Supporting Information for
The belief in a decline in cooperation in the USA and China

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Supplementary Note 1 Pilot Study

Sample

For the pilot study, we recruited 99 U.S. adults (47 females, 49 males, 2 other genders, and 1 prefer not to say; M_{age} = 41.62, SD_{age} = 14.34) and 100 Chinese adults (58 females, 42 males; M_{age} = 30.26, SD_{age} = 8.74) from Prolific and Credamo respectively.

Procedure

We used a similar procedure as in the main study with the following exceptions: (1) the year points were slightly different in that participants from group 1 were asked to rate at years 1960, 1980, 2000, and 2020 (which were the same as that in the main study) and participants from group 2 were asked to rate at years 1970, 1985, 2000, and 2015; (2) for the reasons in Part 3 and Part 4, we did not include Social Media and Technology in the pilot study; (3) in addition, we added one open-ended question in Part 3, after selecting the top reasons that asked participants to provide a brief explanation of why they had the general beliefs in cooperation change. This open-ended question was used to help us interpret how participants value and understand the reasons and provide guidelines to modify the materials for the main study.

Analytical Strategy. The analyses are similar to those in the main manuscript. Specifically, to test the hypothesis that people perceive a decline in cooperation, as measured by the cooperation rate in the well-defined prisoner's dilemma game and related traits, we conducted several linear mixed model analyses. The outcome variables included the percentages of people who would cooperate in the game as well as the scores on the four facets of communion (warmth and morality facets) and agency (assertiveness and competence facets). In all models, we included year (as a continuous numeric variable), country (China vs. USA), and group (1960-2020 vs. 1970-2030), as well as their interactions as the fixed factors. We added the subject as the random intercept, and gender and age as covariates. The categorical variables (i.e., country, gender, and group) were coded in accordance with the effect coding method. The continuous variables (i.e., year and age) were standardized within the clusters (i.e., country and group).

Results

Perceived Cooperation Behavior in the Prisoner's Dilemma Game. Consistent with the belief in cooperation decline, we found a significant main effect of year on the cooperation rate in the game and non-significant interaction effect of year and country. This reflected a belief in declining cooperation behavior in the game setting in both the USA and China. The detailed results can be found in Table S1 and illustrated in Figure S1.

Table S1. Overview of the Effects of Year and Country on Participants' Perception of the Cooperation Rate in the Prisoner's Dilemma Game (Pilot Study).

Predictors	β	95% CI	*t*	*P*	f^2
Year	-0.20	[-0.25, -0.14]	-7.13	**<0.001**	0.086
Country	-0.01	[-0.11, 0.09]	-0.20	0.840	<0.001
Group	<0.01	[-0.10, 0.10]	-0.01	0.996	<0.001
Year × Country	0.04	[-0.01, 0.10]	1.47	0.142	0.004
Year × Group	0.02	[-0.03, 0.08]	0.88	0.379	0.001
Country × Group	-0.01	[-0.11, 0.09]	-0.12	0.901	<0.001
Year × Country × Group	<0.01	[-0.06, 0.05]	-0.14	0.891	<0.001
Random Effects					
σ2	0.62				
τ00	0.35				
ICC	0.36				
Marginal/Conditional R^2	0.049 / 0.389				

Note. × indicates an interaction term. Boldface indicates statistically significant effects.

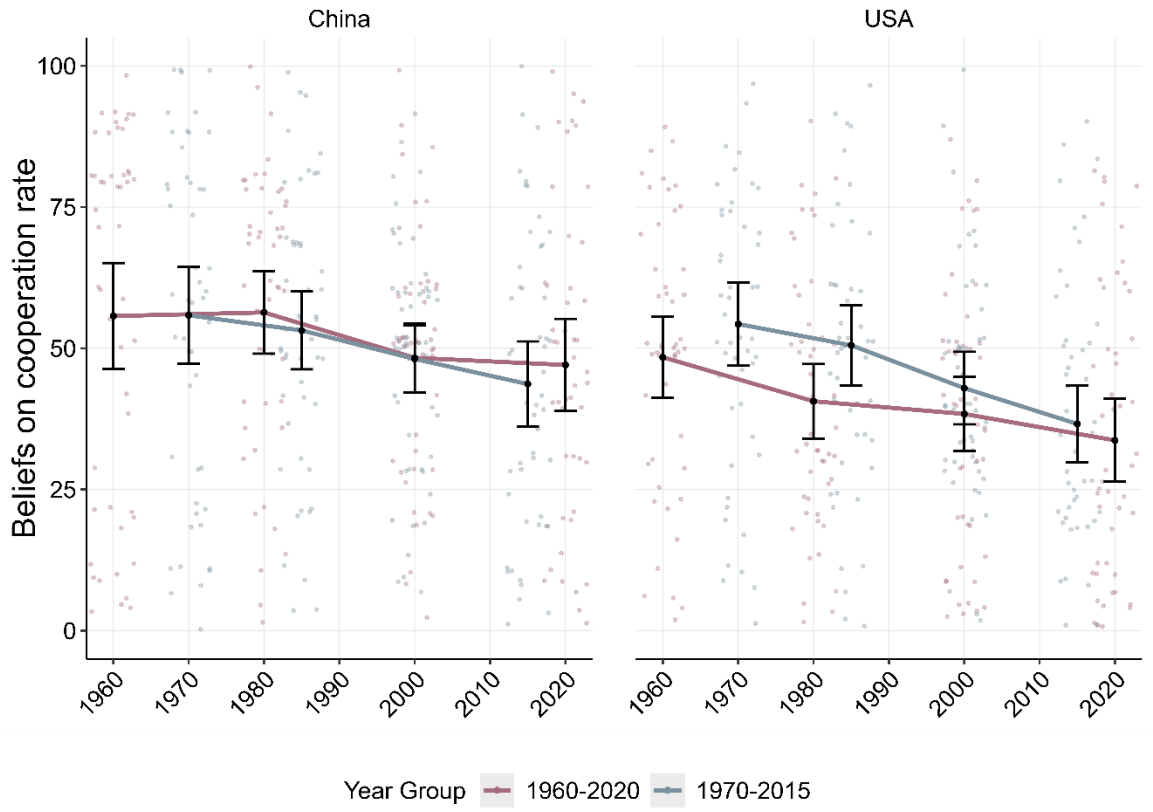


Figure S1. Beliefs about Cooperation Rate in the Prisoner's Dilemma Games Over the Years in the USA and China (Pilot Study).
Note. N_{USA} = 99, N_{China} = 100.The error bars represent 95% CI.

General Beliefs About Cooperation Change. When selecting between whether they believed people had become more, less, or equally considerate/helpful/cooperative, more than 60% of participants in both countries reported that they thought cooperation decreased for 60 years (see Table S2). We also conducted a Chi-square analysis to test whether there were differences between the two countries. The results showed that there were no significant differences between the U.S. and the Chinese participants ($\chi^2(2) = 2.51$, $P = 0.285$, Cramer's $V = 0.112$) and the post hoc analysis also confirmed this idea (ts < 0.67, Ps > 0.05).

Table S2. Percentages of Beliefs in Decrease, Increase, and No Change, in Rate of Cooperation (Pilot Study).

	China	USA
Decrease	69 (69%)	64 (64.6%)
Increase	26 (26%)	24 (24.2%)
Same	5 (5%)	11 (11.1%)

Perceived Communion-Agency. To test the hypothesis that people perceived a decline in the traits associated with cooperation, we used similar analyses as in the main study. Results showed significant main effects of year for warmth, morality, and assertiveness which indicated that people held beliefs in declining warmth, morality, and assertiveness over the years, but not for competence (see Tables S3 and S4, as well as illustration in Figure S2).

Next, the interactions between year and country were significant for warmth, morality, and competence. The simple slope analysis showed a similar pattern as in the main study in that Chinese participants had stronger beliefs on declining warmth and morality compared to the U.S. participants (Warmth: China: $\beta = -0.39$, $t = -9.42$, $P < 0.001$; USA: $\beta = -0.23$, $t = -5.61$, $P < 0.001$; Morality: China: $\beta = -0.45$, $t = -11.62$, $P < 0.001$; USA: $\beta = -0.29$, $t = -7.46$, $P < 0.001$). Although the main effect of year was not significant for competence, the interaction showed that the U.S. participants had a belief in declining competence ($\beta = -0.13$, $t = -2.99$, $P = 0.003$) while the Chinese participants reported no significant change in competence across the years ($\beta = 0.02$, $t = 0.46$, $P = 0.649$).

In summary, similar to the findings in the main study, we found that participants in both the USA and China believed that there were declining trends in cooperation in a prisoner's dilemma game, in traits such as warmth, morality and assertiveness, but not in competence (this is slightly different from the findings in the main study, where U.S. participants showed a significant belief in the decline of competence).

Table S3. Overview of the Effects of Year and Country on Participants' Perceptions of Warmth and Morality (Pilot Study).

Predictors	Warmth					Morality				
	β	95% CI	*t*	*P*	f^2	β	95% CI	*t*	*P*	f^2
Year	-0.31	[-0.37, -0.25]	-10.62	**<0.001**	0.190	-0.37	[-0.42, -0.31]	-13.48	**<0.001**	0.307
Country	<.01	[-0.09, 0.09]	-0.06	0.948	<0.001	-0.01	[-0.10, 0.08]	-0.17	0.867	<0.001
Group	<.01	[-0.09, 0.08]	-0.11	0.916	<0.001	-0.01	[-0.10, 0.08]	-0.25	0.804	<0.001
Year × Country	-0.08	[-0.13, -0.02]	-2.66	**0.008**	0.012	-0.08	[-0.13, -0.03]	-2.91	**0.004**	0.014
Year × Group	-0.01	[-0.07, 0.05]	-0.40	0.688	<0.001	0.04	[-0.01, 0.10]	1.55	0.122	0.004
Country × Group	<.01	[-0.09, 0.09]	0.08	0.938	<0.001	0.01	[-0.08, 0.10]	0.29	0.769	<0.001
Year × Country × Group	-0.01	[-0.07, 0.04]	-0.43	0.669	<0.001	0.01	[-0.04, 0.07]	0.51	0.610	<0.001
Random Effects										
σ2	0.67					0.59				
τ00	0.24					0.27				
ICC	0.26					0.32				
Marginal/Conditional R^2	0.102 / 0.338					0.153 / 0.422				

Note. × indicates an interaction term. Boldface indicates statistically significant effects.

Table S4. Overview of Effects of Year and Country on Participants' Perceptions of Assertiveness and Competence (Pilot Study).

Predictors	Assertiveness					Competence				
	β	95% CI	*t*	*P*	f^2	β	95% CI	*t*	*P*	f^2
Year	-0.32	[-0.37, -0.26]	-11.63	**<0.001**	0.228	-0.05	[-0.11, 0.00]	-1.80	0.073	0.005
Country	<0.01	[-0.10, 0.10]	0.01	0.989	<0.001	<0.01	[-0.10, 0.10]	-0.08	0.938	<0.001
Group	-0.01	[-0.10, 0.09]	-0.14	0.889	<0.001	-0.01	[-0.11, 0.09]	-0.18	0.859	<0.001
Year × Country	0.04	[-0.01, 0.10]	1.57	0.117	0.004	0.07	[0.01, 0.13]	2.44	**0.015**	0.010
Year × Group	<0.01	[-0.05, 0.06]	0.12	0.903	<0.001	0.02	[-0.04, 0.08]	0.72	0.472	0.001
Country × Group	<0.01	[-0.09, 0.10]	0.08	0.935	<0.001	<0.01	[-0.10, 0.10]	0.09	0.927	<0.001
Year × Country × Group	0.04	[-0.02, 0.09]	1.40	0.162	0.003	<0.01	[-0.05, 0.06]	0.12	0.903	<0.001
Random Effects										
σ2	0.58					0.67				
τ00	0.33					0.34				
ICC	0.36					0.34				
Marginal/Conditional R^2	0.106 / 0.426					0.014 / 0.346				

Note. × indicates an interaction term. Boldface indicates statistically significant effects.

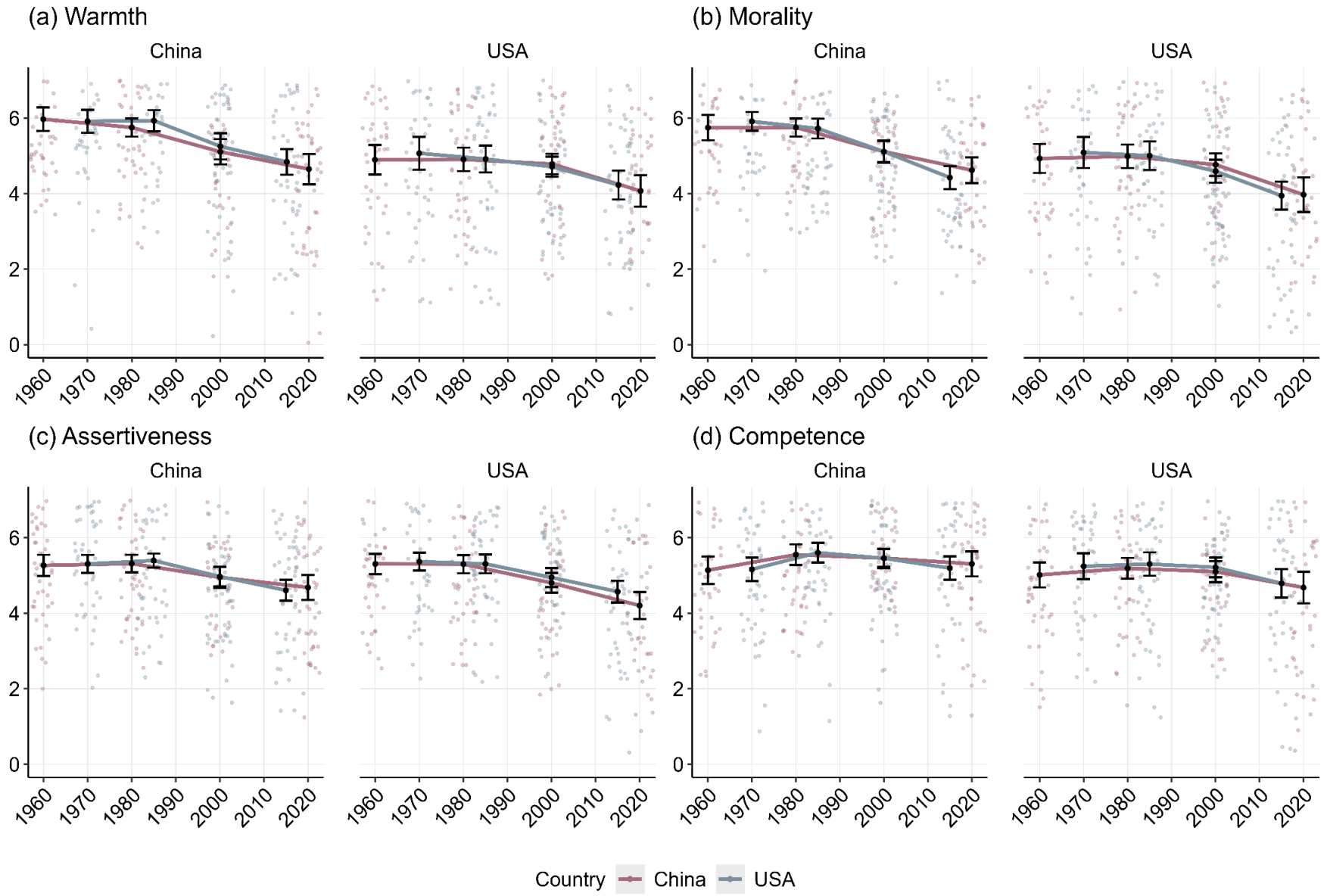


Figure S2. Beliefs about Warmth, Morality, Assertiveness and Competence Over the Years in the USA and China (Pilot Study).
Note. N_{USA} = 99, N_{China} = 100.The error bars represent 95% CI.

Possible Reasons for Beliefs in a Decline in Cooperation

Choices of the Pre-set Reasons. To examine the causes that participants perceived to underlie their beliefs in cooperation change, we assigned the rank of reasons in terms of importance (i.e., Number 1 = 3, Number 2 = 2, Number 3 = 1, not selected = 0). The importance of each reason is illustrated in Figure S3, in which we can see that trust was selected as the most important reason, followed by wealth, stress, and education.

To compare the reasons chosen between the two countries, we conducted several linear mixed models with country and general belief (i.e., increasing vs. decreasing vs. same) as a fixed factor, and added gender and age of participants as the covariate variables.

Results are presented in Table S5 and illustrated in Figure S3. We found significant differences between countries in reasons of face-to-face contact, virtual contact, wealth, and education. Specifically, Chinese participants were more likely to rate wealth and education as the important reasons for their beliefs of cooperation change, while the U.S. participants were likely to select face-to-face contact and virtual contact as the important reasons.

Regarding the main effect of general beliefs, we found that the reason education and social activity were rated as more important for participants who thought cooperation had increased, compared to those who thought cooperation had decreased. The reasons for individualism, stress, and trust were more important to participants who thought cooperation had decreased compared to those who thought cooperation had increased.

Table S5. Results for the Main Effects of Country and General Beliefs on the Importance of Each Reason (Pilot Study).

Reasons	Country				General Belief								
								Simple Effect Analysis					
								Inc vs. Dec		Inc vs. Same		Dec vs. Same	
	β	*t*	*P*	*P*.BY	*F*	*P*	*P*.BY	*t*	*P*	*t*	*P*	*t*	*P*
Religiosity	-0.07	-0.93	0.355	1.000	0.94	0.391	1.000						
Face to Face Contact	-0.25	-3.25	**0.001**	**0.015**	2.57	0.079	0.331						
Virtual Contact	-0.22	-2.76	**0.006**	**0.044**	0.08	0.922	1.000						
Urbanization	0.03	0.40	0.689	1.000	0.31	0.732	1.000						
Wealth	0.28	3.59	**<0.001**	**<0.001**	3.06	**0.049**	0.239	2.46	**0.015**	1.29	0.199	-0.15	0.879
Education	0.21	2.91	**0.004**	**0.039**	22.06	**<0.001**	**<0.001**	6.64	**<0.001**	3.04	**0.003**	-0.88	0.379
Individualism	-0.15	-1.95	0.053	0.310	6.86	**0.001**	**0.010**	-3.65	**<0.001**	-0.97	0.334	1.25	0.213
Stress	0.12	1.66	0.099	0.483	15.51	**<0.001**	**<0.001**	-4.91	**<0.001**	0.29	0.772	3.42	**0.001**
Trust	0.10	1.27	0.205	0.751	4.58	**0.011**	0.067	-3.03	**0.003**	-1.26	0.208	0.54	0.591
Social Activity	-0.11	-1.35	0.178	0.745	6.94	**0.001**	**0.010**	3.55	**0.001**	0.49	0.627	-1.71	0.088

Note. We did not report the simple effect analysis of the non-significant results. *P*.BY = *P* value adjusted by the false discovery rate; Inc = Increase, Dec = Decrease. Boldface indicates statistically significant effects.

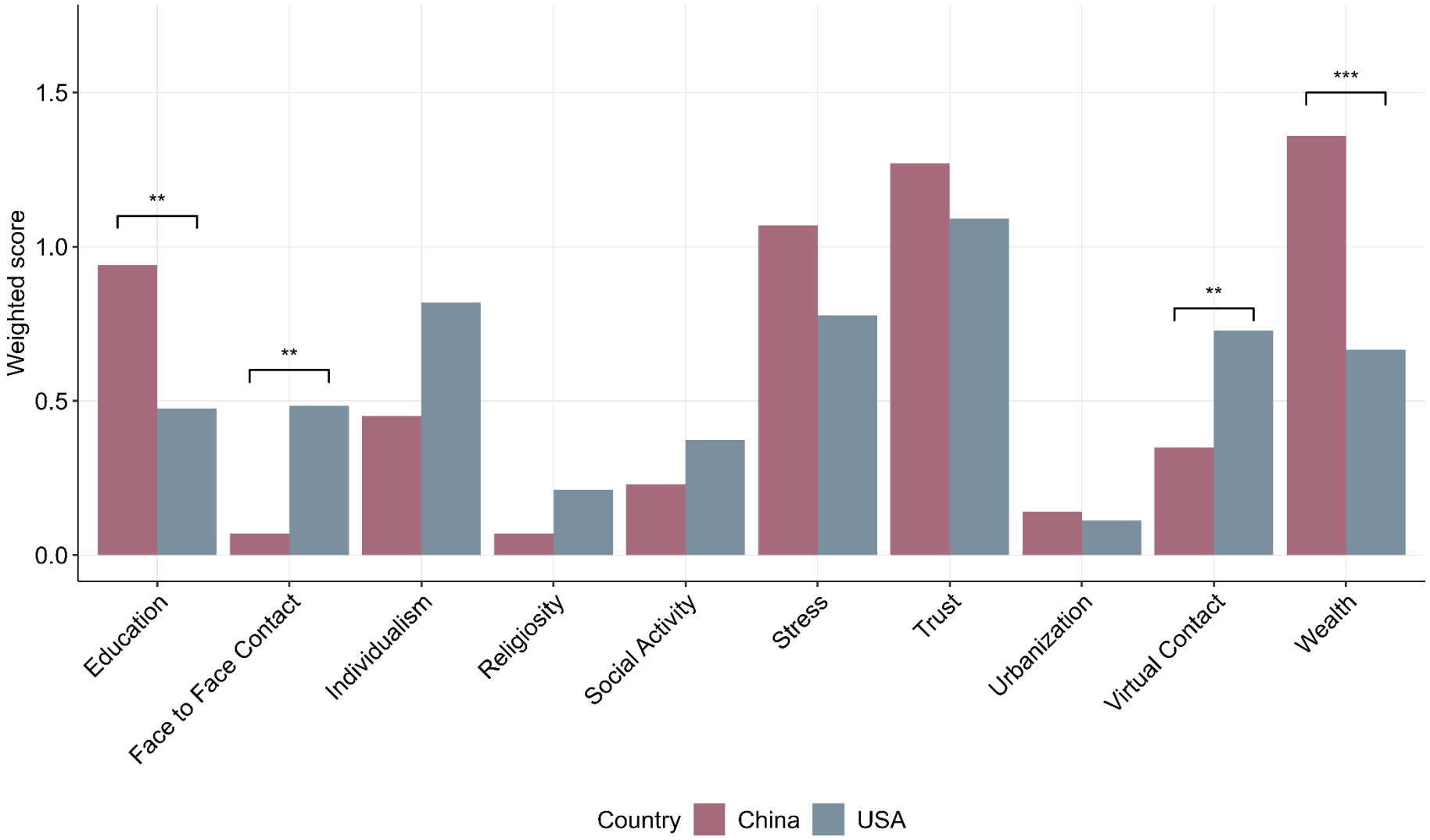


Figure S3. Average Weighted Score of Ranked Reasons for Their Beliefs about Cooperation Change in the USA and China (Pilot Study).
Note. N_{USA} = 99, N_{China} = 100. ** $P < 0.01$, *** $P < 0.001$.

Mediation Analysis. For the pilot study, we did not conduct moderated mediation analyses in people with different general beliefs separately because of the small sample size. However, we did examine the mediating and moderating effects of various variables for the whole sample, which are shown in Table S6 and Table S7 (see path coefficient).

As can be seen, face-to-face contact, collectivism, stress, trust, warmth, morality, and assertiveness were significant in both countries. In particular, the mediating effects of collectivism, warmth, and morality were stronger among the Chinese than the U.S. participants. Besides, virtual contact, inequality, individualism, and social activity significantly mediated the relationship between year and cooperation rate only for the Chinese participants.

Modifications for the Main Study

In the pilot study, the time interval between the year points was 20 years in Group 1 and 15 years in Group 2. The results of the pilot study did not show strong differences between the groups. However, the year 2000 was evaluated twice in both groups. Therefore, we decided to include more time points with the same interval (i.e., 20 years) and extend to the near future (i.e., 2030).

We also decided to include social media and technology in the main study. This decision was based on the answers to the open-ended question in which participants briefly explained the reasons for their general beliefs about the change in cooperation.

Sample size rationale for the main study

In the confirmatory analyses, the smallest (significant) effect size was the interaction of year and country on warmth. We used the 'simr' [1] package in R [2] to calculate sample sizes. The results showed that a total of 300 participants were needed to have 90% power to detect the interaction between year and country. We also tested several mediators for exploratory purposes. We used the "lavaan" [3] and "simsem" [4] packages in R to perform the data simulation. The indirect mediation effect of social activity in the U.S. sample was the smallest significant effect. The simulation showed that a total of 600 participants could achieve a power of 88%. However, given that we have several mediators to test and that some of these variables (identified as "important" by participants in the pilot study) did not reach significance, we decided to double the sample size to detect even smaller effects.

Table S6. Results for the Moderated Mediation Analyses (Pilot Study)

Mediators	Indirect effect									Moderating effect					
	China			USA			Diff			*P*			*P*.BY		
	est	*P*	*P*.BY	est	*P*	*P*.BY	est	*P*	*P*.BY	a	b	c	a	b	c
Religiosity	1.02	0.161	0.726	-2.11	**0.021**	0.126	3.13	**0.002**	**0.018**	**0.006**	**0.003**	0.443	**0.041**	**0.041**	1.000
Face to Face Contact	-6.82	**<0.001**	**<0.001**	-7.02	**<0.001**	**<0.001**	0.20	0.858	1.000	0.346	0.688	0.334	1.000	1.000	1.000
Virtual Contact	-7.48	**<0.001**	**<0.001**	-2.64	0.063	0.284	-4.84	**0.028**	0.216	0.075	**0.041**	**0.012**	0.312	0.277	0.108
Urbanization	-0.09	0.949	1.000	-0.08	0.883	1.000	0.00	0.999	1.000	**<0.001**	0.958	0.364	**<0.001**	1.000	1.000
Wealth	-0.43	0.604	1.000	-0.05	0.698	1.000	-0.38	0.621	1.000	**<0.001**	0.975	0.229	**<0.001**	1.000	1.000
Inequality	-4.27	**<0.001**	**<0.001**	-0.65	0.351	1.000	-3.62	**0.001**	**0.011**	**0.002**	**0.006**	**0.003**	**0.018**	0.063	**0.032**
Education	0.74	0.726	1.000	0.94	0.056	0.284	-0.20	0.919	1.000	**<0.001**	0.440	0.427	**<0.001**	1.000	1.000
Individualism	-5.75	**<0.001**	**<0.001**	-0.11	0.789	1.000	-5.64	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Collectivism	-5.89	**<0.001**	**<0.001**	-1.45	**0.003**	**0.027**	-4.44	**<0.001**	**<0.001**	**<0.001**	**0.007**	**<0.001**	**<0.001**	0.063	**<0.001**
Stress	-2.02	**<0.001**	**<0.001**	-1.89	**0.004**	**0.031**	-0.13	0.873	1.000	0.053	0.331	0.237	0.239	1.000	1.000
Trust	-6.22	**<0.001**	**<0.001**	-7.27	**<0.001**	**<0.001**	1.05	0.376	1.000	**0.014**	0.463	0.657	0.069	1.000	1.000
Social Activity	-1.33	**0.004**	**0.020**	-0.71	**0.023**	0.141	-0.62	0.267	1.000	0.173	**<0.001**	0.094	0.624	**<0.001**	0.726
Warmth	-5.47	**<0.001**	**<0.001**	-1.87	**<0.001**	**<0.001**	-3.60	**<0.001**	**0<.001**	**0.007**	**<0.001**	**<0.001**	**0.042**	**<0.001**	**<0.001**
Morality	-6.65	**<0.001**	**<0.001**	-3.13	**<0.001**	**<0.001**	-3.53	**<0.001**	**<0.001**	**0.004**	**0.014**	**<0.001**	**0.031**	0.108	**<0.001**
Assertiveness	-2.33	**<0.001**	**<0.001**	-1.95	**<0.001**	**<0.001**	-0.38	0.576	1.000	0.119	0.077	0.157	0.460	0.463	1.000
Competence	0.12	0.649	1.000	-0.74	**0.011**	0.074	0.86	**0.035**	0.237	**0.014**	0.524	0.524	0.069	1.000	1.000

Note. est = standardized estimator; Diff = moderating effect of the country in general; a = the path of the predictor to the mediator; b = the path of the mediator to the outcome variable; c = the path of the predictor to the outcome variable; *P*.BY = *P* value adjusted by the false discovery rate. We highlighted the mediators that were significant in both countries. Boldface indicates statistically significant effects.

Table S7. Path Coefficients for the Moderated Mediation Analyses for the Pilot Study

Mediators	China						USA					
	a		b		c		a		b		c	
	est	*P*	est	*P*	est	*P*	est	*P*	est	*P*	est	*P*
Religiosity	-0.44	**<0.001**	-2.35	0.159	-5.26	**<.001**	-0.56	**<0.001**	3.76	**0.020**	-3.90	**0.005**
Face to Face Contact	-0.57	**<0.001**	11.91	**<0.001**	2.58	**0.022**	-0.62	**<0.001**	11.29	**<0.001**	1.05	0.429
Virtual Contact	0.82	**<0.001**	-9.16	**<0.001**	3.24	0.128	0.75	**<0.001**	-3.52	0.062	-3.36	0.054
Urbanization	0.73	**<0.001**	-0.12	0.949	-4.15	**0.014**	0.37	**<0.001**	-0.23	0.883	-5.92	**<0.001**
Wealth	0.68	**<0.001**	-0.64	0.604	-3.35	**0.007**	0.07	**0.032**	-0.69	0.693	-5.48	**<0.001**
Inequality	0.62	**<0.001**	-6.86	**<0.001**	0.03	0.984	0.47	**<0.001**	-1.38	0.350	-5.36	**<0.001**
Education	0.85	**<0.001**	0.87	0.726	-4.97	**0.033**	0.34	**<0.001**	2.77	0.052	-6.94	**<0.001**
Individualism	0.58	**<0.001**	-9.88	**<0.001**	1.52	0.247	0.32	**<0.001**	-0.34	0.789	-5.90	**<0.001**
Collectivism	-0.63	**<0.001**	9.40	**<0.001**	1.65	0.239	-0.34	**<0.001**	4.24	**0.002**	-4.56	**<0.001**
Stress	0.34	**<0.001**	-5.99	**<0.001**	-2.22	**0.042**	0.45	**<0.001**	-4.23	**0.003**	-4.11	**0.001**
Trust	-0.45	**<0.001**	13.93	**<0.001**	1.98	0.064	-0.58	**<0.001**	12.60	**<0.001**	1.27	0.305
Social Activity	-0.15	**0.002**	9.16	**<0.001**	-2.91	**0.008**	-0.24	**<0.001**	3.01	**0.009**	-5.29	**<0.001**
Warmth	-0.39	**<0.001**	14.14	**<0.001**	1.23	0.243	-0.23	**<0.001**	8.06	**<0.001**	-4.14	**<0.001**
Morality	-0.45	**<0.001**	14.92	**<0.001**	2.41	**0.024**	-0.29	**<0.001**	10.85	**<0.001**	-2.88	**0.003**
Assertiveness	-0.27	**<0.001**	8.54	**<0.001**	-1.90	0.072	-0.36	**<0.001**	5.45	**<0.001**	-4.05	**<0.001**
Competence	0.02	0.648	7.01	**<0.001**	-3.90	**<0.001**	-0.13	**0.002**	5.95	**<0.001**	-4.80	**<0.001**

Note. est = standardized path coefficient; a = the path of the predictor to the mediator; b = the path of the mediator to the outcome variable; c = the path of the predictor to the outcome variable. Boldface indicates statistically significant effects.

Supplementary Note 2 Distribution of Participants' Age

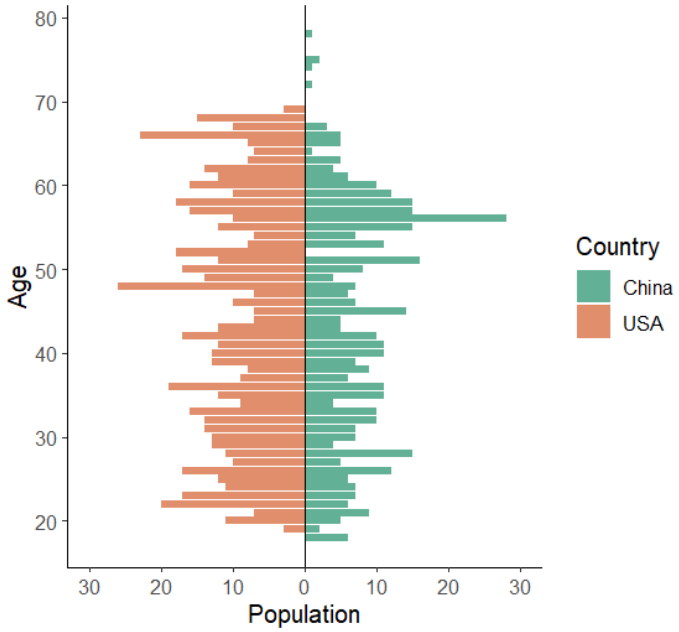


Figure S4. Distribution of Participants' Age Divided by the Two Countries.

Supplementary Note 3 Calculation of cooperation rate at year 2030

To provide incentives for participants corresponding to their guesses regarding the cooperation rate in prisoner's dilemma games, we calculated the real cooperation rate based on the data from CoDa. The cooperation rates for the year 2030 were estimated based on the previous cooperation rate and the relation between time and cooperation. Specifically, we retrieved cooperation data from the CoDa on March 15th, 2023, targeting the search by country (China, Hong Kong, USA), type of the game (i.e., one-shot, prisoner's dilemma, interactions with strangers, 2 choice options (i.e., cooperate or defect), resulting in 111 articles (112 studies with U.S. participants and 29 studies with Chinese participants). To analyze trends over time, we grouped the studies into discrete year groups using two interval strategies: ±5 years and ±8 years. Then, we used the rma function (metafor package) [5] with restricted maximum likelihood (REML) estimation to pool the logit-transformed cooperation rate by country and year group [6,7]. Due to insufficient data for the early Chinese year groups, especially those before 1985, we used the U.S. participants' data as the real cooperation rate during debriefing. To estimate the expected cooperation rate in 2030, we used the non-standardized linear regression coefficient from Yuan's study of the U.S. samples (b = 0.005). Based on the estimated 53.20% cooperation rate in 2020 (log = 0.1283), the expected rate in 2030 is 54.4% (log = 0.1283 + 10×0.005).

Here we reported the calculated real cooperation rated derived from empirical studies annotated in CoDa for both the USA and China, alongside the mean perceived cooperation rates in the prisoner's dilemma game measured in the present study (see Table S8).

For U.S. participants, the perceived cooperation rate closely matched the actual rate in earlier decades (e.g. the 1960s and 1970s). However, since 2000, while actual cooperation rates have remained relatively stable, perceived cooperation rates have consistently been lower than the observed levels, with the discrepancy gradually increasing over time. This pattern suggests that U.S. participants have been increasingly underestimating cooperation in recent decades.

For Chinese participants, perceived cooperation rates were close to actual cooperation rates in earlier periods. However, it should be noted that estimates of actual cooperation in China prior to 2000 were based on a single study, which may not be an optimal estimate of the average level of cooperation during that period. In 2010, perceived cooperation was comparable to the actual cooperation rate; however, in 2020, it was slightly lower. Notably, Yuan et al.'s meta-analysis of Chinese samples incorporated 93 prisoner's dilemma games and 209 public goods games. While no moderating effect of game type was reported, the limited number of available studies suggests that estimates of actual cooperation in China should be interpreted with caution. According to their meta-analytic estimates, cooperation rates in China increased from around 44% in 1999 to 53% in 2019.

Despite this slight upward trend in observed cooperation, Chinese participants in the present study perceived cooperation as declining. Whether this perception reflects accurate inferences from everyday social experience or instead arises from a systematic underestimation of others' cooperative behavior remains an important question for future research.

Table S8. The Real Cooperation Rate Extracted from Coda and the Perceived Cooperation Rate in the Current Study

Year	Real Cooperation Rate from CoDa				Perceived Cooperation Rate in the Current Study			
	USA		China		USA		China	
	N	Rate	*N*	Rate	*M*	*SD*	*M*	*SD*
1960	6	50.64%	0	-	53.43%	25.65%	60.45%	28.53%
1970	7	46.44%	1	57.70%	54.93%	23.89%	59.85%	29.84%
1980	6	57.35%	1	57.70%	48.59%	22.39%	57.32%	21.40%
1990	12	54.22%	0	-	50.07%	21.86%	52.93%	21.30%
2000	39	51.75%	1	62.81%	45.37%	22.24%	43.94%	20.83%
2010	46	54.62%	20	43.93%	43.13%	21.97%	44.91%	22.67%
2020	15	53.20%	10	41.09%	39.58%	25.31%	36.49%	26.21%
2030	-	54.40%	-	54.40%	39.79%	26.14%	41.96%	27.60%

Note: *N* = number of studies; Here we only reported the calculated real cooperation rate from Coda with 16-year-interval strategy. The results for the 10-year strategy can be found in the project's OSF folder.

Supplementary Note 4 Additional Results for Analyses in the Main Manuscript
Perceived Cooperation Behavior in the Prisoner's Dilemma Game
Here we report the full results of the linear mixed model with the percentage of people who would cooperate in the game as the outcome variable (see Table S9). In the model, year (as a continuous numeric variable), country (China vs. USA), and group (1960-2020 vs. 1970-2030), as well as their interactions were added as the fixed factors, the subject was included as the random intercept, and gender and age were treated as covariates.

In addition to the effects that we reported in the main manuscript (i.e. the main effect of year and the interaction of year and country), the three-way interaction of year, country, and group was also significant. Further simple slope analysis showed that the interaction of year and country was only significant in the group 1960-2020 (t = -5.03, P < 0.001) but not in the group 1970-2030 (t = -0.59, P = 0.554). Specifically, when rating between 1960 and 2020, Chinese participants (β = -0.36, z = -14.97, P < 0.001) had a stronger belief of cooperation decline than the U.S. participants (β = -0.21, z = -10.11, P < 0.001).

Table S9. Effects of Year and Country on Participants' Perception of the Cooperation Rate in the Prisoner's Dilemma Game (Full Results in the Main Manuscript).

Predictors	χ^2	P	β	95% CI	t	f^2
Year	575.11	**<0.001**	-0.27	[-0.29, -0.25]	-23.98	0.178
Country	0.01	0.904	<0.01	[-0.04, 0.05]	0.12	<0.001
Group	<0.01	0.989	<0.01	[-0.04, 0.04]	-0.01	<0.001
Year × Country	15.67	**<0.001**	-0.04	[-0.07, -0.02]	-3.96	0.005
Year × Group	2.15	0.143	-0.02	[-0.04, 0.01]	-1.47	0.001
Country × Group	<0.01	0.984	<0.01	[-0.04, 0.05]	0.02	<0.001
Year × Country × Group	9.71	**0.002**	-0.03	[-0.06, -0.01]	-3.12	0.003
Age	1.50	0.220	0.03	[-0.02, 0.07]	1.23	0.001
Gender	2.74	0.433	-0.23	[-0.51, 0.06]	-1.55 (0.120)	0.003
Random Effects						
σ2	0.52					
τ00	0.41					
ICC	0.44					
Marginal/Conditional R^2	0.072 / 0.481					

Note. There were four levels of Gender (i.e., male, female, other, and prefer not to say). We only reported estimates for the contrast of males and females as the other two levels contained very few participants (12 in total). The numbers in the bracket under the t value represent the specific P values for the contrast of male and female. × indicates an interaction term. Boldface indicates statistically significant effects.

Perceived Communion-Agency
We also report the full results of the linear mixed models with the traits (i.e., warmth, morality, assertiveness, and competence) as the outcome variable (see Tables S10 and S11). Again, year (as a continuous numeric variable), country (China vs. USA), and group (1960-2020 vs. 1970-2030), as well as their interactions were added as the fixed factors, the subject was included as the random intercept, and gender and age were treated as covariates.

In addition to the effects reported in the main manuscript (i.e. the main effect of year and the interaction of year and country), we also find significant two-way interactions between year and group for the assertiveness and competence. Participants held beliefs in a stronger decline of assertiveness (1960-2020: β = -0.39, z = - 24.47, P < 0.001; 1970-2030: β = -0.26, z = - 16.42, P < 0.001) and competence (1960-2020: β = -0.10, z = - 5.45, P < 0.001; 1970-2030: β = -0.03, z = 1.53, P = 0.126) in the group 1960-2020 than the group 1970-2030.

The three-way interaction of year, country, and group was significant for the facets of warmth and competence. In both groups, the interaction of year and country was significant (Warmth: 1960-2020: z = -9.54, P < 0.001; 1970-2030: z = -6.08, P < 0.001; Competence: 1960-2020: z = 2.67, P = 0.008; 1970-2030: z = 5.51, P < 0.001). Participants expressed a stronger decline in their beliefs about warmth in the Chinese sample (1960-2020: β = - 0.54, z = - 20.27, P < 0.001; 1970-2030: β = -0.51, z = -19.38, P < 0.001) than the U.S. participants (1960-2020: β = - 0.21, z = - 9.46, P < 0.001; 1970-2030: β = -0.30, z = - 13.27, P < 0.001). Besides, Chinese participants expressed a significant belief in the *increase* in competence in the group of 1970-2030 (β = 0.15, z = 4.61, P < 0.001) but not in the group of 1960-2020 (β = -0.05, z = -1.80, P = 0.072). While the USA participants expressed a stronger decline in their beliefs about competence in the group 1960-2020 (β = -0.15, z = -6.34, P < 0.001) than in the group 1970-2030 (β = -0.07, z = -3.04, P = 0.002).

Overall, we found stable and strong beliefs in the decline in cooperation behavior in the game, warmth, morality, and assertiveness in both the USA and China. Participants in both groups (1960-2020 vs. 1970-2030) showed similar results, with slight differences in the strength of the trends. Nevertheless, we found a positive trend for competence among the Chinese for the group 1970-2030 but not for the group 1960-2020, and importantly, the U.S. participants in both groups reported a declining trend in competence. There may be many reasons for this, and we think that one possible reason is that China has been developing rapidly since the reform and opening up, which may result in a positive trend during the early period. The difference between the two groups may be due to the existence of the year 2030, with the highly developed technology, perhaps Chinese people perceive that in the future, people will be intelligent and clever.

Moreover, we found that older people perceived higher levels of warmth, morality, assertiveness, and competence. Older people have been found to be more prosocial or more cooperative in games [8-10]. People's own level of cooperation can be a projection of others' behavior, which shapes their expectations [11]. However, we did not find the effect of age on the perception of cooperation behavior in the game. Therefore, further research is needed to investigate the effect of age on the perception of cooperation in different contexts.

Table S10. Effects of Year and Country on Participants' Perceptions of Warmth and Morality (Full Results in the Main Manuscript).

Predictors	Warmth						Morality					
	χ^2	*P*	β	95% CI	*t*	f^2	χ^2	*P*	β	95% CI	*t*	f^2
Year	1011.14	**<0.001**	-0.39	[-0.41, -0.36]	-31.8	0.313	1050.39	**<0.001**	-0.38	[-0.40, -0.36]	-32.41	0.325
Country	<0.01	0.969	<0.01	[-0.04, 0.04]	-0.04	<0.001	<0.01	0.959	<0.01	[-0.04, 0.04]	-0.05	<0.001
Group	0.01	0.910	<0.01	[-0.04, 0.03]	-0.11	<0.001	0.01	0.913	<0.01	[-0.04, 0.04]	-0.11	<0.001
Year × Country	121.62	**<0.001**	-0.13	[-0.16, -0.11]	-11.03	0.038	61.95	**<0.001**	-0.09	[-0.12, -0.07]	-7.87	0.019
Year × Group	1.42	0.234	0.01	[-0.01, 0.04]	1.19	<0.001	3.60	0.058	-0.02	[-0.05, 0.00]	-1.90	0.001
Country × Group	0.01	0.907	<0.01	[-0.03, 0.04]	0.12	<0.001	0.02	0.899	<0.01	[-0.04, 0.04]	0.13	<0.001
Year × Country × Group	5.67	**0.017**	-0.03	[-0.05, -0.01]	-2.38	0.002	1.54	0.215	-0.01	[-0.04, 0.01]	-1.24	<0.001
Age	20.57	**<0.001**	0.08	[0.05, 0.12]	4.54	0.019	19.78	**<0.001**	0.09	[0.05, 0.13]	4.45	0.019
Gender	5.69	0.127	-0.15	[-0.38, 0.09]	-1.22 (0.221)	0.005	6.89	0.076	-0.15	[-0.40, 0.10]	-1.17 (0.241)	0.006
Random Effects												
σ2	0.63						0.58					
τ00	0.22						0.27					
ICC	0.26						0.32					
Marginal/Conditional R^2	0.162 / 0.376						0.153 / 0.423					

Note. There were four levels of Gender (i.e., male, female, other, and prefer not to say). We only reported estimates for the contrast of males and females as the other two levels contained very few participants (12 in total). The numbers in the bracket under the *t* value represent the specific *P* values for the contrast of male and female. × indicates an interaction term. Boldface indicates statistically significant effects.

Table S11. Effects of Year and Country on Participants' Perceptions of Assertiveness and Competence (Full Results in the Main Manuscript).

Predictors	Assertiveness						Competence					
	χ^2	*P*	β	95% CI	*t*	f^2	χ^2	*P*	β	95% CI	*t*	f^2
Year	836.23	**<0.001**	-0.33	[-0.35, -0.30]	-28.92	0.259	7.71	**0.006**	-0.04	[-0.06, -0.01]	-2.78	0.002
Country	0.01	0.909	<0.01	[-0.04, 0.04]	0.11	<0.001	0.02	0.885	<0.01	[-0.04, 0.05]	0.15	<0.001
Group	<0.01	0.999	<0.01	[-0.04, 0.04]	<0.01	<0.001	<0.01	0.946	<0.01	[-0.04, 0.04]	-0.07	<0.001
Year × Country	6.54	**0.011**	0.03	[0.01, 0.05]	2.56	0.002	33.30	**<0.001**	0.07	[0.05, 0.10]	5.77	0.010
Year × Group	32.79	**<0.001**	-0.06	[-0.09, -0.04]	-5.73	0.010	24.36	**<0.001**	-0.06	[-0.09, -0.04]	-4.94	0.008
Country × Group	<0.01	0.991	<0.01	[-0.04, 0.04]	-0.01	<0.001	<0.01	0.973	<0.01	[-0.04, 0.04]	0.03	<0.001
Year × Country × Group	3.45	0.063	-0.02	[-0.04, 0.00]	-1.86	0.001	3.88	**0.049**	-0.02	[-0.05, -0.00]	-1.97	0.001
Age	15.86	**<0.001**	0.08	[0.04, 0.13]	3.98	0.015	10.92	**0.001**	0.07	[0.03, 0.11]	3.30	0.010
Gender	1.74	0.629	-0.15	[-0.42, 0.12]	-1.11 (0.266)	0.002	6.01	0.111	-0.3	[-0.57, -0.03]	-2.19 (0.029)	0.006
Random Effects												
σ2	0.53						0.67					
τ00	0.35						0.32					
ICC	0.40						0.32					
Marginal/Conditional R^2	0.121 / 0.473						0.019 / 0.336					

Note. There were four levels of Gender (i.e., male, female, other, and prefer not to say). We only reported estimates for the contrast of males and females as the other two levels contained very few participants (12 in total). The numbers in the bracket under the *t* value represent the specific *P* values for the contrast of male and female. × indicates an interaction term. Boldface indicates statistically significant effects.

Supplementary Note 5 Standardizing Continuous Variables Across Whole Sample

In the following analysis, as a robustness check, we used the same models as those reported in the main manuscript and Supplementary Section 3 but now with centered continuous variables across the whole sample. Specifically, we conducted several linear mixed model analyses with the percentages of people who would cooperate in the game as well as the scores on the four facets of communion (warmth and morality facets) and agency (assertiveness and competence facets) as the outcome variables. In all models, we included year (as a continuous numeric variable), country (China vs. USA), and group (1960-2020 vs. 1970-2030), as well as their interactions as the fixed factors. We added the subject as the random intercept, and gender and age as covariates. The categorical variables (i.e., country, gender, and group) were coded following the effect coding method. The continuous variables (i.e., year and age) were standardized within the cluster (i.e., country).

Perceived Cooperation Behavior in the Prisoner's Dilemma Game

We found a significant main effect of year which indicated a significant belief in decline in the cooperation rate in the game (see Table S12). Besides, the main effect of country was also significant. Chinese participants rated a higher percentage of people who might choose to cooperate (M = 49.73, SD = 26.39) compared to the U.S. participants (M = 46.86, SD = 24.34).

The interaction between year and country was significant and the simple slope analysis showed that Chinese participants had a stronger belief in declining of cooperation behavior (β = -0.33, z = -18.99, P < 0.001) than the U.S. participants (β = -0.22, z = -14.85, P < 0.001).

Table S12. Results for the Effects of Year and Country on Participants' Perception of the Cooperation Rate in the Prisoner's Dilemma Game (Different Standardization).

Predictors	χ^2	P	β	95% CI	t	f^2
Year	579.9	**<0.001**	-0.28	[-0.30, -0.25]	-24.08	0.180
Country	5.12	**0.024**	0.05	[0.01, 0.10]	2.26	0.005
Group	8.57	**0.003**	-0.07	[-0.11, -0.02]	-2.93	0.008
Year × Country	24.14	**<0.001**	-0.06	[-0.08, -0.03]	-4.91	0.007
Year × Group	2.49	0.115	-0.02	[-0.04, 0.00]	-1.58	0.001
Country × Group	0.33	0.567	-0.01	[-0.06, 0.03]	-0.57	<0.00
Year × Country × Group	9.45	**0.002**	-0.04	[-0.06, - 0.01]	-3.07	0.003
Random Effects						
σ2	0.53					
τ00	0.40					
ICC	0.43					
Marginal/Conditional R^2	0.077 / 0.475					

Note. × indicates an interaction term. Boldface indicates statistically significant effects.

Perceived Communion-Agency

Results regarding the beliefs in communion and agency are presented in Tables S13 and S14, in which we can see that the main effect of year was significant for all four facets. Participants had a stable belief that people's warmth, morality, assertiveness, and competence declined over the years. Again, the effect size for competence was smaller compared to the other three facets.

We also found the main effect of country was significant for all facets in that the Chinese participants rated higher levels of all four facets of Communion-Agency (Warmth: M = 5.27, SD = 1.29; Morality: M = 5.22, SD = 1.27; Assertiveness: M = 5.08, SD = 1.01; Competence: M = 5.29, SD = 1.06) compared to the U.S. participants (Warmth: M = 4.70, SD = 1.32; Morality: M = 4.61, SD = 1.27; Assertiveness: M = 4.90, SD = 1.11; Competence: M = 5.04, SD = 1.18).

The interaction between year and country was also significant for all four facets. The simple slope analysis showed that Chinese participants had a stronger belief on declining of warmth and morality compared to the USA participants (Warmth: China: β = -0.52, z = -27.61, P <

0.001; USA: β = -0.26, z = -16.16, P <0 .001; Morality: China: β = -0.47, z = -26.39, P < 0.001; USA: β = -0.30, z = -19.04, P < 0.001). While the U.S. participants had stronger beliefs on declining assertiveness and competence compared to the Chinese participants (Assertiveness: China: β = -0.29, z = -16.47, P < 0.001; USA: β = -0.38, z = -25.41, P < 0.001; Competence: China: β = 0.04, z = 1.88, P = 0.060; USA: β = -0.12, z = -7.00, P < 0.001). Specifically, the Chinese sample reported similar levels of competence across the years.

In summary, we found similar results as those found in the main study. Specifically, people believed in a decline in communion and agency, as well as in the percentage of people who might cooperate in the prisoner's dilemma game. Also, as in the main study, Chinese participants revealed a stronger decline in cooperation behavior in the game, warmth, and morality relative to the U.S. participants.

Table S13. Effects of Year and Country on Participants' Perceptions of Warmth and Morality (Different Standardization).

Predictors	Warmth						Morality					
	χ^2	*P*	β	95% CI	*t*	f^2	χ^2	*P*	β	95% CI	*t*	f^2
Year	993.27	**<0.001**	-0.39	[-0.41, -0.36]	-31.52	0.308	1052.82	**<0.001**	-0.38	[-0.40, -0.36]	-32.45	0.326
Country	122.17	**<0.001**	0.21	[0.17, 0.24]	11.05	0.110	131.90	**<0.001**	0.23	[0.19, 0.26]	11.48	0.119
Group	22.13	**<0.001**	-0.09	[-0.12, -0.05]	-4.70	0.020	21.12	**0.007**	-0.09	[-0.13, -0.05]	-4.60	0.019
Year × Country	113.48	**<0.001**	-0.13	[-0.15, -0.11]	-10.65	0.035	61.78	**<0.001**	-0.09	[-0.12, -0.07]	-7.86	0.019
Year × Group	0.74	0.390	0.01	[-0.01, 0.03]	0.86	<0.001	7.89	**0.005**	-0.03	[-0.06, -0.01]	-2.81	0.002
Country × Group	0.01	0.940	<.01	[-0.04, 0.04]	-0.07	<0.001	0.06	0.814	<.01	[-0.04, 0.03]	-0.24	<0.001
Year × Country × Group	5.02	**0.025**	-0.03	[-0.05, -0.00]	-2.24	0.002	2.79	0.095	-0.02	[-0.04, 0.00]	-1.67	0.001
Random Effects												
σ2	1.08						0.94					
τ00	0.37						0.44					
ICC	0.26						0.32					
Marginal/Conditional R^2	0.197 / 0.403						0.198 / 0.454					

Note. × indicates an interaction term.

Table S14. Effects of Year and Country on Participants' Perceptions of Assertiveness and Competence (Different Standardization).

Predictors	Assertiveness						Competence					
	χ^2	*P*	β	95% CI	*t*	f^2	χ^2	*P*	β	95% CI	*t*	f^2
Year	839.75	**<0.001**	-0.33	[-0.35, -0.31]	-28.98	0.260	9.49	**0.002**	-0.04	[-0.06, -0.01]	-3.08	0.003
Country	14.02	**<0.001**	0.08	[0.04, 0.13]	3.81	0.013	24.61	**<0.001**	0.11	[0.07, 0.15]	4.96	0.022
Group	4.74	**0.029**	-0.05	[-0.09, -0.00]	-2.18	0.004	0.95	0.329	-0.02	[-0.06, 0.02]	-0.98	0.001
Year × Country	14.65	**<0.001**	0.04	[0.02, 0.07]	3.83	0.005	35.43	**<0.001**	0.08	[0.05, 0.10]	5.95	0.011
Year × Group	38.32	**<0.001**	-0.07	[-0.09, -0.05]	-6.19	0.012	24.26	**<0.001**	-0.06	[-0.09, -0.04]	-4.93	0.008
Country × Group	0.07	0.787	-0.01	[-0.05, 0.04]	-0.27	<0.001	0.10	0.758	0.01	[-0.04, 0.05]	0.31	<0.001
Year × Country × Group	1.43	0.232	-0.01	[-0.04, 0.01]	-1.20	<0.001	2.54	0.111	-0.02	[-0.05, 0.00]	-1.59	0.001
Random Effects												
σ2	0.6						0.84					
τ00	0.4						0.41					
ICC	0.4						0.33					
Marginal/Conditional R^2	0.131 / 0.481						0.032 / 0.350					

Note. × indicates an interaction term.

Supplementary Note 6 Beliefs about Cooperation Before or After Participants' Birth

People's perceptions regarding the presence or absence of information in their memory can vary significantly [8]. Such differences can be observed in relation to the time before and after birth. Therefore, we constructed two sub-datasets to examine how people perceive cooperation and related traits in the time before or after their birth. For the examination of perceptions of cooperation before birth, taking the year 1980 as an example, only participants aged 43 or younger were included in the corresponding sub-dataset. For the study of perceptions of cooperation after birth, again using 1980 as a reference, participants older than 43 years old were incorporated into the corresponding sub-dataset. Similar to previous research methods, we conducted several linear mixed model analyses. In these models, the percentage of people willing to cooperate in the game, along with four specific traits, were designated as outcome variables. In all models, we included year, country, and group, as well as their interactions as the fixed factors. We added the subject as the random intercept, and gender and age as covariates. Results are reported below and illustrated in Figures S5 and S6.

For perceptions of the times before participants' birth, the main effects of year were not significant for cooperation rate in the game (β = -0.01, 95% CI [-0.07, 0.06], t = -0.20, P = 0.844), warmth (β = -0.03, 95% CI [-0.11, 0.05], t = -0.43, P = 0.429), morality (β = 0.05, 95% CI [-0.03, 0.12], t = 1.26, P = 0.207), and assertiveness (β = -0.02, 95% CI [-0.09, 0.04], t = -0.77, P = 0.441). However, the main effect of year was significant for competence (β = 0.23, 95% CI [0.16, 0.29], t = 7.03, P < 0.001). The two-way interactions of year and country were also significant for assertiveness (β = -0.10, 95% CI [-0.18, -0.02], t = -2.47, P = 0.014) and competence (β = -0.19, 95% CI [-0.27, -0.11], t = -4.50, P < 0.001). Simple slope analyses showed that the U.S. participants believed in a declining assertiveness (β = -0.11, t = -5.00, P < 0.001), whereas the Chinese participants perceived a similar level across the years (β = -0.02, t = -0.94, P = 0.348); and the Chinese participants (β = 0.19, t = 7.19, P < 0.001) held a stronger belief in an increased competence in the years before their birth compared to the U.S. participants (β = 0.07, t = 3.09, P = 0.002).

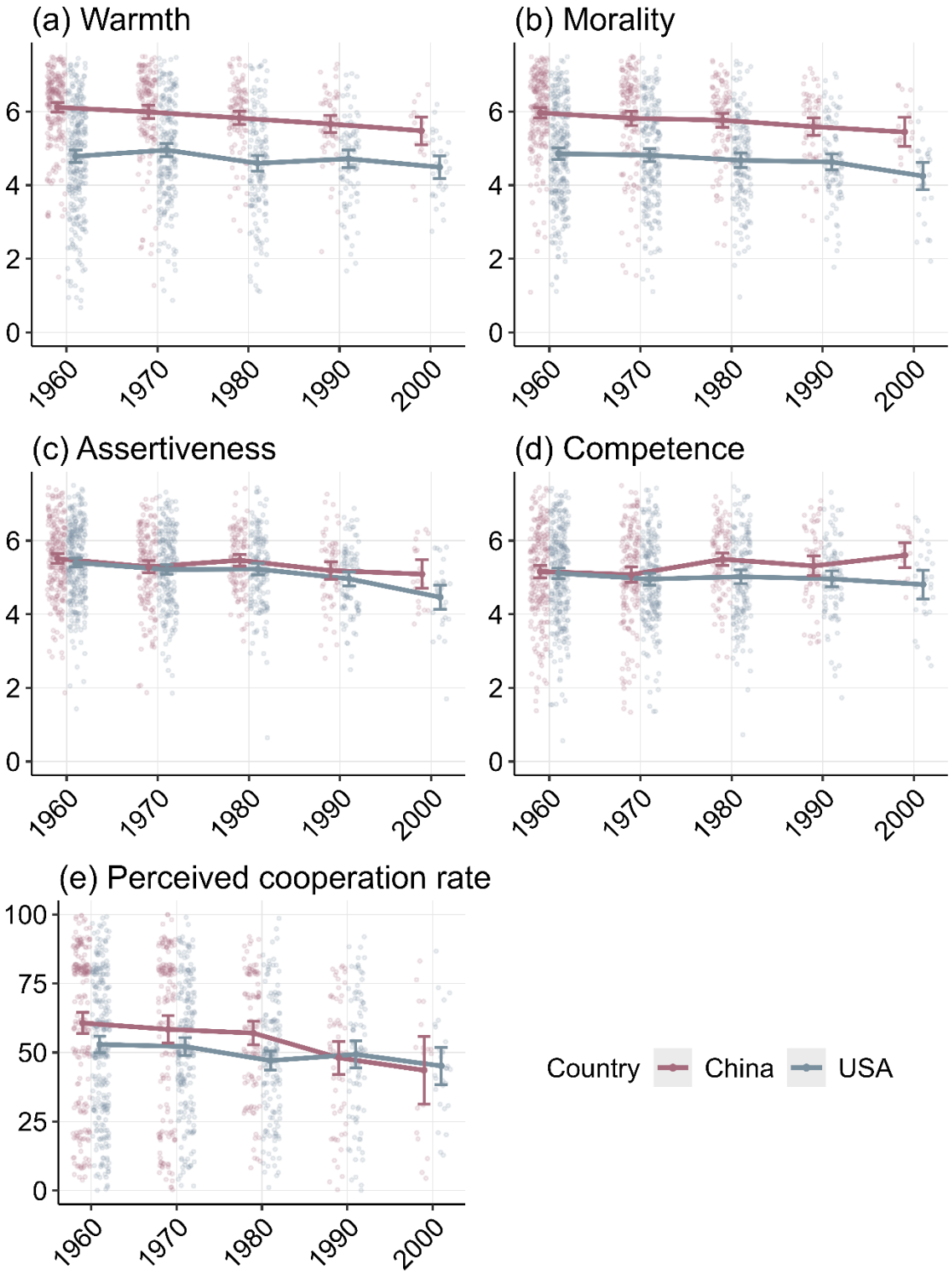


Figure S5. Beliefs in Cooperation in the USA and China (Before Participants' Birth).
Note. N_{USA} = 628, N_{China} = 449. Error bars represent 95% CI. Boldface indicates statistically significant effects.

For perceptions for the times after participants' birth, the main effects of year were significant for cooperation rate in the game (β = -0.36, 95% CI [-0.41, -0.30], t = -12.59, P < 0.001), warmth (β = -0.48, 95% CI [-0.54, -0.42], t = -15.52, P < 0.001), morality (β = -0.47, 95% CI [-0.53, -0.41], t = -15.56, P < 0.001), assertiveness (β = -0.33, 95% CI [-0.39, -0.28], t = -11.27, P < 0.001), and competence (β = -0.18, 95% CI [-0.24, -0.11], t = -5.25, P < 0.001). The results are in line with those reported in the main manuscript in that people held beliefs in the decline in cooperation and related traits.

The two-way interactions of year and country were significant for cooperation rate in the game (β = 0.12, 95% CI [0.05, 0.19], t = 3.23, P = 0.001) and warmth (β = 0.09, 95% CI [0.01, 0.17], t = 2.25, P = 0.025). Specifically, Chinese participants (Cooperation rate: β = -0.32, t = -16.60, P < 0.001; Warmth: β = -0.48, t = -23.45, P < 0.001) held stronger beliefs in the decline in cooperation rate and warmth compared to the U.S. participants (Cooperation rate: β = -0.25, t = -15.12, P < 0.001; Warmth: β = -0.38, t = -21.58, P < 0.001).

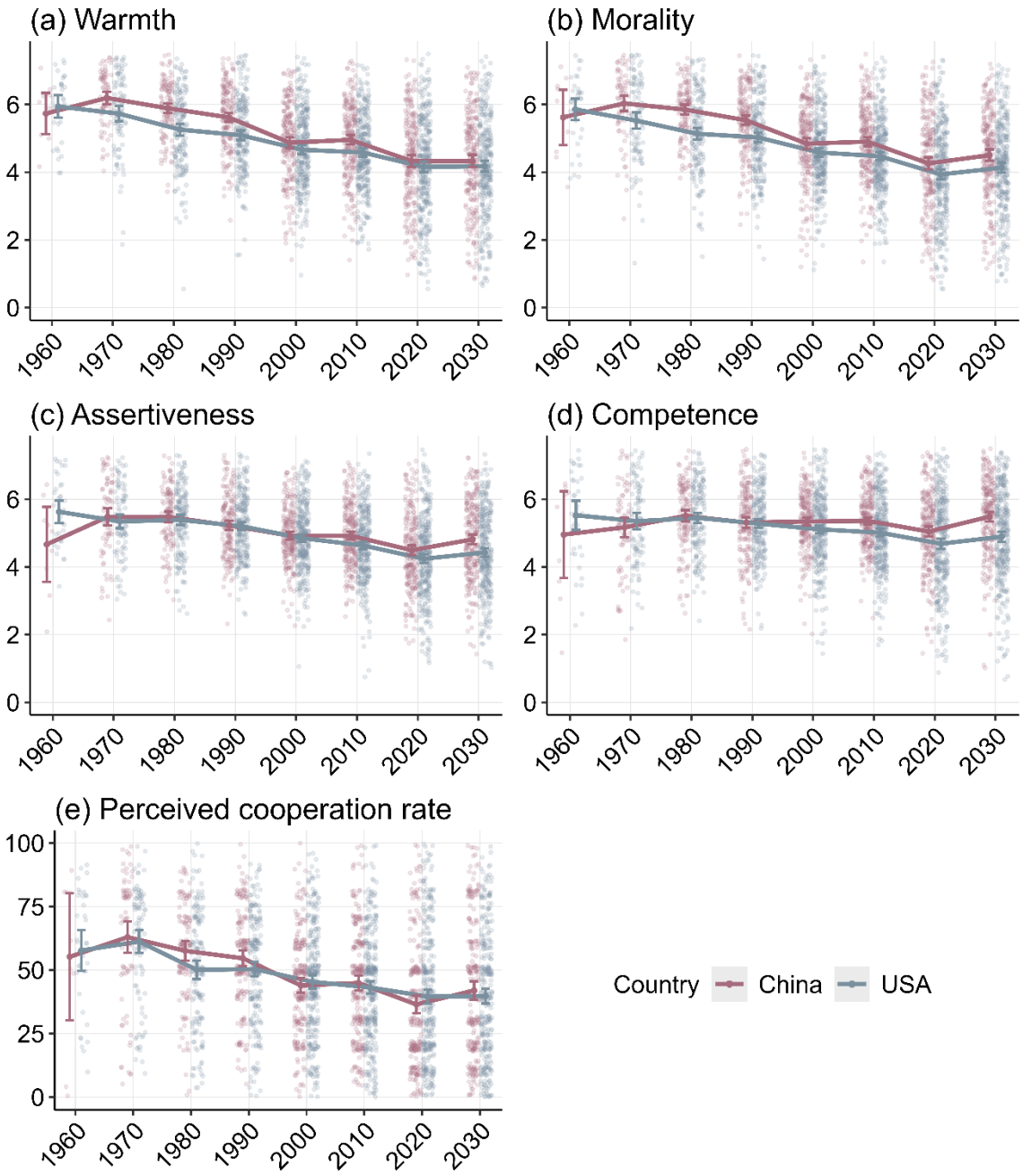


Figure S6. Beliefs in Cooperation in the USA and China (After Participants' Birth).
Note. N_{USA} = 628, N_{China} = 449. Error bars represent 95% CI. Boldface indicates statistically significant effects.

Taken together, we found similar results to the full dataset only for people's perceptions in times after participants' birth. Specifically, people believed in the decline of cooperative behavior in the game, as well as for all four traits, i.e. warmth, morality, assertiveness and competence. Furthermore, the belief in decline began at the time of the participants' birth, consistent with the findings for moral decline [8].

Supplementary Note 7 Potential Quadratic Trends

We further explored whether there were potential quadratic trends (e.g., inflection points, variations in the slope) in the perceived cooperation behavior and traits. We modified the mixed models in the confirmatory analysis plan by adding the square of the Year into the models. We can see from Table S15 that the slope of the negative relationship between year and warmth, morality, assertiveness, as well as competence became steeper over the years. We conclude that there is some generality in support of linearity in the belief in cooperation decline, while the belief in a decline in warmth and morality became stronger after 1990 (see Figure 1 in the main manuscript). Combined with the results presented in Section 6, which showed that the decline began around the time of the participants' birth, these steeper trends were expected as more participants were born over time.

Table S15. Overview of Quadratic Trends.

Outcome	Predictors	β	95% CI	*t*	*P*
Cooperation Rate	Year	-0.27	[-0.29, -0.25]	-23.98	**<0.001**
	Year.square	<.01	[-0.03, 0.03]	0.10	0.922
Warmth	Year	-0.39	[-0.41, -0.36]	-31.92	**<0.001**
	Year.square	-0.08	[-0.11, -0.05]	-5.08	**<0.001**
Morality	Year	-0.38	[-0.40, -0.36]	-32.57	**<0.001**
	Year.square	-0.08	[-0.11, -0.05]	-5.77	**<0.001**
Assertiveness	Year	-0.33	[-0.35, -0.30]	-29.03	**<0.001**
	Year.square	-0.07	[-0.10, -0.04]	-5.09	**<0.001**
Competence	Year	-0.04	[-0.06, -0.01]	-2.79	**0.005**
	Year.square	-0.10	[-0.13, -0.07]	-6.49	**<0.001**

Note. Boldface indicates statistically significant effects.

Supplementary Note 8 Results When Year was Treated as a Categorical Variable

As can be seen from Figure 1 in the main manuscript, it appears that the declining trends are either eliminated or reversed in the year 2030. We have chosen time points with a 10-year interval rather than a completely continuous year variable in the design. Therefore, we conducted analyses that treated year as a categorical variable to examine whether there is a possibility for a non-linear relationship between year and perceived cooperation. Results are presented in Table S16. Although the differences between the two adjacent time points were sometimes not significant (which is also understandable as these were rated by participants from two different groups), when looking at the overall patterns, there was general support for declines for cooperation rate in the game setting, as well as warmth, morality, and assertiveness. More importantly, participants perceived *higher* levels of cooperation rate, morality, assertiveness, and competence in 2030 than in 2020. These findings suggest that the belief in a decline in cooperation did not seem to extend into the near future, even though the ratings for 2020 and 2030 were given by two different groups of participants. We could speculate that, when predicting the future, participants did not perceive a worse situation compared to the present.

Table S16. Results for the Analyses with Categorical Year.

Contrasts	Warmth			Morality			Assertiveness			Competence			Cooperation Rate		
	β	*z*	*P*	β	*z*	*P*	β	*z*	*P*	β	*z*	*P*	β	*z*	*P*
1960-1970	-0.10	-1.73	0.084	-0.02	-0.34	0.738	0.08	1.35	0.177	0.08	1.24	0.216	-0.01	-0.14	0.890
1960-1980	0.09	1.77	0.078	0.07	1.59	0.111	0.05	1.18	0.238	-0.20	-3.98	**<0.001**	0.16	3.56	**<0.001**
1960-1990	0.15	2.62	**0.009**	0.17	2.94	**0.003**	0.20	3.46	**0.001**	-0.07	-1.13	0.260	0.22	3.74	**<0.001**
1960-2000	0.55	11.31	**<0.001**	0.56	12.02	**<0.001**	0.53	11.95	**<0.001**	-0.07	-1.38	0.168	0.48	10.74	**<0.001**
1960-2010	0.56	9.98	**<0.001**	0.61	10.67	**<0.001**	0.58	10.00	**<0.001**	-0.02	-0.28	0.777	0.52	8.67	**<0.001**
1960-2020	0.96	19.73	**<0.001**	1.04	22.29	**<0.001**	1.00	22.45	**<0.001**	0.25	4.92	**<0.001**	0.74	16.58	**<0.001**
1960-2030	0.96	17.07	**<0.001**	0.90	15.92	**<0.001**	0.73	12.60	**<0.001**	-0.02	-0.37	0.710	0.64	10.76	**<0.001**
1970-1980	0.18	3.25	**0.001**	0.09	1.64	0.100	-0.03	-0.44	0.660	-0.27	-4.50	**<0.001**	0.17	2.80	**0.005**
1970-1990	0.25	5.06	**<0.001**	0.19	4.00	**<0.001**	0.12	2.75	**0.006**	-0.14	-2.89	**0.004**	0.23	5.20	**<0.001**
1970-2000	0.65	11.47	**<0.001**	0.58	10.21	**<0.001**	0.45	7.86	**<0.001**	-0.14	-2.37	**0.018**	0.49	8.17	**<0.001**
1970-2010	0.66	13.64	**<0.001**	0.62	13.42	**<0.001**	0.50	11.26	**<0.001**	-0.09	-1.86	0.063	0.53	11.82	**<0.001**
1970-2020	1.06	18.71	**<0.001**	1.06	18.65	**<0.001**	0.92	15.95	**<0.001**	0.17	2.80	**0.005**	0.75	12.53	**<0.001**
1970-2030	1.06	21.89	**<0.001**	0.92	19.83	**<0.001**	0.65	14.64	**<0.001**	-0.10	-1.97	**0.049**	0.65	14.62	**<0.001**
1980-1990	0.06	1.10	0.273	0.09	1.63	0.102	0.15	2.55	**0.011**	0.13	2.13	**0.033**	0.06	1.08	0.281
1980-2000	0.46	9.55	**<0.001**	0.49	10.42	**<0.001**	0.48	10.77	**<0.001**	0.13	2.60	**0.009**	0.32	7.18	**<0.001**
1980-2010	0.48	8.46	**<0.001**	0.53	9.36	**<0.001**	0.53	9.10	**<0.001**	0.18	2.98	**0.003**	0.36	6.01	**<0.001**
1980-2020	0.87	17.96	**<0.001**	0.97	20.69	**<0.001**	0.95	21.27	**<0.001**	0.45	8.90	**<0.001**	0.58	13.02	**<0.001**
1980-2030	0.88	15.55	**<0.001**	0.83	14.61	**<0.001**	0.68	11.69	**<0.001**	0.18	2.89	**0.004**	0.48	8.11	**<0.001**
1990-2000	0.40	7.12	**<0.001**	0.39	6.93	**<0.001**	0.33	5.75	**<0.001**	0.00	0.00	0.997	0.26	4.29	**<0.001**
1990-2010	0.42	8.58	**<0.001**	0.44	9.42	**<0.001**	0.38	8.51	**<0.001**	0.05	1.03	0.302	0.29	6.62	**<0.001**
1990-2020	0.81	14.37	**<0.001**	0.87	15.38	**<0.001**	0.80	13.84	**<0.001**	0.32	5.16	**<0.001**	0.52	8.66	**<0.001**
1990-2030	0.82	16.83	**<0.001**	0.74	15.83	**<0.001**	0.53	11.89	**<0.001**	0.05	0.92	0.357	0.42	9.43	**<0.001**
2000-2010	0.01	0.24	0.807	0.04	0.79	0.429	0.05	0.79	0.428	0.05	0.85	0.397	0.04	0.65	0.519
2000-2020	0.41	8.42	**<0.001**	0.48	10.27	**<0.001**	0.47	10.49	**<0.001**	0.32	6.30	**<0.001**	0.26	5.84	**<0.001**
2000-2030	0.41	7.33	**<0.001**	0.34	6.05	**<0.001**	0.20	3.39	**0.001**	0.05	0.76	0.449	0.16	2.74	**0.006**
2010-2020	0.40	7.00	**<0.001**	0.43	7.65	**<0.001**	0.42	7.29	**<0.001**	0.26	4.32	**<0.001**	0.22	3.72	**<0.001**
2010-2030	0.40	8.25	**<0.001**	0.30	6.41	**<0.001**	0.15	3.38	**0.001**	-0.01	-0.11	0.913	0.12	2.80	**0.005**
2020-2030	0.00	0.09	0.930	-0.14	-2.40	**0.017**	-0.27	-4.70	**<0.001**	-0.27	-4.41	**<0.001**	-0.10	-1.63	0.104

Note. Boldface indicates statistically significant effects

Supplementary Note 9 Influence of the Demographic Variables

9.1 Influence of education, income, religiosity, and political-related variables on the perception of cooperation

We tested whether participants' education level, income level, political orientation, and religiosity (the latter two will only be tested among the U.S. participants) influenced people's perceived change in cooperation. We conducted the analysis in the U.S. and Chinese samples separately, and added those demographic variables in the mixed model analyses in the confirmatory analyses (excluded the fixed effect related to country).

Results are shown in Table S17. The effects of education, income, religiosity, and political-related variables were significant mainly for the U.S. participants. U.S. participants with a higher level of religiosity perceived higher levels of warmth, morality, assertiveness, and competence, but not for the cooperation behavior in the game setting. U.S. participants with a higher income level perceived a higher level of morality and those with a higher education level perceived lower levels of assertiveness and competence at the society level.

Table S17. Effects of Demographic Variables on Perceived Cooperation Behavior and Traits.

Outcome variables	Predictors	USA				China			
		β	95% CI	*t*	*P*	β	95% CI	*t*	*P*
Cooperation Rate	Education	-0.03	[-0.10, 0.04]	-0.75	0.454	0.07	[-0.09, 0.22]	0.87	0.385
	Income	0.03	[-0.04, 0.10]	0.78	0.437	0.01	[-0.13, 0.15]	0.15	0.882
	Religiosity	-0.03	[-0.10, 0.04]	-0.91	0.361	0.16	[0.03, 0.29]	2.38	**0.018**
	Left-Right wing	0.04	[-0.08, 0.16]	0.67	0.502				
	Demo-Repub	-0.03	[-0.14, 0.08]	-0.51	0.613				
Warmth	Education	-0.04	[-0.10, 0.01]	-1.5	0.133	-0.07	[-0.19, 0.06]	-1.04	0.298
	Income	0.05	[-0.00, 0.11]	1.88	0.060	0.08	[-0.03, 0.19]	1.37	0.171
	Religiosity	0.10	[0.05, 0.16]	3.73	**<0.00**	-0.02	[-0.12, 0.09]	-0.28	0.780
	Left-Right wing	0.12	[0.03, 0.21]	2.67	0.008				
	Demo-Repub	-0.10	[-0.19, -	-2.27	0.023				
Morality	Education	-0.06	[-0.12, 0.00]	-1.94	0.053	-0.02	[-0.15, 0.11]	-0.28	0.776
	Income	0.07	[0.01, 0.13]	2.37	**0.018**	0.12	[-0.00, 0.24]	1.95	0.052
	Religiosity	0.14	[0.08, 0.20]	4.79	**<0.00**	-0.02	[-0.14, 0.09]	-0.41	0.679
	Left-Right wing	0.13	[0.03, 0.22]	2.66	0.008				
	Demo-Repub	-0.09	[-0.18, -	-2.00	0.046				
Assertiveness	Education	-0.07	[-0.13, -	-2.11	**0.035**	-0.04	[-0.20, 0.13]	-0.42	0.671
	Income	0.01	[-0.05, 0.07]	0.36	0.719	0.09	[-0.06, 0.23]	1.17	0.244
	Religiosity	0.12	[0.06, 0.18]	3.78	**<0.00**	-0.08	[-0.22, 0.06]	-1.14	0.254
	Left-Right wing	0.08	[-0.02, 0.18]	1.64	0.102				
	Demo-Repub	-0.12	[-0.22, -	-2.49	0.013				
Competence	Education	-0.07	[-0.13, -	-2.11	**0.035**	0.03	[-0.12, 0.18]	0.43	0.669
	Income	0.03	[-0.04, 0.09]	0.78	0.438	0.10	[-0.04, 0.23]	1.39	0.165
	Religiosity	0.14	[0.08, 0.21]	4.52	**<0.00**	-0.10	[-0.23, 0.03]	-1.54	0.124
	Left-Right wing	0.06	[-0.04, 0.16]	1.13	0.259				
	Demo-Repub	-0.09	[-0.19, 0.01]	-1.77	0.076				

Note. Boldface indicates statistically significant effects.

9.2 Influence of age and gender on the beliefs about cooperation decline

We also conducted analyses to test whether people of different ages or with different gender may have different beliefs about decline in cooperation. To do so, we added the interaction of age and gender with year and country in the mixed model analyses in the confirmatory analyses. Note that we excluded participants who did not identify themselves as male or female as the number of these participants is too few to provide reliable results. Results showed that the two-way interaction of year and gender, as well as the three-way interaction of year, gender, and country were significant for assertiveness only (see Table S18). The follow-up analysis (see Table S19) showed that there was a significant effect of gender on the declining belief in assertiveness in China ($P < 0.001$) but not in the USA ($P = 0.407$). Specifically, Chinese men ($\beta = -0.36$, $z = -14.86$, $P < 0.001$) held a stronger belief in assertiveness than Chinese women ($\beta = -0.23$, $z = -9.41$, $P < 0.001$).

The two-way interactions of year and age, as well as the three-way interactions of year, age, and country were significant for warmth, morality, and competence, and the two-way interaction of year and age was also significant for cooperation rate (see Table S18). We tested the effect of the year at three cutoffs of age (-1 SD, mean, +1 SD) in the USA and China, and the results are presented in Table S19. We found that older participants had a stronger declining belief in warmth, morality, and cooperation rate in both the USA and China (all contrasts between different age cut-offs are significant, $P < 0.001$). Regarding competence, again, older U.S. participants had a stronger declining belief in competence, however, an opposite pattern was found for Chinese participants in that younger Chinese participants had a stronger increasing belief in competence.

Table S18. Interaction Effects of Gender and Age on Beliefs in Declined Cooperation.

Outcome	Predictors	β	95% CI	*t*	*P*
Cooperation Rate	Year × Gender	0.01	[-0.01, 0.03]	0.79	0.432
	Year × Age	-0.09	[-0.12, -0.07]	-8.44	**<0.001**
	Year × Country × Gender	-0.02	[-0.04, 0.01]	-1.44	0.150
	Year × Country × Age	<0.01	[-0.02, 0.02]	-0.11	0.916
Warmth	Year × Gender	0.02	[-0.00, 0.05]	1.82	0.069
	Year × Age	-0.13	[-0.16, -0.11]	-11.00	**<0.001**
	Year × Country × Gender	-0.02	[-0.04, 0.01]	-1.37	0.170
	Year × Country × Age	0.04	[0.02, 0.07]	3.71	**<0.001**
Morality	Year × Gender	-0.03	[-0.07, 0.01]	-1.33	0.182
	Year × Age	-0.13	[-0.15, -0.11]	-11.08	**<0.001**
	Year × Country × Gender	<0.01	[-0.03, 0.02]	-0.25	0.806
	Year × Country × Age	0.05	[0.02, 0.07]	4.03	**<0.001**
Assertiveness	Year × Gender	-0.04	[-0.06, -0.02]	-3.31	**0.001**
	Year × Age	<0.01	[-0.02, 0.02]	-0.03	0.978
	Year × Country × Gender	-0.03	[-0.05, -0.00]	-2.23	**0.026**
	Year × Country × Age	-0.01	[-0.03, 0.01]	-0.86	0.387
Competence	Year × Gender	-0.02	[-0.04, 0.01]	-1.38	0.168
	Year × Age	-0.07	[-0.10, -0.05]	-5.53	**<0.001**
	Year × Country × Gender	-0.02	[-0.04, 0.01]	-1.46	0.145
	Year × Country × Age	0.03	[0.01, 0.06]	2.45	**0.014**

Note. × indicates an interaction term. Boldface indicates statistically significant effects.

Table S19. Simple Slope Analyses of the Interaction of Year, Age, and Country on the Beliefs in Declined Cooperation.

Outcome	Country	Age	β	95% CI	*z*	*P*
Cooperation Rate	–	-1 SD	-0.18	[-0.20, -0.15]	-11.26	**<0.001**
		Mean	-0.27	[-0.29, -0.25]	-24.49	**<0.001**
		1 SD	-0.37	[-0.39, -0.34]	-23.30	**<0.001**
Warmth	China	-1 SD	-0.44	[-0.48, -0.39]	-17.00	**<0.001**
		Mean	-0.52	[-0.55, -0.49]	-28.91	**<0.001**
		1 SD	-0.61	[-0.65, -0.57]	-23.70	**<0.001**
	USA	-1 SD	-0.09	[-0.12, -0.05]	-3.93	**<0.001**
		Mean	-0.26	[-0.29, -0.24]	-17.00	**<0.001**
		1 SD	-0.44	[-0.48, -0.4]	-20.22	**<0.001**
Morality	China	-1 SD	-0.39	[-0.43, -0.35]	-15.77	**<0.001**
		Mean	-0.47	[-0.50, -0.44]	-27.02	**<0.001**
		1 SD	-0.56	[-0.60, -0.51]	-22.26	**<0.001**
	USA	-1 SD	-0.12	[-0.15, -0.08]	-5.56	**<0.001**
		Mean	-0.29	[-0.32, -0.27]	-19.63	**<0.001**
		1 SD	-0.47	[-0.50, -0.43]	-22.32	**<0.001**
Competence	China	-1 SD	0.08	[0.03, 0.12]	2.86	**0.004**
		Mean	0.04	[0.01, 0.07]	2.01	**0.044**
		1 SD	<0.01	[-0.05, 0.04]	-0.02	0.987
	USA	-1 SD	-0.01	[-0.05, 0.03]	-0.47	0.638
		Mean	-0.11	[-0.14, -0.09]	-6.85	**<0.001**
		1 SD	-0.21	[-0.25, -0.18]	-9.28	**<0.001**

Note. Boldface indicates statistically significant effects.

Supplementary Note 10 Illustration of the Ranked Reasons

In the main manuscript, we presented the weighted importance of each reason selected by the participants as the causes of their beliefs in cooperation. Here, we expand on this and illustrate the specific number of participants in each rank score (Top 1, Top 2, and Top 3) for the pre-set reasons.

From Figure S7 we can see that social trust was the reason that most U.S. and Chinese participants selected as their top 1 reason, followed by social media and individualism for the U.S. participants, and wealth and education for the Chinese participants.

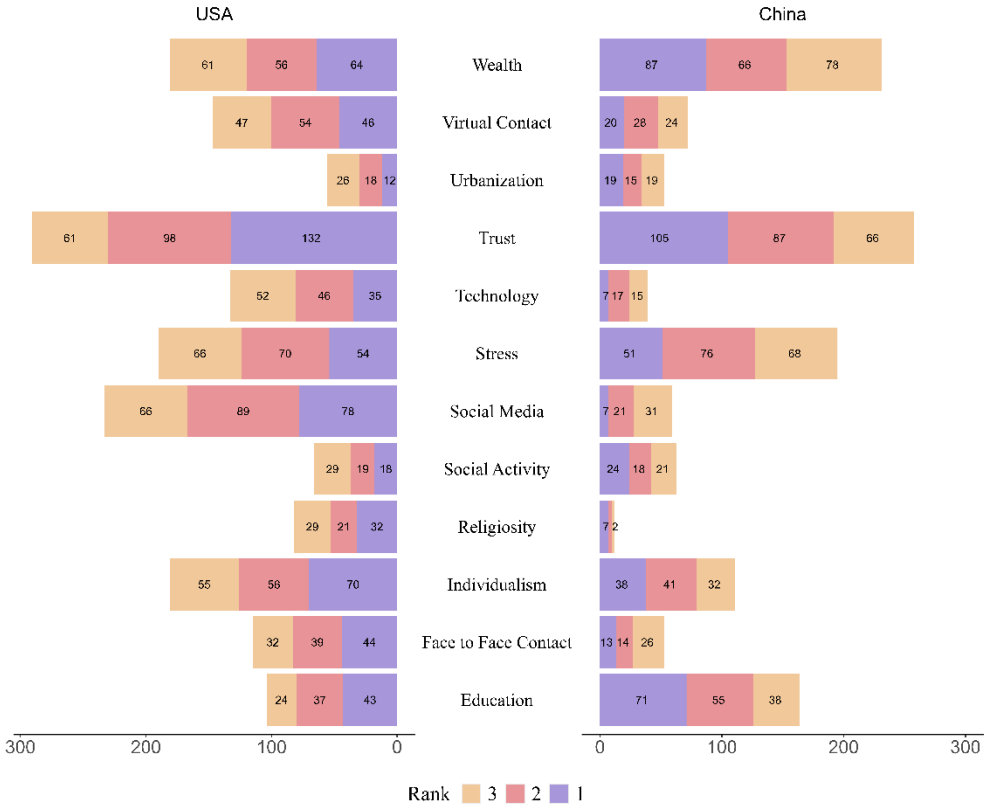


Figure S7. Illustration of People's Choices of Reasons for Their Beliefs on Cooperation Change in the USA and China**.**

Note. N_{USA} = 628, N_{China} = 449. The x-axis represents the number of participants. The small numbers in the figure are the specific number of participants for each rank. The numbers of people who chose Religiosity in the Chinese sample were 7 (Top1), 3 (Top2), and 2 (Top3), respectively. It is not shown in the figure because of overlapping issues.

Supplementary Note 11 Results for the Pre-set Reasons for the Whole Sample

As pre-registered, to compare the reasons chosen between the two countries, we conducted several linear mixed models with country, gender (and thus we removed 12 people who selected other genders from this analysis), and age of participants as the fixed factors. We also added general belief (i.e., increasing vs. decreasing vs. same) as a fixed factor to compare whether people with different beliefs of cooperation chose different or similar reasons. In these analyses, we recode reasons that were not selected as one of the top three reasons as zero.

The means and standard deviations of each reason by country and general beliefs are presented in Table S20. The results are shown in Table S21 and illustrated in Figure S8. We found significant differences between countries in reasons of religiosity, face-to-face contact, virtual contact, wealth, education, stress, trust, social media, and technology. Specifically, Chinese participants were more likely to rate wealth, education, stress, and trust as the important reasons for their beliefs of cooperation change, while the U.S. participants were likely to report religiosity, face-to-face contact, virtual contact, social media, and technology as the important reasons.

Regarding the main effect of general beliefs, we found that the reason education, social activity, and technology were rated as more important for participants who thought cooperation had increased, compared to those who thought cooperation had been the same or decreased. The reason for individualism was more important to participants who thought cooperation had decreased compared to the other two groups. The reason stress and trust were less important for people with the idea that cooperation had increased. The reason social media was more important for people with both increased and decreased cooperation beliefs compared to those who thought cooperation had not changed.

We found a significant main effect of gender for the reasons of urbanization ($\beta = 0.13$, $t = 4.13$, $P < 0.001$) and social media ($\beta = -0.07$, $t = -2.28$, $P = 0.023$). Men ($M = .27$, $SD = 0.74$) were more likely to think of urbanization as an important reason than women ($M = 0.11$, $SD = 0.47$), while women ($M = 0.61$, $SD = 1.02$) were more likely to choose social media as an important reason than men ($M = 0.46$, $SD = 0.90$).

Furthermore, we also found a significant main effect of age for the reasons of stress ($\beta = -0.06$, $t = -2.14$, $P = 0.032$) and social activity ($\beta = 0.09$, $t = 3.05$, $P = 0.002$), with older people, were less likely to report stress but more likely to report social activity as the important reason for their beliefs about cooperation trends.

To summarize: trust, wealth, and stress were the most important reasons for people's beliefs of cooperation trends. However, Chinese participants rated those three reasons as more important than the U.S. participants. The reason education was especially important for Chinese participants, while reasons religiosity, face to face contact, virtual contact, social media, and technology were relatively important for the U.S. participants. Trust, stress, and individualism were more likely to be rated as reasons for declining cooperation beliefs, and education, social activity, and technology were more likely to be rated as reasons for ascending cooperation beliefs. The reason social media was equally important to those who thought cooperation had changed compared to those who thought cooperation remained the same.

The differences between people with different general beliefs provide us an important insight: We need to consider the interaction effect of general beliefs and country, as people who believed in declining or increasing cooperation might have different underlying reasons in these two countries. We have therefore conducted new analyses in the main manuscript in addition to this pre-registered analysis.

Table S20. Mean and Standard Deviation for Each Reason Across Different Countries and General Beliefs.

Reasons	Country				General Belief					
	China		USA		Increase		Decrease		Same	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Religiosity	0.06	0.41	0.26	0.74	0.11	0.52	0.20	0.67	0.21	0.67
Face to Face Contact	0.21	0.63	0.39	0.89	0.35	0.83	0.27	0.76	0.44	0.91
Virtual Contact	0.31	0.78	0.46	0.92	0.37	0.82	0.41	0.89	0.37	0.87
Urbanization	0.24	0.71	0.16	0.56	0.23	0.68	0.17	0.59	0.24	0.69
Wealth	1.05	1.19	0.59	1.02	0.85	1.17	0.77	1.09	0.70	1.14
Education	0.80	1.16	0.35	0.86	1.18	1.32	0.28	0.75	0.61	1.01
Individualism	0.51	0.97	0.61	1.05	0.16	0.58	0.77	1.13	0.30	0.75
Stress	0.83	1.08	0.58	0.99	0.43	0.87	0.80	1.08	0.66	1.04
Trust	1.24	1.23	1.05	1.24	0.70	1.04	1.26	1.26	1.28	1.31
Social Activity	0.29	0.78	0.19	0.62	0.50	0.99	0.11	0.47	0.34	0.77
Social Media	0.21	0.59	0.77	1.10	0.54	0.95	0.57	0.99	0.29	0.78
Technology	0.16	0.55	0.40	0.85	0.42	0.87	0.25	0.69	0.26	0.74

Table S21. Results for the Main Effects of Country and General Beliefs on Each Reason.

Reasons	Country				General Belief								
								Simple Effect Analysis					
								Inc vs. Dec		Inc vs. Same		Dec vs. Same	
	β	*t*	*P*	*P*.BY	*F*	*P*	*P*.BY	*t*	*P*	*t*	*P*	*t*	*P*
Religiosity	-0.15	-4.96	**<0.001**	**<0.001**	1.07	0.345	1.000						
Face to Face Contact	-0.11	-3.68	**<0.001**	**0.001**	2.71	0.066	0.311						
Virtual Contact	-0.08	-2.72	**0.007**	**0.028**	0.23	0.793	1.000						
Urbanization	0.06	1.91	0.057	0.209	0.75	0.472	1.000						
Wealth	0.21	6.74	**<0.001**	**<0.001**	0.28	0.756	1.000						
Education	0.20	7.04	**<0.001**	**<0.001**	80.49	**<0.001**	**<0.001**	12.64	**<0.001**	4.95	**<0.001**	-3.66	**<0.001**
Individualism	-0.04	-1.19	0.233	0.724	41.42	**<0.001**	**<0.001**	-8.56	**<0.001**	1.32	0.187	4.74	**<0.001**
Stress	0.13	4.27	**<0.001**	**<0.001**	14.92	**<0.001**	**<0.001**	-5.46	**<0.001**	-2.51	**0.012**	1.17	0.243
Trust	0.09	3.00	**0.003**	**0.013**	21.58	**<0.001**	**<0.001**	-6.38	**<0.001**	-4.40	**<0.001**	-4.40	0.790
Social Activity	0.06	1.87	0.062	0.209	36.76	**<0.001**	**<0.001**	8.34	**<0.001**	2.18	**0.030**	-3.62	**<0.001**
Social Media	-0.30	-9.98	**<0.001**	**<0.001**	5.37	**0.005**	**0.025**	-0.41	**0**.679	3.06	**0.002**	3.10	**0.002**
Technology	-0.17	-5.51	**<0.001**	**<0.001**	6.00	**0.003**	**0.016**	3.37	**<.001**	-2.29	**0.022**	0.10	0.922

Note. We did not report the simple effect analysis of the non-significant results. We also reported *P* adjust value (i.e., *P*.BY) which was adjusted with a false discovery rate (FDR, Benjamini & Yekutieli, 2001). Inc = Increase, Dec = Decrease. Boldface indicates statistically significant effects.

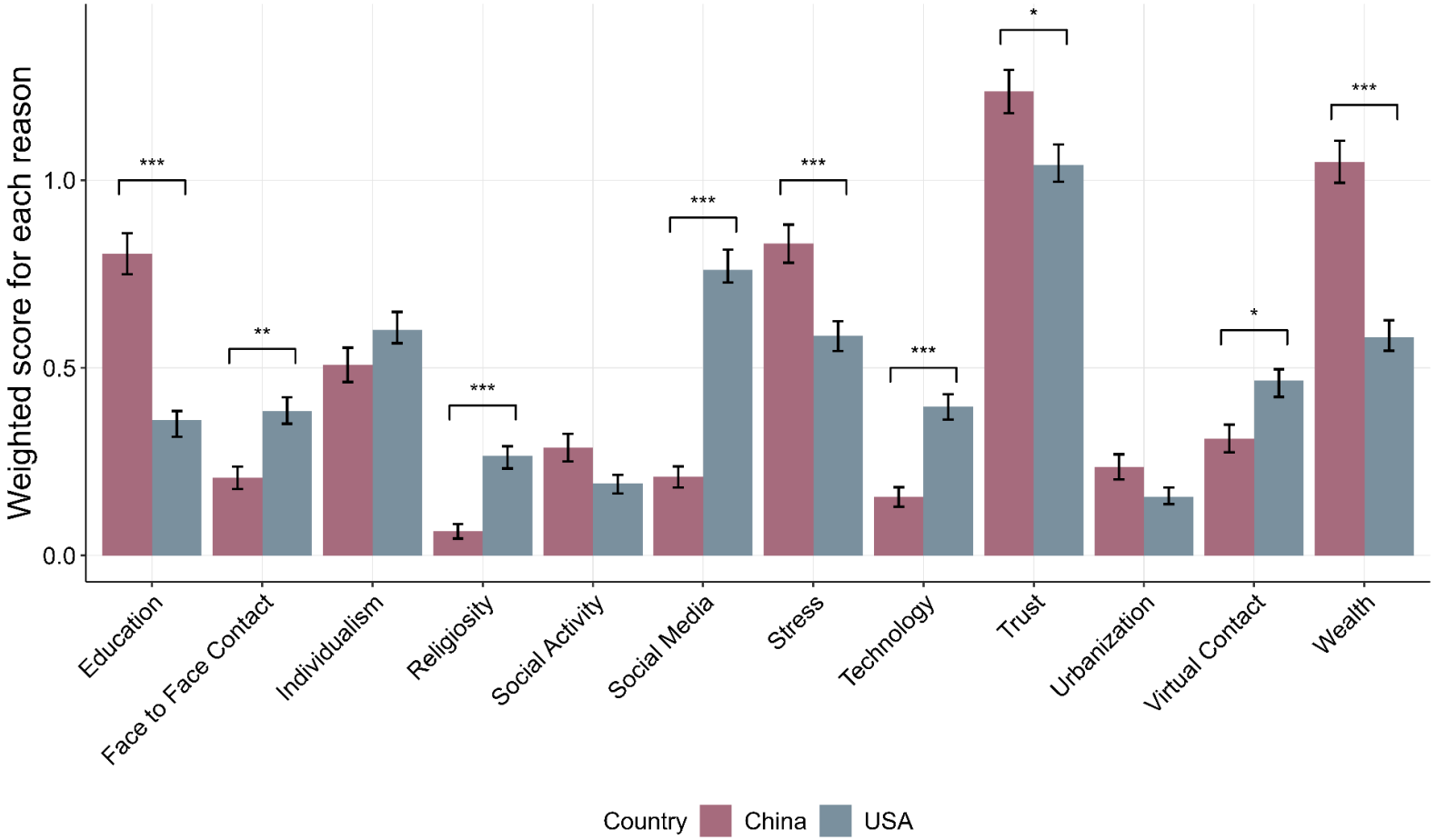


Figure S8. Results of the Ranked Reasons for Their General Beliefs on Cooperation Change in the USA and China.
Note. N_{USA} = 628, N_{China} = 449. The error bar represents the standard error. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Supplementary Note 12 Trends for the Mediators

To better understand how the sociocultural factors influence people's perceptions of cooperation trends, we tested the potential mediating effect of the reasons (i.e., education, religiosity, stress, trust, face-to-face contact, virtual contact, social activity, social media, technology, individualism, urbanization, wealth, collectivism, and income inequality; the latter two were not in the pre-set list of reasons that participants were asked to select the causes for their beliefs).

To assess participants' judgments about the situation (e.g., urbanization, income level, social media use) at different times, we asked questions such as "How important is religiosity in people's lives around 1970, 1990, 2010, and 2030 (or 1960, 1980, 2000, and 2020)" and participants needed to rate on a slider scale ranging from 0 (*Not important at all*) to 100 (*Very Important*).

In this section, we presented the trends of participants' perceived changes in the mediators at different times (see Figure S9). We can see that the trends of the sociocultural factors were very similar in the USA and China, except for collectivism, where the Chinese participants perceived a much steeper decline in collectivism than the U.S. participants. In addition, the increasing trends for education, individualism, wealth, income inequality and urbanization also appear to be steeper for the Chinese participants than for the U.S. participants.

We also presented the trends of the perceived changes in sociocultural factors by participants with different beliefs in cooperation trends (see Figures S10 and S11). Specifically, participants with beliefs in the declined cooperation and increased cooperation perceived similar trends in the sociocultural changes, except for social trust, social activity, and collectivism. Participants who held the belief in declining cooperation perceived a strong decline in social trust and connectedness and involvement in social activities compared to those who held the belief in increased cooperation (who perceived little or no change); this is true in both countries. Besides, In the USA, participants believing in declined cooperation perceived a decline in collectivism, whereas those believing in increased cooperation also perceived a (slight) increase in collectivism.

Apart from the similarities in perceived sociocultural transformations, people perceived different trends in social trust and social activity (and collectivism) may help explaining why people might form different beliefs about cooperation trends.

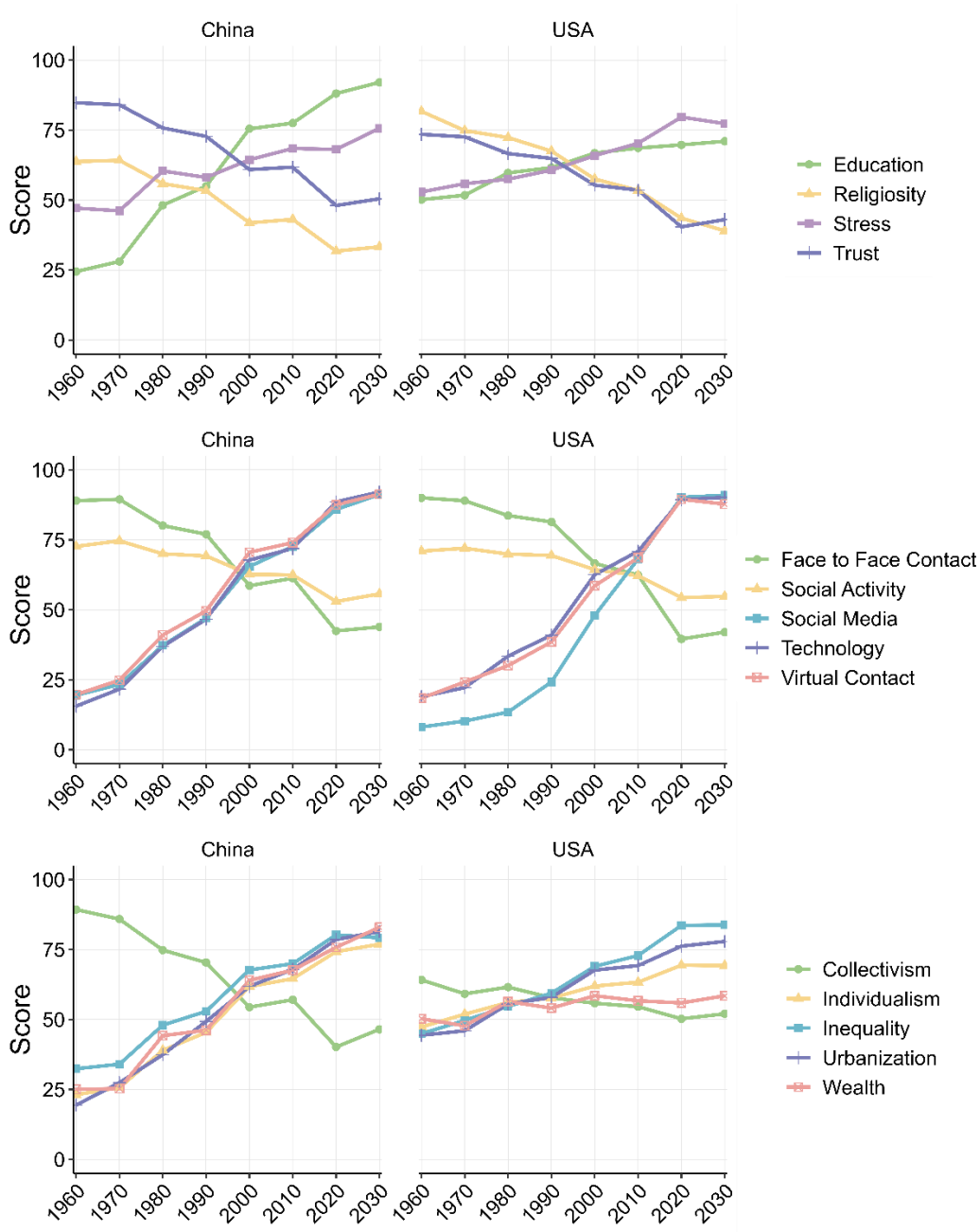


Figure S9. Illustration of Participants' Perceived Trends of Mediating Variables.

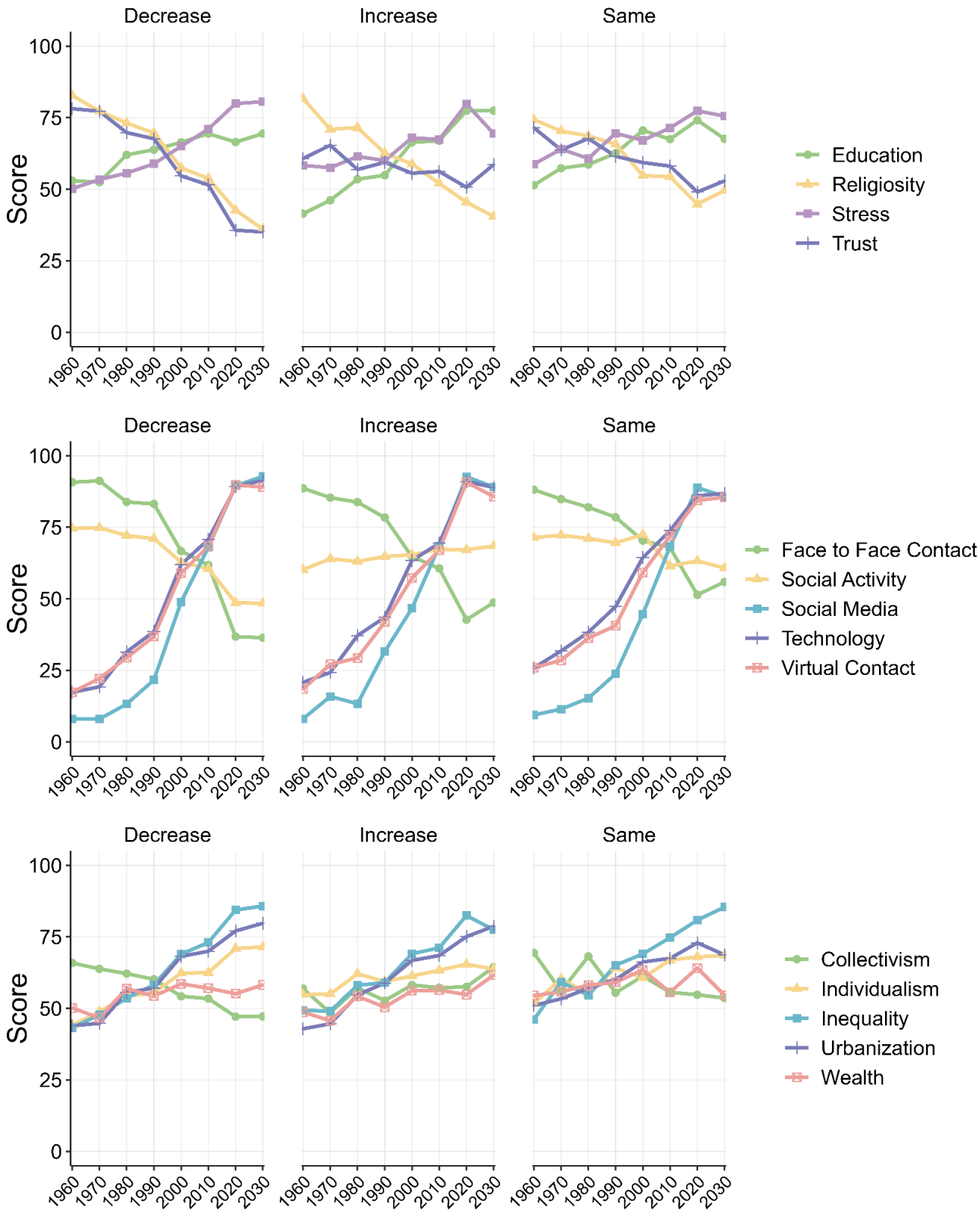


Figure S10. Illustration of Perceived Trends of Mediating Variables Among the U.S. participants.

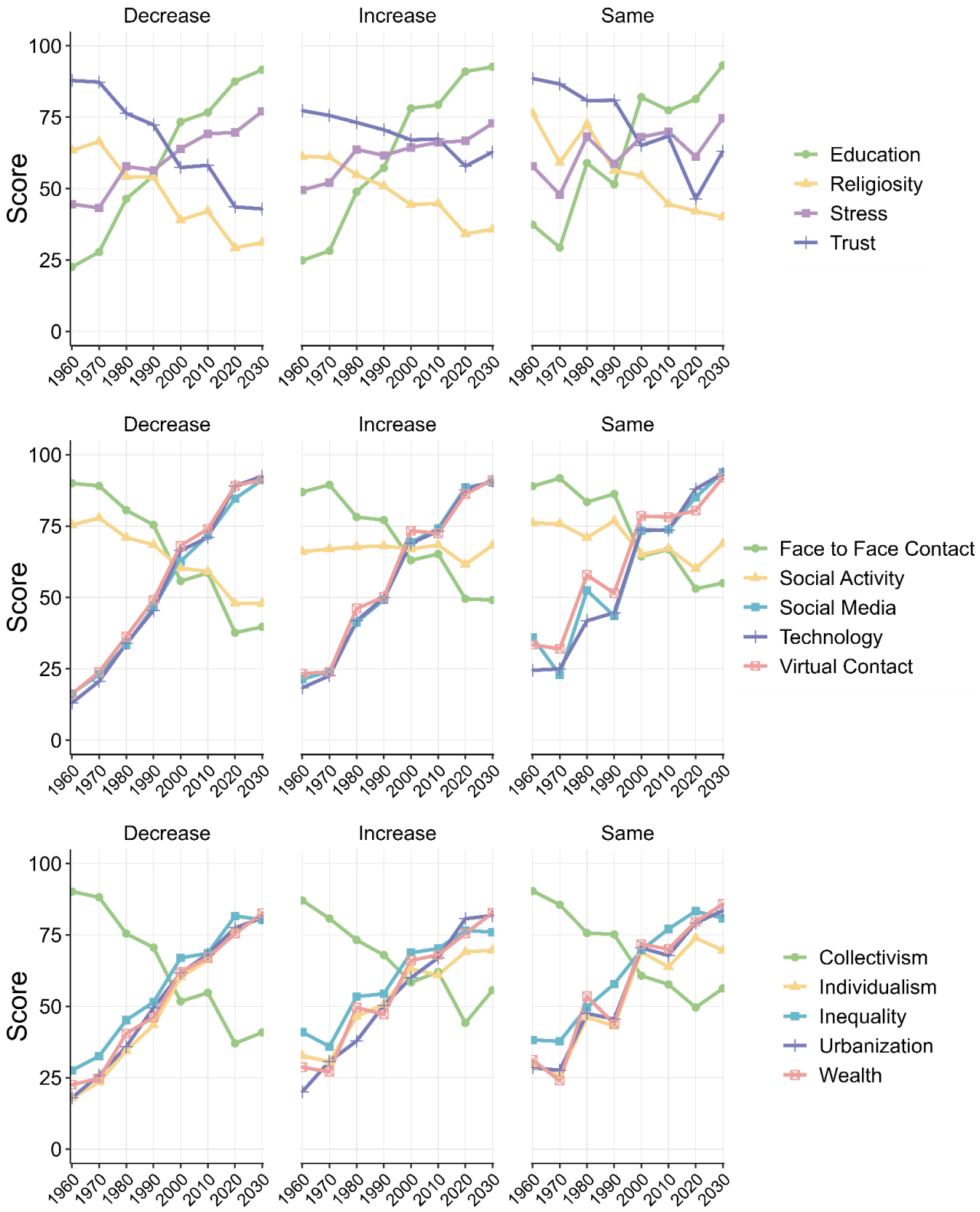


Figure S11. Illustration of Perceived Trends of Mediating Variables Among the Chinese participants.

Supplementary Note 13 Mediation Analysis for the Whole Sample

To be transparent, we also conducted the moderated mediation analyses as preregistered for the whole sample (not considering people's beliefs in cooperation trends). The results are shown in Table S22. We can see that religiosity, face-to face-contact, inequality, individualism, collectivism, stress, trust, social activity, warmth, morality, and assertiveness significantly mediated the relationship between year and cooperation rate in both countries. Taken together with the path coefficients shown in Table S23, we can see that among them, the mediators of inequality, individualism, collectivism, trust, warmth, and morality had stronger indirect effects in the Chinese sample, while assertiveness had a stronger indirect effect in the U.S. sample.

Besides, wealth was a significant mediator only in the Chinese sample, and education and competence were significant mediators only in the U.S. sample.

Taken together with participants' choices in the pre-set reasons and the moderated mediation analyses, the decreasing trust and stress over the years were important reasons for people's declining cooperation in both countries. Wealth was an important reason but mainly for the Chinese. Besides, religiosity, face-to-face contact might also be the reason behind the declining cooperation. Though education was rated as an important reason for Chinese and social media was rated as important for the U.S. sample, they were not significant in the mediation analysis.

The discrepancies between the importance of the given reasons and the mediating effects of the reasons led us to examine the data further to figure out why this was the case. We found out that people with different general beliefs perceived the trends of some moderators differently (see Figures S10 and S11). For instance, the strength of the trend for trust, the direction of the trends for social activity and collectivism. Therefore, we decided to test the reasons separately in people with different general beliefs. The results in the main manuscript confirmed our idea. For example, education was more likely to be chosen as an important reason for those who believed that cooperation had increased in general. People who believed that cooperation had decreased or increased thought that the increasing level of education had opposite functions on cooperation.

Table S22. Results of the Moderated Mediation Analyses (Combine People with Different Beliefs).

Mediators	Indirect effect									The moderating effect of Country					
	China			USA			Diff			*P*			*P*.BY		
	est	*P*	*P*.BY	est	*P*	*P*.BY	est	*P*	*P*.BY	a	b	c	a	b	c
Religiosity	-0.07	**<0.001**	**<0.001**	-0.10	**<0.001**	**<0.001**	0.03	0.050	0.262	**<0.001**	0.806	**<0.001**	**<0.001**	1.000	**<0.001**
Face to Face Contact	-0.10	**<0.001**	**<0.001**	-0.15	**<0.001**	**<0.001**	0.05	0.038	0.217	0.416	0.050	**<0.001**	1.000	0.393	**<0.001**
Virtual Contact	-0.03	0.272	1.000	-0.02	0.446	1.000	-0.01	0.694	1.000	0.888	0.696	**0.047**	1.000	1.000	0.321
Urbanization	-0.05	**0.019**	0.085	-0.01	0.322	1.000	-0.03	0.084	0.407	**<0.001**	0.186	0.071	**<0.001**	1.000	0.406
Wealth	-0.08	**0.001**	**0.005**	0.00	0.310	1.000	-0.08	**<0.001**	**<0.001**	**<0.001**	**<0.001**	0.758	**<0.001**	**<0.001**	1.000
Inequality	-0.12	**<0.001**	**<0.001**	-0.05	**<0.001**	**<0.001**	-0.08	**<0.001**	**<0.001**	**0.024**	**<0.001**	0.704	0.108	**<0.001**	1.000
Education	-0.05	0.057	0.224	0.05	**<0.001**	**<0.001**	-0.11	**<0.001**	**<0.001**	**<0.001**	**<0.001**	0.586	**<0.001**	**<0.001**	1.000
Individualism	-0.22	**<0.001**	**<0.001**	-0.03	**<0.001**	**<0.001**	-0.20	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Collectivism	-0.18	**<0.001**	**<0.001**	-0.04	**<0.001**	**<0.001**	-0.14	**<0.001**	**<0.001**	**<0.001**	0.230	0.051	**<0.001**	1.000	0.321
Stress	-0.04	**<0.001**	**<0.001**	-0.03	**<0.001**	**<0.001**	0.00	0.951	1.000	**0.009**	0.525	**<0.001**	**0.044**	1.000	**<0.001**
Trust	-0.29	**<0.001**	**<0.001**	-0.22	**<0.001**	**<0.001**	-0.07	**0.001**	**0.006**	**0.008**	**0.015**	0.369	**0.044**	0.157	1.000
Social Activity	-0.07	**<0.001**	**<0.001**	-0.06	**<0.001**	**<0.001**	-0.01	0.391	1.000	0.447	0.630	**<0.001**	1.000	1.000	**<0.001**
Social Media	0.02	0.449	1.000	0.00	0.913	1.000	0.02	0.534	1.000	**<.001**	0.519	**0.007**	**<0.001**	1.000	0.055
Technology	-0.07	**0.018**	0.085	-0.04	0.062	0.279	-0.03	0.466	1.000	0.704	0.472	0.146	1.000	1.000	0.707
Warmth	-0.23	**<0.001**	**<0.001**	-0.10	**<0.001**	**<0.001**	-0.13	**<0.001**	**<0.001**	**<0.001**	0.216	0.106	**<0.001**	1.000	0.556
Morality	-0.22	**<0.001**	**<0.001**	-0.13	**<0.001**	**<0.001**	-0.09	**<0.001**	**<0.001**	**<0.001**	0.487	0.958	**<0.001**	1.000	1.000
Assertiveness	-0.06	**<0.001**	**<0.001**	-0.10	**<0.001**	**<0.001**	0.03	**0.001**	**0.006**	**0.009**	**0.030**	**<0.001**	**0.044**	0.270	**<0.001**
Competence	0.01	0.050	0.210	-0.03	**<0.001**	**<0.001**	0.04	**<0.001**	**<0.001**	**<.001**	**0.003**	**<0.001**	**<0.001**	0.038	**<0.001**

Note. We highlighted the mediators that were significant in both countries. Diff = Differences between the two countries (i.e., the moderating effect of Country). The a, b, and c represent the paths, with a = path from Year to Mediator, b = path from Mediator to Cooperation Rate, and c = path from Year to Cooperation Rate (the direct effect); est = estimator. Boldface indicates statistically significant effects

Table S23. Path Coefficients for the Moderated Mediation Analyses (Combine People with Different Beliefs).

Mediators	Path Coefficients											
	China						USA					
	a		b		c		a		b		c	
	est	*P*	est	*P*	est	*P*	est	*P*	est	*P*	est	*P*
Religiosity	-0.42	**<0.001**	0.17	**<0.001**	-0.24	**<0.001**	-0.57	**<0.001**	0.18	**<0.001**	-0.12	**<0.001**
Face to Face Contact	-0.67	**<0.001**	0.16	**<0.001**	-0.21	**<0.001**	-0.68	**<0.001**	0.23	**<0.001**	-0.07	**0.001**
Virtual Contact	0.76	**<0.001**	-0.04	0.272	-0.28	**<0.001**	0.76	**<0.001**	-0.02	0.446	-0.21	**<0.001**
Urbanization	0.70	**<0.001**	-0.07	**0.019**	-0.27	**<0.001**	0.48	**<0.001**	-0.02	0.322	-0.21	**<0.001**
Wealth	0.73	**<0.001**	-0.10	**0.001**	-0.24	**<0.001**	0.14	**<0.001**	0.02	0.307	-0.23	**<0.001**
Inequality	0.60	**<0.001**	-0.20	**<0.001**	-0.19	**<0.001**	0.56	**<0.001**	-0.08	**<0.001**	-0.18	**<0.001**
Education	0.81	**<0.001**	-0.07	0.056	-0.26	**<0.001**	0.33	**<0.001**	0.16	**<0.001**	-0.28	**<0.001**
Individualism	0.68	**<0.001**	-0.33	**<0.001**	-0.09	**<0.001**	0.30	**<0.001**	-0.08	**<0.001**	-0.20	**<0.001**
Collectivism	-0.64	**<0.001**	0.29	**<0.001**	-0.13	**<0.001**	-0.17	**<0.001**	0.25	**<0.001**	-0.18	**<0.001**
Stress	0.34	**<0.001**	-0.10	**<0.001**	-0.28	**<0.001**	0.41	**<0.001**	-0.08	**<0.001**	-0.19	**<0.001**
Trust	-0.57	**<0.001**	0.50	**<0.001**	-0.03	0.202	-0.51	**<0.001**	0.43	**<0.001**	0.00	0.859
Social Activity	-0.29	**<0.001**	0.22	**<0.001**	-0.25	**<0.001**	-0.27	**<0.001**	0.21	**<0.001**	-0.17	**<0.001**
Social Media	0.75	**<0.001**	0.02	0.449	-0.33	**<0.001**	0.83	**<0.001**	0.00	0.913	-0.22	**<0.001**
Technology	0.81	**<0.001**	-0.09	**0.018**	-0.24	**<0.001**	0.80	**<0.001**	-0.06	0.062	-0.18	**<0.001**
Warmth	-0.52	**<0.001**	0.44	**<0.001**	-0.08	**<0.001**	-0.25	**<0.001**	0.40	**<0.001**	-0.12	**<0.001**
Morality	-0.47	**<0.001**	0.45	**<0.001**	-0.10	**<0.001**	-0.29	**<0.001**	0.44	**<0.001**	-0.10	**<0.001**
Assertiveness	-0.30	**<0.001**	0.21	**<0.001**	-0.25	**<0.001**	-0.35	**<0.001**	0.27	**<0.001**	-0.13	**<0.001**
Competence	0.04	**0.046**	0.21	**<0.001**	-0.32	**<0.001**	-0.11	**<0.001**	0.29	**<0.001**	-0.19	**<0.001**

Note. est = estimator. Boldface indicates statistically significant effects.

Supplementary Note 14 Results with Weighted Sample

As both samples in our study were recruited from paid online panels, they skew toward younger internet users (this is particularly true for Chinese participants, as we were unable to recruit enough older participants as initially planned), urban residents, and individuals with higher education levels (65% of Chinese participants and 67% of U.S. participants hold a bachelor's degree or higher).

As robustness check, to address this sampling skew and verify whether the belief in declining cooperation remains robust, we performed our confirmatory analyses with a weighted sample to align with demographic distributions (i.e., age, education, and income) from official national data sources. Specifically, we extracted age, education, and income distributions for China from the National Bureau of Statistics of China and the Seventh National Population Census of China, and for the U.S. from the United States Census Bureau (see Table S26). We then calculated sample weights by multiplying the three demographic distribution weights (age, education, income) and rescaling the result using the formula: weight/mean(weight). Due to some participants selecting "prefer not to say" for certain demographic items, we excluded 21 Chinese participants and 28 U.S. participants, leaving a final sample of 1028 participants for the weighted analyses.

Using glmmTMB R package [12], we re-conducted the same analyses as reported in the main manuscript, but accounting for the calculated weights. The results showed that the main effects of year on both cooperation rates in the game (see Table S24) and perceptions of warmth, morality, assertiveness, and competence (see Table S25) remained statistically significant and substantively consistent with the unweighted findings reported in the main text.

Overall, these weighted analyses support that the perception of cooperation decline is a cross-group, cross-country phenomenon in the general population. That said, we acknowledge that other demographic factors (e.g., offline populations, rural vs. urban residents) were not fully addressed in our weighting procedure, which limits the breadth of our claim about "generalized beliefs."

Table S24. Results for the Effects of Year and Country on Participants' Perception of the Cooperation Rate in the Prisoner's Dilemma Game (Weighted Sample).

Predictors	χ^2	*P*	β	95% CI	*t*
Year	511.39	**<0.001**	-0.28	[-0.30, -0.26]	-22.61
Country	<0.01	0.949	<0.01	[-0.05, 0.05]	0.06
Group	0.03	0.861	<0.01	[-0.05, 0.04]	-0.18
Year × Country	12.38	**<0.001**	-0.04	[-0.07, 0.02]	-3.52
Year × Group	2.15	0.142	-0.02	[-0.04, 0.01]	-1.47
Country × Group	0.20	0.658	0.01	[-0.04, 0.06]	0.44
Year × Country × Group	6.90	**0.009**	-0.03	[-0.06, - 0.01]	-2.63
Random Effects					
σ2	0.49				
τ00	0.38				
ICC	0.44				
Marginal/Conditional R^2	0.087 / 0.488				

Note. × indicates an interaction term. Boldface indicates statistically significant effects.

Table S25. Effects of Year and Country on Participants' Perceptions of Communion-Agency (Weighted Sample).

Predictors	Warmth					Morality				
	χ^2	*P*	β	95% CI	*t*	χ^2	*P*	β	95% CI	*t*
Year	857.35	**<0.001**	-0.41	[-0.43, -0.38]	-29.28	871.04	**<0.001**	-0.40	[-0.42, -0.37]	-29.51
Country	0.52	0.472	-0.01	[-0.06, 0.03]	-0.72	0.73	0.394	-0.02	[-0.06, 0.02]	-0.85
Group	0.02	0.892	<0.01	[-0.04, 0.04]	0.14	0.03	0.874	<0.01	[-0.05, 0.04]	-0.16
Year × Country	108.22	**<0.001**	-0.14	[-0.17, -0.12]	-10.40	57.39	**<0.001**	-0.10	[-0.13, -0.08]	-7.58
Year × Group	0.49	0.484	0.01	[-0.02, 0.04]	0.70	4.26	**0.039**	-0.03	[-0.05, -0.00]	-2.06
Country × Group	0.16	0.692	0.01	[-0.03, 0.05]	0.40	0.29	0.591	0.01	[-0.03, 0.05]	0.54
Year × Country × Group	2.38	**0.123**	-0.02	[-0.05, 0.01]	-1.54	1.20	0.272	-0.01	[-0.04, 0.01]	-1.10
Marginal/Conditional R^2	0.177 / 0.388					0.169 / 0.421				

Predictors	Assertiveness					Competence				
	χ^2	*P*	β	95% CI	*t*	χ^2	*P*	β	95% CI	*t*
Year	6.44	**0.011**	-0.04	[-0.06, -0.01]	-2.54	679.67	**<0.001**	-0.33	[-0.35, -0.30]	-26.07
Country	0.10	0.758	-0.01	[-0.05, 0.04]	-0.31	0.14	0.712	-0.01	[-0.05, 0.04]	-0.37
Group	0.03	0.859	<0.01	[-0.04, 0.05]	0.18	0.08	0.773	0.01	[-0.04, 0.05]	0.29
Year × Country	22.51	**<0.001**	0.07	[0.04, 0.09]	4.74	3.89	0.049	0.02	[0.00, 0.05]	1.97
Year × Group	25.24	**<0.001**	-0.07	[-0.10, -0.04]	-5.02	24.01	**<0.001**	-0.06	[-0.09, -0.04]	-4.90
Country × Group	0.22	0.637	0.01	[-0.03, 0.06]	0.47	0.17	0.677	0.01	[-0.04, 0.05]	0.42
Year × Country × Group	2.75	0.097	-0.02	[-0.05, 0.00]	-1.66	3.96	0.047	-0.02	[-0.05, 0.00]	-1.99
Marginal/Conditional R^2	0.022 / 0.343					0.130 / 0.475				

Note. × indicates an interaction term. Boldface indicates statistically significant effects.

Table S26. Demographic Characteristics (Age, Education, Income) of Chinese and U.S. Samples vs. National Populations

Variable	China			USA		
	Current Study	NBSC		Current Study	USCB	
		Group	%		Group	%
Age	18-25	15-19	5.79	18–24	15-19	6.5
		20-24	4.97		20-24	6.7
	26-30	25-29	5.69	25–29	25-29	6.6
	31-35	30-34	7.64	30–34	30–34	7
	36-40	35-39	7.99	35–39	35–39	6.7
	41-45	40-44	6.83	40–44	40–44	6.4
	46-50	45-49	6.91	45–49	45–49	5.9
	51-55	50-54	8.54	50–54	50–54	6.2
		55-59	8.16	55–59	55–59	6.2
		60-64	5.7	60–64	60–64	6.4
	56 and over	65-69	5.5	65–69	65–69	5.6
		70-74	4.35			
		75-79	2.66			

		N in Current Study	N in SNPC		N in Current Study	% in USCB
Education	a. 没有受过正规教育			a. No formal education		
	b. 私塾					
	c. 小学	8	24767	b. Primary level education	16	13.6
	d. 初中	19	34507			
	e. 职业高中	14	15088	c. Secondary level education	185	
	f. 普通高中	36				
	g. 中专	15				
	h. 技校	3				
	i. 大学专科（成人高等教育）	17	15467	d. College education (Bachelor’s degree)	293	46.3
	j. 大学专科（正规高等教育）	46				
	k. 大学本科（成人高等教育）	63				
	l. 大学本科（正规高等教育）	178				
	m. 研究生及以上	48		e. College education (Master’s degree)	84	12.5
				f. Higher than Master degree	43	
	n. 其他			h. Other		
	o. 倾向于不说			g. Prefer not to say	7	

		N in current study	% in SNPC		N in current study	% in USCB
Income	a. 少于1万人民币	35	20%	a. Less than $10,000	47	4.9
	b. 1万至1.9万人民币	29	20%	b. $ 10,000 to $19,999	52	7.1
	c. 2万至2.9万人民币	21	20%	c. $ 20,000 to $29,999	62	
	d. 3万至3.9万人民币	18	20%	d. $ 30,000 to $39,999	56	22
	e. 4万至4.9万人民币	26		e. $ 40,000 to $49,999	66	
	f. 5万至5.9万人民币	29		f. $ 50,000 to $59,999	75	
	g. 6万至6.9万人民币	24		g. $ 60,000 to $69,999	45	
	h. 7万至7.9万人民币	25	20%	h. $ 70,000 to $79,999	53	28.5
	i. 8万至8.9万人民币	38		i. $ 80,000 to $89,999	28	
	j. 9万至9.9万人民币	44		j. $ 90,000 to $99,999	26	
	k. 10万人民币或以上	142		k. $100,000 or more	92	37.5
	l. 倾向于不说	16		l. Prefer not to say	26	

Note. NBSC = National Bureau of Statistics of China, SNPC = (Seventh) National Population Census of China, USCB = United States Census Bureau.

Supplementary Note 15 Questionnaire (English version)

PART 1

We are interested in knowing more about your beliefs about the **general people in [your country]** in 1970, 1990, 2010, and 2030 [or 1960, 1980, 2000, and 2020]. Now please choose the answer that best reflects your judgment about the people who lived in the years indicated. Please **read the labels** carefully. The direction of each item **may change.**

1. How would you describe people in the years indicated below:
   Not at all friendly—3–2–1–0–1–2–3—Very unfriendly
   1970
   1990
   2010
   2030[1]
2. How would you describe people in the years indicated below:
   Little caring —3–2–1–0–1–2–3—Very caring
3. How would you describe people in the years indicated below:
   Very cold in relations with others —3–2–1–0–1–2–3—Very warm in relations with others
4. How would you describe people in the years indicated below:
   Little empathetic—3–2–1–0–1–2–3—Very empathetic
5. How would you describe people in the years indicated below:
   Little affectionate —3–2–1–0–1–2–3—Very affectionate
6. How would you describe people in the years indicated below:
   Not trustworthy—3–2–1–0–1–2–3—Very trustworthy
7. How would you describe people in the years indicated below:
   Unjust—3–2–1–0–1–2–3—Just
8. How would you describe people in the years indicated below:
   Little fair —3–2–1–0–1–2–3—Very fair
9. How would you describe people in the years indicated below:
   Not very reliable—3–2–1–0–1–2–3—Very reliable
10. How would you describe people in the years indicated below:
    Very inconsiderate—3–2–1–0–1–2–3—Very considerate
11. How would you describe people in the years indicated below:
    Give up very easily —3–2–1–0–1–2–3— Never give up easily
12. How would you describe people in the years indicated below:

    Not at all self-confident —3–2–1–0–1–2–3— Very self-confident
13. How would you describe people in the years indicated below:
    Go to pieces under pressure —3–2–1–0–1–2–3— Stand up well under pressure
14. How would you describe people in the years indicated below:
    Feel very inferior—3–2–1–0–1–2–3— Feel very superior
15. How would you describe people in the years indicated below:
    Have no leadership abilities at all—3–2–1–0–1–2–3— Have leadership qualities
16. How would you describe people in the years indicated below:
    Little intelligent—3–2–1–0–1–2–3—Very intelligent
17. How would you describe people in the years indicated below:
    Little competent—3–2–1–0–1–2–3—Very competent
18. How would you describe people in the years indicated below:
    Little efficient—3–2–1–0–1–2–3—Very efficient
19. How would you describe people in the years indicated below:
    Little capable—3–2–1–0–1–2–3—Very capable
20. How would you describe people in the years indicated below:
    Little clever—3–2–1–0–1–2–3—Very clever

[1] Similar for all other questions in this section.

PART 2

In this section, we ask you to guess how **general people** in the years around 1970, 1990, 2010, and 2030 [or 1960, 1980, 2000, and 2020] would behave in the following task. Please read the instructions for the task carefully and answer the related questions.

Instruction of the task

Imagine that two participants, Person A and Person B, are involved with a decision task. They learn that in this task they can win points, and that the more points they accumulate, the better.
The two persons do not know each other and will not knowingly meet in the future.

Both persons will receive 20 points and have to decide between two choices:

1. Keeping the 20 points for themselves
or
2. Giving the 20 points to the other person

If a person chooses to give the 20 points to the other person, the amount of points will be doubled by the experimenter and become part of the other person's reward.

Accordingly, there are 4 possible outcomes resulting from all possible choices in the task:

Possibility 1: Person A and Person B both choose to give 20 points to each other.
In this case, each person gets 40 points.

Possibility 2: Person A and Person B both choose to keep 20 points for themselves.
In this case, each person gets 20 points.

Possibility 3: Person A chooses to keep 20 points, while Person B chooses to give 20 points to Person A.
In this case, Person A gets 60 points, while Person B gets 0 points.

Possibility 4: Person A chooses to give 20 points to Person B, while Person B chooses to keep 20 points.
In this case, Person A gets 0 points, while Person B gets 60 points.

Note that the persons are unaware of the other's choice while making the decision.

Here is an illustration of the possible outcomes described above:

		Person B	
		Give	Keep
Person A	Give	40/40 (Possibility 1)	0/60 (Possibility 4)
	Keep	60/0 (Possibility 3)	20/20 (Possibility 2)

Comprehension check question:

As previously announced, we want to make sure that we have explained the decision task well enough and that you understood it. We therefore ask you to answer the following question, which is supposed to test your understanding. If you answer the question correctly, you will be forwarded directly to the task. If you answer the question incorrectly, we ask you to read the instructions again carefully.

Which of the following statements about the decision task is correct?[2]

* If Person A gives the 20 points, this only affects the reward of Person B. (The two persons make their decision simultaneously, and the payoff for one person depends on the choice made by both persons.)
* If Person A gives the 20 points, both people will receive 40 points. (Both persons will receive 40 points only when Person B chooses to give instead of keeping the money.)
* If Person A keeps the 20 points, this affects the reward for both people. (√)
* If Person A keeps the 20 points, and Person B gives the 20 points, then Person B gets the highest reward. (In this situation, Person A gets the highest payment, and Person B gets the lowest payment.)

Now, please imagine people in the past (or future) who are faced with this decision task. They either choose (1) to keep the 20 points for themselves, or (2) to give the 20 points to the other person. We ask you to guess the percentage of participants involved in this research in the past who would choose to give the 20 points to the other person.

Please assume that the 20 points here in the current game can be used to be exchanged with valuable resources that have the same value in different time periods. (Recall that the person can only choose one option, and that the other person in this scenario is somebody they do not know and will not knowingly meet in the future).

Based on published studies, we calculated participants' real behavior in this specific game in different time periods. Therefore, you will be compensated based on whether your guesses are close to the real percentage or not. **If you make a correct guess in each question (± 5%), you will be paid an extra 0.25 pounds.**

I think that ____% of the participants in the years around **1970** would choose to give 20 points to the other person.

I think that ____% of the participants in the years around **1990** would choose to give 20 points to the other person.

I think that ____% of the participants in the years around **2010** would choose to give 20 points to the other person.

I think that ____% of the participants in the years around **2030** would choose to give 20 points to the other person.

[2] The explanations of why the statements are incorrect are shown in the brackets, which will be presented to participants when they fail the comprehension check.

PART 3

In your view, have people become more or less considerate/helpful/cooperative over the past (and future) 60 years (1970-2030) (or over the past 60 years [1960- 2020])? Please click on one of the three options.

(a) People have become **more** considerate/helpful/cooperative over the past 60 years.
(b) People have become **less** considerate/helpful/cooperative over the past 60 years.
(c) People are about **equally** considerate/helpful/cooperative over the past 60 years.

What are the most important reasons for this belief? Please drag the top reasons in the corresponding box. Please note that you need to pick up min. 1 and max. 3 reasons. Please sort by importance, the reason on the top should be the most important one.

O Religiosity
O Face-to-face contact
O Contact through phone or social media
O City versus rural life
O Wealth and income
O Level of education
O Individualism
O Stress and social pressure
O Trust in other people
O Shared social activities
O Social media
O technology

For the pilot study there were an additional question:
Now, please briefly explain the reason why you think people are more or less considerate/helpful/cooperative over time (1970-2015) (or 1960- 2020). [min. 150 characters]

PART 4

In this section, we will ask how you perceive different time periods in [your country] in the past. Please, drag the slider toward the answer that best represents your judgment about the situation in the years around **1970, 1990, 2010, and 2030** [or 1960, 1980, 2000, and 2020]. Please note that we need to recall the situation of **general people** instead of your own situation.

1. How important was religiosity in people's lives around [the year]:
   Not important at all – 0 ---------- Very important – 100
   1970
   1990
   2010
   2030[3]
2. How important was face-to-face contact in people's lives
   Not important at all– 0 ---------- Very important – 100
3. How important was virtual contact (e.g., phone, social media) in people's lives
   Not important at all– 0 ----------Very important – 100
4. Most people lived in cities rather than villages
   Do not agree at all– 0 ---------- Completely agree – 100
5. People's wealth and income level was
   Low – 0 ---------High - 100"
6. The difference between the rich and the poor was
   Small – 0 ----------Large - 100
7. How educated were people in the society
   Not educated at all – 0 ----------Very Well Educated – 100
8. How individualistic was the culture
   Not individualistic at all – 0 ----------Very Individualistic – 100
9. How collectivistic was the culture
   Not collectivistic at all – 0 ----------Very Collectivistic – 100
10. To what extent have people experienced stress in their lives
    Not stress at all – 0 ----------Very high levels of stress – 100
11. To what extent did people trust each other
    Not at all – 0 ----------Very much – 100
12. To what extent were people connected to one another and involved in social activities.
    No connected/involved at all – 0 ---------- Very connected/involved – 100
13. To what extent were (will be) people exposed to social media
    Not at all – 0 ----------Very much – 100
14. To what extent did (or will) people use technology in their life, including social activities
    Not at all – 0 ----------Very much – 100

[3] Similar for all other questions in this section.

Part 5

Finally, we will collect your demographic information, please click next to continue.

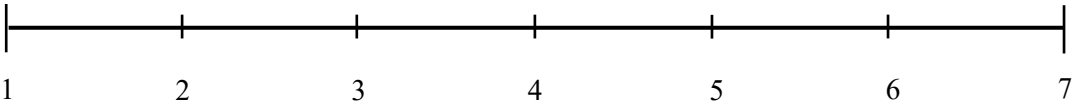
1. What is your gender?
   a. Male
   b. Female
   c. Other
   d. Prefer not to say

2. What is your age? (please enter number)

   _____

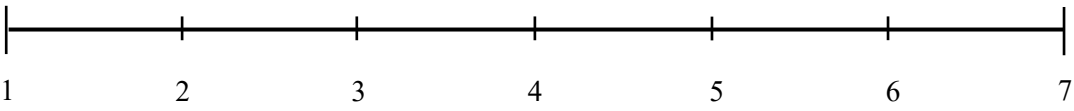
3. What is your ethnic identity?
   a. White
   b. Black/African American
   c. Hispanic/Latino American
   d. Asian American
   e. Multiracial
   f. Other
   g. Prefer not to say

4. What's your political orientation?



Completely left wing — Completely right wing

5. To what degree are you democratic versus republican in terms of political orientation?



Strongly Democratic — Neither Democratic nor Republican — Strongly Republican

6. How religious are you?

Not at all — Very religious

7. Which religion do you have?
    a. Christianity
    b. Buddhism
    c. Roman catholic
    d. Judaism
    e. Islam
    f. Hinduism
    g. I don’t have any religion
    h. Other: _____
    i. Prefer not to say

8. What is the education level of you?
    a. No formal education
    b. Primary level education
    c. Secondary level education
    d. College education (Bachelor’s degree)
    e. College education (Master’s degree)
    f. Higher than Master degree
    g. Prefer not to say
    h. Other: _____

9. What is your average annual income in the last 4 or 5 years (before taxes)?
    a. Less than $10,000
    b. $ 10,000 to $19,999
    c. $ 20,000 to $29,999
    d. $ 30,000 to $39,999
    e. $ 40,000 to $49,999
    f. $ 50,000 to $59,999
    g. $ 60,000 to $69,999
    h. $ 70,000 to $79,999
    i. $ 80,000 to $89,999
    j. $ 90,000 to $99,999
    k. $100,000 or more
    l. Prefer not to say

Supplementary Note 16 Questionnaire (Chinese version)

第一部分

我们想要更多地了解您对 1970 年、1990 年、2010 年和 2030 年(或 1960 年、1980 年、2000 年和 2020 年)中国**普通民众**的看法。请选择您认为最能反映生活在所示年代的人的选项。请注意这些**选项的顺序**在每道题目之间可能都会**不同**。

1. 您如何描述以下年份的人:

完全不关心—3–2–1–0–1–2–3—非常关心

1970

1990

2010

2030

2. 您如何描述以下年份的人:

几乎没有同情心——3–2–1–0–1–2–3——非常有同情心

3. 您如何描述以下年份的人:

人际关系冷漠——3–2–1–0–1–2–3——人际关系良好

4. 您如何描述以下年份的人:

一点也不友善—3–2–1–0–1–2–3—非常友善

5. 您如何描述以下年份的人:

没有感情的——3–2–1–0–1–2–3——非常有感情的

6. 您如何描述以下年份的人:

不值得信赖—3–2–1–0–1–2–3—非常值得信赖

7. 您如何描述以下年份的人:

不正直—3–2–1–0–1–2–3—正直

8. 您如何描述以下年份的人:

不公正—3–2–1–0–1–2–3—非常公正

9. 您如何描述以下年份的人:

非常不可靠—3–2–1–0–1–2–3—非常可靠

10. 您如何描述以下年份的人:

一点都不善解人意—3–2–1–0–1–2–3—非常善解人意

11. 您如何描述以下年份的人:

很容易放弃——3–2–1–0–1–2–3——从不轻易放弃

12. 您如何描述以下年份的人:

完全不自信——3–2–1–0–1–2–3——非常自信

13. 您如何描述以下年份的人:

抗压力弱——3–2–1–0–1–2–3——抗压力强

14. 您如何描述以下年份的人:

感觉低人一等——3–2–1–0–1–2–3——有优越感

15. 您如何描述以下年份的人:

没有领导能力——3–2–1–0–1–2–3——有领导能力

16. 您如何描述以下年份的人:

没有智慧—3–2–1–0–1–2–3—非常有智慧

17. 您如何描述以下年份的人:

考虑不周全—3–2–1–0–1–2–3—考虑非常周全

18. 您如何描述以下年份的人:

没有效率—3–2–1–0–1–2–3—非常有效率

19. 您如何描述以下年份的人:

非常机智—3–2–1–0–1–2–3—非常不机智

20. 您如何描述以下年份的人:

很不聪明——3–2–1–0–1–2–3——非常聪明

第二部分

在这部分中，您需要猜测 1970 年、1990 年、2010 年和 2030 年(或 1960 年、1980 年、2000 年和 2020 年)的**普通民众**在下面的任务中会有什么表现。请仔细阅读任务说明，并回答相关问题。

任务说明:

现在想象两个参与者，A 和 B，他们在参与一个决策任务，这个任务只进行一轮。这两个人彼此不认识，将来也不会互相认识。

这两个人都会先收到 20 代币，并且必须在下面两个选择之间做出决定:

1. 自己保留 20 代币

或者

2. 把这 20 代币给对方

如果一个人选择把 20 代币给对方，那么实验人员会加倍后交给对方 40 代币，这 40 代币将成为对方收益中的一部分。具体而言,在两人做出选择后有 4 种可能的结果:

可能性 1:A 和 B 都选择给对方 20 代币。
在这种情况下，每个人得到 40 代币。

可能性 2:A 和 B 都选择保留 20 代币。
在这种情况下，每个人得到 20 代币。

可能性 3:A 选择保留 20 代币，而 B 选择将 20 代币给 A。
在这种情况下，A 得到 60 代币，而 B 得到 0 代币。

可能性 4:A 选择给 B 20 代币，而 B 选择保留 20 代币。
在这种情况下，A 得到 0 代币，而 B 得到 60 代币。

请注意，他们在做决定时并不知道对方的选择。

结果示意图如下：

		B	
		给予	保留
A	给予	40/40 (可能性 1)	0/60 (可能性 4)
	保留	60/0 (可能性 3)	20/20 (可能性 2)

如之前所说，我们希望确保已经把任务规则说清楚了，并且您已经充分理解了它。因此，请您回答下面的问题来测试您是否清楚了任务规则。如果回答正确，您将直接进入任务。如果回答错误，我们要求您再次仔细阅读说明。

关于决策任务，下列哪一项陈述是正确的？

*如果 A 选择给予，这只影响 B 的收益(两个人同时做出决定，一个人的收益取决于两个人的选择。)

*如果 A 选择给予，两个人都会得到 40 代币。(只有当 B 选择给予而不是保留这笔钱时，两个人才都会收到 40 代币。)

*如果 A 保留这笔钱，这将影响双方的收益。(√)

*如果 A 选择保留，B 选择给予，那么 B 得到最高的收益。(在这种情况下，A 的收益最高，B 的收益最低。)

现在，请想象一下生活在不同年代的人在进行这个决策任务。他们要么选择(1) 自己保留这 20 代币，要么(2)把这 20 代币给对方。请您猜测生活在不同年代中参与这项任务的参与者，有多少人会选择将 20 代币给予其他人。(回想一下，每个人只做一次选择，两个人互不认识，未来也不会有机会见面)。

根据现有研究，我们计算了在这个游戏中人们真实的行为（在结语中将会向您展示）。如果您的猜测接近真实的百分比，您将得到奖励。具体来说，在每一题中，如果您的猜测与真实的百分比误差在 ±5% ，您将额外获得 2 元的奖励。

请注意，在这个游戏中，请您将 20 代币的价值在不同年代的价值想象成等价的。比如在不同年代，这 20 代币都可以购买相同的物品。

我认为生活在 1970 年前后的人中，有____%的参与者会选择给予对方 20 代币。

我认为生活在 1990 年前后的人中，有____%的参与者会选择给予对方 20 代币。

我认为生活在 2010 年前后的人中，有____%的参与者会选择给予对方 20 代币。

我认为生活在 2030 年前后的人中，有____%的参与者会选择给予对方 20 代币。

第三部分

在您看来，在过去和未来 60 年(1970-2030 年)(或过去 60 年(1960-2020 年))里，人们变得更（不）体贴、乐于助人、有合作精神了吗？请选择三个选项中的一个。

(a) 在过去的 60 年里，人们变得更加体贴/乐于助人/有合作精神了。

(b) 在过去的 60 年里，人们变得不那么体贴/乐于助人/有合作精神了。

(c) 在过去的 60 年里，人们几乎同样体贴/乐于助人/有合作精神了。

您做出这个选择最重要的原因是什么？请将您认为重要的原因拖到相应的框中。请注意，您需要挑选出 1 到 3 个最重要的原因，并按重要性排序，最上面的理由应该是最重要的。

o 宗教信仰
o 面对面接触
o 通过电话或社交媒体联系
o 城市生活与农村生活
o 财富和收入
o 教育水平
o 个人主义
o 压力和社会压力
o 对他人的信任
o 共同的社交活动
o 社交媒体
o 科技

现在，请简要说明您认为随着时间的推移(1970-2015)(或 1960-2020)，人们变得更（不）体贴、乐于助人、有合作精神的原因。[最少 50 个字][4]

[4] 该问题仅在预实验中出现。

第四部分

在第四部分中，我们将询问您如何看待过去中国不同时期的情况。请将滑块拖向最能代表您对 1970 年、1990 年、2010 年和 2030 年(或 1960 年、1980 年、2000 年和 2020 年)中国情况的判断的答案。请注意，我们需要您回忆当时一般民众的情况，而不是您个人的情况。

1. 在以下年份中，宗教信仰在人们的生活中有多重要:

完全不重要-0-非常重要-100

1970

1990

2010

2030

2. 在以下年份中，面对面的接触在人们的生活中有多重要

完全不重要-0-非常重要-100

3. 在以下年份中，虚拟接触(如电话、社交媒体)在人们生活中有多重要

完全不重要-0-非常重要-100

4. 在以下年份中，大多数人住在城市而不是乡村

完全不同意-0-完全同意-100

5. 在以下年份中，人们的财富和收入水平

低-0—高-100

6. 在以下年份中，富人和穷人之间的差距

小-0-大-100

7. 在以下年份中，在整个社会中，人们的受教育程度是

完全没有受过教育-0-受到很好教育的-100

8. 在以下年份中，文化中的个人主义色彩是

一点也不个人主义-0-非常个人主义-100

9. 在以下年份中，文化中的集体主义色彩是

完全不是集体主义-0-非常集体主义-100

10. 在以下年份中，人们在生活中经历过多大程度的压力

完全没有压力-0-非常高的压力-100

11. 在以下年份中，人们在多大程度上相互信任

一点也不-0-非常多- 100

12. 在以下年份中，人们在多大程度上相互联系并参与社交活动。

完全没有联系/参与 –0–非常紧密的联系/参与–100

13. 在以下年份中，人们在多大程度上接触社交媒体

一点也不-0-非常多- 100

14. 在以下年份中，人们在生活（包括社交活动）中在多大程度上使用科技

一点也不-0-非常多- 100

第五部分

最后，我们将收集您的一些基本信息，请单击下一步继续。

1. 您的性别是？
   a. 男性
   b. 女性
   c. 其他
   d. 倾向于不说

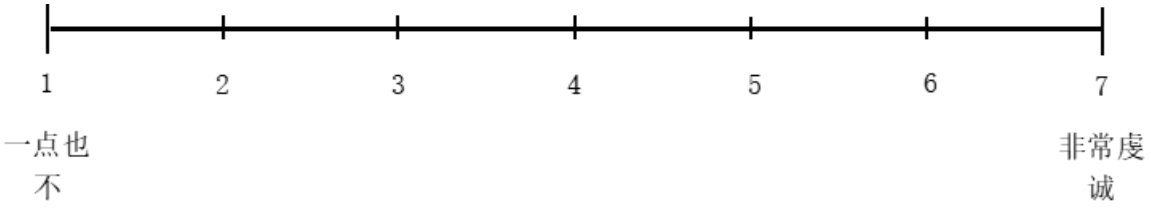
2. 您的年龄是？（请输入阿拉伯数字）

   _____

3. 您的民族是什么？
   a. 汉
   b. 蒙
   c. 满
   d. 回
   e. 藏
   f. 壮
   g. 维
   h. 其他（请注明：　　）
   i. 倾向于不说

4. 您信仰什么宗教？
   a. 佛教
   b. 道教
   c. 民间信仰（拜妈祖、关公等）
   d. 回教/伊斯兰教
   e. 天主教
   f. 基督教
   g. 东正教
   h. 其它基督教
   i. 犹太教
   j. 印度教
   j. 其他（请注明：　　）
   k. 倾向于不说

5. 对于您所信仰的宗教，您有多虔诚？



6. 您的教育水平如何？
   a. 没有受过正规教育
   b. 私塾
   c. 小学
   d. 初中
   e. 职业高中

f. 普通高中
g. 中专
h. 技校
i. 大学专科（成人高等教育）
j. 大学专科（正规高等教育）
k. 大学本科（成人高等教育）
l. 大学本科（正规高等教育）
m. 研究生及以上
n. 其他（请注明：　　）
o. 倾向于不说

7. 在过去 4 或 5 年中，您的平均年收入是多少(税前)?
a. 少于 1 万人民币
b. 1 万至 1.9 万人民币
c. 2 万至 2.9 万人民币
d. 3 万至 3.9 万人民币
e. 4 万至 4.9 万人民币
f. 5 万至 5.9 万人民币
g. 6 万至 6.9 万人民币
h. 7 万至 7.9 万人民币
i. 8 万至 8.9 万人民币
j. 9 万至 9.9 万人民币
k. 10 万人民币或以上
l. 倾向于不说

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