0.610***	0.707***	0.744***	0.781***	1.000			142
Appliance	0.823***	0.574***	0.673***	0.601***	0.647***	0.894***	1.000		142
Mental Health	0.800***	0.552***	0.561***	0.654***	0.747***	0.637***	0.576***	1.000	142

C. Experience Index

	Unweighted Average	Food	Water	Crime	Weather	Electricity	Appliance	Mental Health	Obs.
Unweighted Average	1.000								142
Food	0.870***	1.000							142
Water	0.911***	0.868***	1.000						142
Crime	0.889***	0.709***	0.770***	1.000					142
Weather	0.865***	0.659***	0.731***	0.696***	1.000				142
Electricity	0.887***	0.788***	0.823***	0.751***	0.729***	1.000			142
Appliance	0.779***	0.776***	0.743***	0.630***	0.560***	0.857***	1.000		142
Mental Health	0.640***	0.377***	0.413***	0.594***	0.598***	0.356***	0.228***	1.000	142

D. Likelihood-Experience Gap

	Unweighted Average	Food	Water	Crime	Weather	Electricity	Appliance	Mental Health	Obs.

Unweighted Average	1.000								141
Food	0.858***	1.000							141
Water	0.895***	0.865***	1.000						141
Crime	0.875***	0.724***	0.767***	1.000					141
Weather	0.854***	0.749***	0.779***	0.760***	1.000				141
Electricity	0.922***	0.673***	0.776***	0.777***	0.769***	1.000			141
Appliance	0.728***	0.478***	0.521***	0.484***	0.445***	0.792***	1.000		141
Mental Health	0.808***	0.555***	0.598***	0.631***	0.531***	0.762***	0.774***	1.000	141

E. Worry-Experience Gap

	Unweighted Average	Food	Water	Crime	Weather	Electricity	Appliance	Mental Health	Obs.
Unweighted Average	1.000								142
Food	0.749***	1.000							142
Water	0.783***	0.820***	1.000						142
Crime	0.831***	0.572***	0.618***	1.000					142
Weather	0.880***	0.635***	0.635***	0.739***	1.000				142
Electricity	0.867***	0.409***	0.511***	0.673***	0.747***	1.000			142
Appliance	0.696***	0.304***	0.344***	0.387***	0.513***	0.792***	1.000		142
Mental Health	0.781***	0.345***	0.386***	0.573***	0.607***	0.798***	0.749***	1.000	142

Notes: Pairwise Pearson correlations between the unweighted average indices constructed at the country level and corresponding indices in each of the seven domains: food, water, crime, weather, electricity, appliance, and mental health. *p<0.10, **p<0.05, ***p<0.01.

Table S2. Pairwise Correlations between Risk Indices and Other Risk-related Indices

	Likelihood	Worry	Experience	Likelihood-experience Gap	Worry-experience Gap	Obs.
Uncertainty Avoidance (Hofstede)	0.103	0.072	-0.162*	0.329***	0.292***	107
Stimulation (WVS)	-0.391***	-0.385***	-0.443***	-0.078	-0.069	74
Risk Taking (GPS)	0.241**	0.180	0.402***	-0.068	-0.161	73

Notes: Pairwise Pearson correlations between average risk indices at the country level and other risk-related indices. Risk indices include Perceived Likelihood, Worry, Experience, Likelihood-experience Gap and Worry-experience Gap. Due to the lack of Perceived Likelihood data in Kuwait, the number of observations used for Perceived Likelihood and Likelihood-experience Gap is less than the reported number. *p<0.10, **p<0.05, ***p<0.01.

Table S3. Hofstede's Individualism and Likelihood-Experience Gap

	(1)	(2)	(3)	(4)	(5)
	Likelihood-Experience Gap				
Hofstede's Individualism	-0.553***	-0.366***	-0.387***	-0.389**	-0.312**
	(0.070)	(0.116)	(0.126)	(0.150)	(0.129)
Absolute Latitude		-0.019	-0.016	-0.015	-0.022
		(0.018)	(0.017)	(0.018)	(0.016)
Area		0.000**	0.000**	0.000**	0.000*
		(0.000)	(0.000)	(0.000)	(0.000)
Precipitation		-0.001	-0.001	-0.001	-0.001
		(0.003)	(0.003)	(0.003)	(0.003)
Temperature		-0.017	0.017	0.016	-0.025
		(0.033)	(0.034)	(0.034)	(0.033)
Ruggedness		0.192*	0.212*	0.220*	0.146
		(0.115)	(0.121)	(0.127)	(0.129)
Distance to Nearest Ice-free Coast		-0.441	-0.291	-0.289	-0.367
		(0.345)	(0.326)	(0.336)	(0.325)
Avg. Elevation		-0.710*	-0.574	-0.586	-0.572
		(0.392)	(0.448)	(0.451)	(0.416)
St. Dev. of Elevation		0.559	0.639*	0.629	0.516
		(0.364)	(0.380)	(0.386)	(0.370)
Agricultural Suitability		0.859	0.924*	0.903	0.524
		(0.529)	(0.549)	(0.558)	(0.589)
Crop Suitability		0.000	0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)
Female Ratio			5.602*	5.379	3.769
			(3.225)	(3.556)	(3.193)
Average Age			0.016	0.015	0.013
			(0.032)	(0.038)	(0.030)
Average Education Years			0.065	0.062	0.023
			(0.071)	(0.072)	(0.070)
Urbanicity Ratio			0.672	0.725	0.195
			(0.643)	(0.647)	(0.616)
ln (GDP per capita)				-0.025	0.036
				(0.155)	(0.140)
Democracy Index				0.005	0.008
				(0.006)	(0.006)
Fraction of Protestants					-1.611***
					(0.466)
Fraction of Non-religion					-0.658
					(0.829)
South America		0.318	-0.051	-0.029	0.028

		(0.412)	(0.448)	(0.455)	(0.443)
North America		-0.953*	-1.014*	-0.973	-1.294**
		(0.513)	(0.592)	(0.605)	(0.571)
Asia		0.306	0.127	0.158	0.098
		(0.339)	(0.378)	(0.378)	(0.388)
Europe		0.061	-0.002	0.037	-0.117
		(0.394)	(0.442)	(0.449)	(0.410)
Oceania		-0.570	-1.145*	-1.106*	-0.708
		(0.427)	(0.593)	(0.602)	(0.545)
Constant	-0.021	0.053	-5.026**	-4.681	-2.193
	(0.081)	(1.406)	(2.497)	(2.849)	(2.561)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	101	101	101	101	101
R-squared	0.324	0.523	0.555	0.557	0.602

Notes: OLS estimates at the country level, robust standard errors in parentheses. Likelihood-experience Gap and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. Africa is omitted from the continental dummies. *p<0.10, **p<0.05, ***p<0.01.

Table S4. Hofstede's Individualism and Worry-Experience Gap

	(1)	(2)	(3)	(4)	(5)
	Worry-Experience Gap				
Hofstede's Individualism	-0.458***	-0.315**	-0.299**	-0.323*	-0.263*
	(0.075)	(0.126)	(0.139)	(0.169)	(0.154)
Absolute Latitude		-0.014	-0.011	-0.010	-0.016
		(0.019)	(0.019)	(0.019)	(0.019)
Area		0.000**	0.000**	0.000**	0.000
		(0.000)	(0.000)	(0.000)	(0.000)
Precipitation		-0.000	0.001	0.001	0.002
		(0.003)	(0.003)	(0.003)	(0.003)
Temperature		-0.022	0.007	0.006	-0.025
		(0.034)	(0.033)	(0.033)	(0.033)
Ruggedness		0.165	0.170	0.177	0.122
		(0.114)	(0.115)	(0.123)	(0.129)
Distance to Nearest Ice-free Coast		-0.552*	-0.315	-0.321	-0.391
		(0.329)	(0.317)	(0.323)	(0.318)
Avg. Elevation		-1.014**	-0.741*	-0.761*	-0.753*
		(0.385)	(0.409)	(0.407)	(0.383)
St. Dev. of Elevation		0.917**	0.911**	0.916**	0.831**
		(0.389)	(0.376)	(0.374)	(0.366)
Agricultural Suitability		0.598	0.757	0.730	0.417
		(0.586)	(0.585)	(0.590)	(0.618)
Crop Suitability		0.000	0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)
Female Ratio			5.318*	5.439	4.225
			(3.060)	(3.496)	(3.439)
Average Age			0.016	0.008	0.005
			(0.036)	(0.035)	(0.032)
Average Education Years			-0.003	-0.017	-0.046
			(0.068)	(0.071)	(0.074)
Urbanicity Ratio			1.535**	1.602***	1.190**
			(0.613)	(0.593)	(0.584)
ln (GDP per capita)				0.011	0.063
				(0.148)	(0.145)
Democracy Index				0.009	0.011*
				(0.006)	(0.006)
Fraction of Protestants					-1.265***
					(0.450)
Fraction of Non-religion					-0.337
					(0.984)
South America		-0.091	-0.572	-0.579	-0.538
		(0.374)	(0.405)	(0.418)	(0.418)

North America		-1.480**	-1.593**	-1.505**	-1.731***
		(0.569)	(0.661)	(0.677)	(0.653)
Asia		-0.002	-0.201	-0.153	-0.205
		(0.294)	(0.364)	(0.355)	(0.370)
Europe		-0.371	-0.343	-0.280	-0.396
		(0.422)	(0.485)	(0.485)	(0.470)
Oceania		-0.933**	-1.572***	-1.474**	-1.168**
		(0.444)	(0.592)	(0.594)	(0.564)
Constant	-0.035	-0.116	-4.833**	-4.604*	-2.688
	(0.084)	(1.473)	(2.314)	(2.764)	(2.624)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	101	101	101	101	101
R-squared	0.234	0.458	0.510	0.517	0.546

Notes: OLS estimates at the country level, robust standard errors in parentheses. Worry-experience Gap and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. Africa is omitted from the continental dummies. *p<0.10, **p<0.05, ***p<0.01.

Table S5. Hofstede's Individualism and Likelihood-Experience Gap (Individual Level)

	(1)	(2)	(3)	(4)	(5)
	Likelihood-Experience Gap				
Hofstede's Individualism	-0.156***	-0.103***	-0.101***	-0.104***	-0.077***
	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.003	0.069	-0.218***	-0.128*	0.199***
	(0.003)	(0.052)	(0.054)	(0.068)	(0.069)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Individual-level Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	108,722	108,722	108,722	108,722	108,722
R-squared	0.025	0.040	0.051	0.051	0.056

Notes: OLS estimates at the individual level, robust standard errors in parentheses. Likelihood-experience Gap and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Individual-level controls include gender, age, years of education, and urbanicity. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table S6. Hofstede's Individualism and Worry-Experience Gap (Individual Level)

	(1)	(2)	(3)	(4)	(5)
	Worry-Experience Gap				
Hofstede's Individualism	-0.130***	-0.094***	-0.094***	-0.101***	-0.075***
	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.011***	0.119**	-0.242***	-0.236***	0.053
	(0.003)	(0.052)	(0.054)	(0.068)	(0.070)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Individual-level Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	108,722	108,722	108,722	108,722	108,722
R-squared	0.018	0.032	0.046	0.046	0.051

Notes: OLS estimates at the individual level, robust standard errors in parentheses. Worry-experience Gap and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Individual-level controls include gender, age, years of education, and urbanicity. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table S7. Hofstede's Individualism and Perceived Likelihood Index

	(1)	(2)	(3)	(4)	(5)
	Likelihood Index				
Hofstede's Individualism	-0.414***	-0.242***	-0.251***	-0.253**	-0.204**
	(0.053)	(0.078)	(0.084)	(0.102)	(0.088)
Experience Index	0.663***	0.686***	0.714***	0.715***	0.729***
	(0.067)	(0.092)	(0.106)	(0.106)	(0.102)
Constant	-0.037	-0.178	-3.136*	-2.928	-1.281
	(0.057)	(0.914)	(1.767)	(2.002)	(1.820)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	101	101	101	101	101
R-squared	0.698	0.779	0.791	0.792	0.812

Notes: OLS estimates at the country level, robust standard errors in parentheses. Likelihood index, experience index, and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table S8. Hofstede's Individualism and Worry Index

	(1)	(2)	(3)	(4)	(5)
	Worry Index				
Hofstede's Individualism	-0.337***	-0.209**	-0.196**	-0.213*	-0.175
	(0.057)	(0.085)	(0.095)	(0.116)	(0.106)
Experience Index	0.683***	0.732***	0.758***	0.758***	0.771***
	(0.064)	(0.078)	(0.102)	(0.099)	(0.097)
Constant	-0.039	-0.191	-3.142*	-2.998	-1.744
	(0.058)	(0.984)	(1.672)	(1.985)	(1.884)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	101	101	101	101	101
R-squared	0.662	0.754	0.777	0.780	0.793

Notes: OLS estimates at the country level, robust standard errors in parentheses. Worry index, experience index, and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table S9. Hofstede's Individualism and Likelihood-Experience Gap (PCA)

	(1)	(2)	(3)	(4)	(5)
	Likelihood-Experience Gap				
Hofstede's Individualism	-0.547***	-0.360***	-0.379***	-0.379**	-0.303**
	(0.069)	(0.114)	(0.125)	(0.150)	(0.129)
Constant	-0.024	0.009	-4.977*	-4.608	-2.144
	(0.081)	(1.430)	(2.502)	(2.850)	(2.567)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Individual-level Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	101	101	101	101	101
R-squared	0.321	0.515	0.546	0.549	0.593

Notes: OLS estimates at the country level, robust standard errors in parentheses. Likelihood-experience Gap (PCA) and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table S10. Hofstede's Individualism and Worry-Experience Gap (PCA)

	(1)	(2)	(3)	(4)	(5)
	Worry-Experience Gap				
Hofstede's Individualism	-0.469***	-0.317**	-0.298**	-0.316*	-0.257*
	(0.075)	(0.125)	(0.139)	(0.168)	(0.153)
Constant	-0.044	-0.126	-4.717**	-4.408	-2.515
	(0.083)	(1.483)	(2.319)	(2.761)	(2.628)
Continental FE	No	Yes	Yes	Yes	Yes
Bio-geographic Controls	No	Yes	Yes	Yes	Yes
Individual-level Controls	No	No	Yes	Yes	Yes
Economic and Institutional Controls	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	Yes
Obs.	101	101	101	101	101
R-squared	0.321	0.515	0.546	0.549	0.593

Notes: OLS estimates at the country level, robust standard errors in parentheses. Worry-experience Gap (PCA) and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table S11. Hofstede's Individualism and Likelihood-Experience Gap in Seven Domains

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Likelihood-Experience Gap						
	Food	Water	Crime	Weather	Electricity	Appliance	Mental Health
Hofstede's Individualism	-0.271**	-0.347**	-0.342***	-0.193	-0.286***	-0.232*	-0.467***
	(0.125)	(0.142)	(0.091)	(0.118)	(0.105)	(0.130)	(0.108)
Constant	-1.429	0.573	0.438	0.957	1.034	-1.119	-0.554
	(1.203)	(1.661)	(1.367)	(1.400)	(1.413)	(1.225)	(1.149)
Continental FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bio-geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level Controls	No	No	No	No	No	No	No
Economic and Institutional Controls	No	No	No	No	No	No	No
Religious Controls	No	No	No	No	No	No	No
Obs.	101	101	101	101	101	101	101
R-squared	0.520	0.441	0.473	0.414	0.415	0.505	0.628

Notes: OLS estimates at the country level, robust standard errors in parentheses. Likelihood-experience Gap in the 7 domains and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.

Table S12. Hofstede's Individualism and Worry-Experience Gap in Seven Domains

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Worry-Experience Gap						
	Food	Water	Crime	Weather	Electricity	Appliance	Mental Health
Hofstede's Individualism	-0.230*	-0.326**	-0.211*	-0.169	-0.265***	-0.234*	-0.369***
	(0.121)	(0.150)	(0.110)	(0.136)	(0.101)	(0.125)	(0.114)
Constant	-2.252*	0.311	1.330	1.208	0.839	-1.708	-0.913
	(1.190)	(1.711)	(1.468)	(1.419)	(1.458)	(1.274)	(1.151)
Continental FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bio-geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level Controls	No	No	No	No	No	No	No
Economic and Institutional Controls	No	No	No	No	No	No	No
Religious Controls	No	No	No	No	No	No	No
Obs.	101	101	101	101	101	101	101
R-squared	0.529	0.381	0.391	0.362	0.446	0.487	0.593

Notes: OLS estimates at the country level, robust standard errors in parentheses. Likelihood-experience Gap in the 7 domains and Hofstede's Individualism scale are normalized to z-scores. Constant terms are included in the regression. Bio-geographic controls include distance to equator, area, average precipitation, average temperature, terrain ruggedness, mean distance to nearest waterway, mean elevation, standard deviation of elevation, suitability of agriculture, and crop suitability of land. Demographic controls include gender ratio, average age, average years of education, and urbanicity rate. Economic-institutional controls include the logarithm of GDP per capita and a democracy index. Religious controls include the fraction of non-religious population and the fraction of protestants. *p<0.10, **p<0.05, ***p<0.01.