Supplementary Appendices

How Does Age Shape Social Interactions? Interviewer-Age Effects, Normative Age Distance, and Gender Attitudes

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Appendix 1. Steps of sample selection

Step	Sample elimination	Remaining sample
0	_	Original sample $N = 96,845$ respondents, 6,951 interviewers, 50 country–years, and 30 countries.
1	 Delete country-years that did not collect data on the variables used in this research: Interviewer age: France (2010) and Sweden (2010) Marital status: Finland (2010) Reissued interview: Germany (2010) 	N = 88,711 respondents, 6,356 interviewers, 46 country–years, and 30 countries.
2	Limit respondent age range to 16–86 (no listwise deletion for missing values)	N = 87,247 respondents, 6,350 interviewers, 46 country-years, and 30 countries.
3	Delete cases with missing value for gender attitudes	N = 85,927 respondents, 6,341 interviewers, 46 country-years, and 30 countries (sample used for calculating country-year mean gender attitudes)
4	Delete cases with missing value for respondent age	N = 85,651 respondents, 6,338 interviewers, 46 country–years, and 30 countries (sample used for calculating country–year normative age distance in gender attitudes)
5	Limit interviewer age range to 18–80 (no listwise deletion for missing values)	N = 85,490 respondents, 6,328 interviewers, 46 country–years, and 30 countries.
6	Delete cases with missing value for interviewer age	N = 84,990 respondents, 6,296 interviewers, 46 country-years, and 30 countries
7	Listwise deletion of 7,106 respondents (< 10% of the original sample) with missing information following the order below: 19: respondent gender 852: years of schooling 1,194: marital status 3: children/parenthood status 14: child coresidential status 163: economic activity/work status 1,419: mother's work status at 14 1,358: ethnicity 412: religiosity 841: Schwartz's human values – conservatism 29: Schwartz's human values – self-transcendence 357: respondent's efforts in answering questions (rated by interviewers) 337: respondent's reluctance to answer questions (rated by interviewers) 	Final analytical sample <i>N</i> = 77,884 respondents, 6,243 interviewers, 46 country–years, and 30 countries

nested structure of multilevel models and thus violate the assumptions of multilevel models at the higher levels (Drechsler, 2015)—<u>https://journals.sagepub.com/doi/10.3102/1076998614563393</u>. Household income was not included in the analysis due to the high level of missing values (> 20% of the sample). Instead, I controlled for respondent's education, work status, and occupational status to take account of their socioeconomic standing in society. Additional analysis based on the sample with valid income responses yielded results that are consistent with those reported in this article.

		N (used for			
		calculating country-		Country-year	Country-year
		year age distance in	N	normative age	female labour force
		gender attitudes	(final analytical	distance in gender	participation
Country	ESS round	[Sample 1])	sample)	attitudes	rate (proportion)
AT	8	1,966	1,904	0.127	0.535
BE	5	1,670	1,541	0.415	0.475
BE	8	1,736	1,711	0.234	0.478
BG	5	2,339	2,229	0.169	0.477
СН	5	1,466	1,427	0.411	0.599
СН	8	1,484	1,342	0.306	0.629
CY	5	1,050	935	0.539	0.576
CZ	5	2,302	2,033	0.226	0.492
CZ	8	2,213	2,070	0.215	0.521
DE	8	2,797	2,672	0.252	0.550
DK	5	1,535	1,499	0.154	0.598
EE	5	1,726	1,538	0.345	0.550
EE	8	1,972	1,900	0.236	0.565
ES	5	1,847	1,794	0.500	0.515
ES	8	1,892	1,650	0.257	0.523
FI	8	1,887	1,851	0.196	0.550
FR	8	2,003	1,915	0.249	0.507
GB	5	2,325	2,185	0.473	0.555
GB	8	1,884	1,828	0.268	0.568
GR	5	2,667	2.548	0.556	0.448
HR	5	1.563	1.367	0.311	0.462
HU	5	1.514	1.412	0.254	0.438
HU	8	1.548	1,176	0.107	0.480
IE	5	2.499	2.282	0.263	0.556
IE	8	2.666	2.560	0.141	0.554
IL.	5	2,170	1.553	0.137	0.570
IL.	8	2.450	2,183	0.070	0.594
IS	8	863	782	0.159	0.732
IT	8	2.475	2.199	0.251	0.396
LT	5	1 527	1 121	0.118	0.526
	8	2,016	1 721	0.068	0.559
NL	5	1 789	1 705	0.302	0.583
NI	8	1,705	1,703	0.192	0.580
NO	5	1,504	1,365	0.128	0.500
NO	8	1,507	1,305	0.120	0.609
PI	5	1,507	1,100	0.363	0.483
PI	8	1,632	1,528	0.221	0.400
PT	5	2 076	1,928	0.396	0.558
PT	8	1,251	703	0.390	0.536
RU	5	2 / 95	2 291	_0.030	0.550
RU	8	2,705	1 990	-0.050	0.557
SE	8	1 483	1 445	0.100	0.607
SI	5	1,405	1,153	0.369	0.532
SI	8	1 275	1 224	0.307	0.521
SK	5	1,275	1,227	0.140	0.521
UA	5	1,791	1,381	0.218	0.484

Appendix 2. Descriptive statistics of country-year level variables

Notes: ESS = European Social Survey. ESS 5 = 2010. ESS 8 = 2016. As I used as many cases as possible to calculate country–year age distance in gender attitudes, the total sample used for the calculation of the measure is larger than the final analytical sample, as listwise deletion of missing cases was not conducted for variables other than respondent's age and gender attitudes. ESS design weights were applied to the calculation of normative age distance. Unweighted sample sizes.



Appendix 3. Linear regression slopes underpinning the calculation of normative age distance in gender attitudes (red), along with local polynomial lines (blue)

Respondent age

Note: Whilst in most cases the linear prediction of normative age distance in gender attitudes captures differences in gender attitudes across the age distribution in a country–year well, a few cases of non-linearity were noted. As shown in the graph, the non-linear patterns fall into two broad categories: (1) up-and-down fluctuation (e.g. LT8), in which case the normative age distance is close to zero, and (2) pattern in which the two ends of the age distribution (i.e. < 20 and > 80) deviate from the linear prediction (e.g. FI8, PT8). In the former case, given the up-and-down fluctuation in gender attitudes across the age distribution, it is difficult to discern a clear pattern of age difference in gender attitude. Arguably in these country–years, the near-zero value of the normative distance validly reflects the fact that the fluctuation also makes it difficult for respondents to attribute clear, directional expectations of gender attitudes to interviewer's (vis-à-vis their own) age. In the latter case, I conducted robustness checks limiting the sample to respondents aged 20–80, which yielded substantively consistent results.

Appendix 4. Wordings and calculations for religiosity and human value measures

Measures for religiosity

The following measures were used to capture respondent's self-reported religiosity (Cronbach's $\alpha = .82$, eigenvalue = 1.85):

- (1) 'How religious are you?' ([0] 'not at all religious' to [10] 'very religious').
- (2) 'How often do you attend religious services apart from special occasions?' ([1] 'every day', [2] 'more than once a week', [3] 'once a week', [4] 'at least once a month', [5] 'only on special religious holidays', [6] 'less often', [7] 'never').
- (3) 'how often do you pray?' ([1] 'every day', [2] 'more than once a week', [3] 'once a week', [4] 'at least once a month', [5] 'only on special religious holidays', [6] 'less often', [7] 'never').

I reversed the latter two scales such that a higher score indicates a greater intensity of religious practice.

Schwartz's human value measures (Schwartz and Rubel-Lifschitz, 2009)

The following measures were used to capture respondent's self-transcendence (Cronbach's $\alpha = 0.75$, eigenvalue = 1.81):

It is important to him/her...

- (1) 'that people are treated equally and have equal opportunities',
- (2) 'to understand different people',
- (3) 'to care for nature and environment',
- (4) 'to help people and care for others' wellbeing',
- (5) 'to be loyal to friends and devote to people who are close'.

The following measures were used to capture respondent's conservatism (Cronbach's $\alpha = 0.73$, eigenvalue = 1.83):

It is important to her/him...

- (1) 'to be humble and modest, and not to draw attention to herself/himself',
- (2) 'to follow traditions and customs',
- (3) 'to do what is told and follow rules',
- (4) 'to behave properly',
- (5) 'to live in secure and safe surroundings',
- (6) 'that government is strong and ensures safety'.

For each of the above items, respondents were asked to indicate how similar this person is to them on a scale ranging from (1) 'very much like me' to (6) 'not like me at all'. I reversed the scales such that a higher score indicates a closer identification with the value domain.

Calculation of composite indices

The composite indices for religiosity, self-transcendence and conservatism were calculated as standardised principal-component scores based on the constituent measures. Following Abdelhadi and England (2018), respondents with valid response for only one of the constituent measures for each index was treated as missing cases and listwise deleted during data cleaning. For respondents with valid responses for two or more items, I followed Abdelhadi and England (2018) and assigned a regression-based prediction of their responses to the missing items based on their non-missing responses.

percentages)						
			Intervie	wer age		
Respondent age	< 31	31–40	41-50	51-60	61–70	> 71
< 31	16.6	11.6	22.3	27.0	18.8	3.7
31–40	12.0	14.9	21.9	27.8	19.7	3.7
41-50	11.5	12.2	23.1	29.0	20.1	4.0
51-60	9.8	11.7	21.8	31.8	20.8	4.2
61–70	9.5	11.6	21.9	29.4	23.1	4.6
> 70	8.7	12.0	22.2	30.2	22.4	4.5

Appendix 5. Bivariate matching between respondent's age and interviewer's age (row percentages)

Notes: N = 77,884 respondents and 6,243 interviewers. Row percentages may not add up to 100% due to rounding. Darker colour indicates a higher percentage. Weighted statistics with unweighted sample sizes.

<u> </u>	
Variable	Pearson's r
R < I [-63, -31]	-0.0219
R < I [-30, -21]	-0.0088
R < I [-20, -11]	0.0054
R = I [-10, 10]	-0.0206
R > I [11, 20]	0.0116
R > I [21, 30]	0.0181
R > I[31, 67]	0.0333

Appendix 6. Pearson's correlation between respondent–interviewer age difference and country–year normative age distance in gender attitudes

Notes: N = 77,884 respondents, 6,243 interviewers, and 46 country–years. R = Respondent age. I = interviewer age. Weighted statistics with unweighted sample sizes.

		,	/
	M5	M5	M5
	(Logit)	(Probit)	(Linear probability)
Key predictor	B (SE)	B (SE)	B (SE)
Country-year age distance in gender attitudes	0.606	0.393	0.179
(CYDIST, ÷ 100)	(1.061)	(0.647)	(0.205)
R age (× 10)	-0.085^{***}	-0.051***	-0.014***
	(0.016)	(0.009)	(0.002)
I age (× 10)	0.020	0.012	0.003
	(0.018)	(0.011)	(0.003)
R age \times I age	-0.005	-0.004	0.000
	(0.006)	(0.004)	(0.001)
I age \times CYDIST	-0.009	-0.007	-0.005
	(0.051)	(0.031)	(0.009)
R age \times CYDIST	-0.470 * * *	-0.287 * * *	-0.095^{***}
	(0.045)	(0.023)	(0.009)
R age \times I age \times CYDIST	-0.048*	-0.032**	-0.013**
	(0.021)	(0.012)	(0.004)

Appendix 7. Three-level mixed-effects regression models predicting attitudes towards the rights of women to paid jobs (binomial coding of dependent variable; select results)

Notes: N = 77,884 respondents, 6,243 interviewers, and 46 country-years. SE = Standard errors. R = Respondent. I = Interviewer. For the dependent variable, the original responses 1 (strongly agree), 2 (agree), and 3 neither agree nor disagree) were coded as 0, and 4 (disagree) and 5 (strongly disagree) were coded as 1. This binomial measure captures people's rejection of the statement that men should be given preferential rights to employment vis-à-vis women. All models included other variables included in Model 5 of Table 2 in the main article. Due to slow computation speed of multilevel logit/probit models in Stata, the models were fitted using the runmlwin package. Specifically, the second order penalised quasi-likelihood linearization was used. It is important to note that penalised quasi-likelihood linearization may result in biased estimates (see https://link.springer.com/article/10.1186/1471-2288-11-77), thus the results here are used for robustness checks only. Weighted statistics with unweighted sample sizes.

** p < 0.01, *** p < 0.001 (two-tailed tests).

¥	M2	M3	M4	M5
Predictor	B (SE)	B (SE)	B (SE)	B (SE)
DV: 'Gay men and lesbians should be free to				
live their own life as they wish' $(1 = strongly)$				
disagree, 5 = strongly agree)				
Country–year age distance in attitudes	-3.143***	-2.906***	-3.158***	-2.924***
towards homosexuality (CYDIST, \div 100)	(0.777)	(0.807)	(0.774)	(0.799)
R age (× 10)	-0.059***	-0.059***	-0.059***	-0.049***
	(0.012)	(0.011)	(0.012)	(0.005)
I age (× 10)	-0.012	-0.012	-0.000	0.000
	(0.017)	(0.016)	(0.006)	(0.006)
R age \times I age		0.003		-0.001
		(0.003)		(0.003)
R age \times CYDIST			-0.129***	-0.126^{***}
			(0.032)	(0.029)
I age \times CYDIST				-0.167***
				(0.020)
$R age \times I age \times CYDIST$				0.002
				(0.010)
DV: 'A woman should be prepared to cut				
down on her paid work for the sake of her				
family $(1 = strongly agree, 5 = strongly$				
aisagree)	1 205***	1 0 2 0 * * *	1 1 1 1 4 4 4 4 4	0.065***
country-year age distance in work-family	1.205***	1.029^{***}	1.144^{***}	0.965***
$\frac{1}{2} \frac{1}{2} \frac{1}$	(0.130)	(0.142) 0.022*	(0.105)	(0.140) 0.026**
K age (× 10)	-0.022	-0.022	-0.022	-0.030^{+1}
Lage $(\times 10)$	(0.011)	(0.011)	(0.011)	(0.013)
1 age (× 10)	(0.002)	(0.003)	-0.012	-0.011 (0.013)
\mathbf{R} are $\vee \mathbf{I}$ are	(0.013)	(0.014)	(0.015)	0.001
R age ~ I age		(0.002)		(0.001)
$R age \times CYDIST$		(0.005)	-0 129**	-0.129**
			(0.045)	(0.044)
I age \times CYDIST			(0.0.0)	-0.234***
				(0.014)
R age \times I age \times CYDIST				-0.004
				(0.023)

Appendix 8. Three-level mixed-effects linear regression models predicting attitudes towards homosexuality and women's work-family roles (select results)

Notes: N = 75,668 (homosexuality) and 38,435 (work-family role) respondents, 6,231 (homosexuality) and 3,220 (work-family role) interviewers, and 46 (homosexuality) and 23 (work-family role) country–years. DV = Dependent variable. SE = Robust standard errors clustered at country level. R = Respondent. I = Interviewer. All models controlled for covariables listed in Appendix Table A1 and the country–year mean levels of respondent's age and interviewer's age and the interaction between the two. The random-intercept and random-slope specifications are the same as those reported in Table 2. The results are consistent with the main findings that interviewer-age effects are moderated by normative age distance in social attitudes. Weighted statistics with unweighted sample sizes. * p < 0.05, ** p < 0.01, *** p < 0.001 (two-tailed tests).

Key predictor $B(SE)$ $B(SE)$ $B(SE)$ $B(SE)$ $B(SE)$ Country-year WEF gender equality index for economic participation instead of female labour force participation rate-1.172-1.233-1.148-1.194Country-year WEF index in economic participation (WEF)-1.172-1.233-1.148-1.194Country-year age distance in gender attitudes0.3360.1470.2940.106(CYDIST, \div 100)(0.395)(0.543)(0.391)(0.537)R age (× 10)-0.031-0.031-0.031-0.042***(0.019)(0.020)(0.019)(0.006)I age (× 10)0.0110.0120.0040.004(0.009)(0.009)(0.007)(0.007)0.001		M2	M3	M4	M5
Country-year WEF gender equality index for economic participation instead of female labour force participation rate Country-year WEF index in economic -1.172 -1.233 -1.148 -1.194 participation (WEF) (1.259) (1.185) (1.239) (1.165) Country-year age distance in gender attitudes 0.336 0.147 0.294 0.106 (CYDIST, $\div 100$) (0.395) (0.543) (0.391) (0.537) R age (× 10) -0.031 -0.031 -0.031 -0.042^{***} (0.019) (0.020) (0.019) (0.006) I age (× 10) 0.011 0.012 0.004 0.004 0.009) (0.009) (0.007) (0.007)	Key predictor	B(SE)	B (SE)	B(SE)	B(SE)
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Country-year WEF gender equality index for				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	economic participation instead of female				
Country-year WEF index in economic -1.172 -1.233 -1.148 -1.194 participation (WEF) (1.259) (1.185) (1.239) (1.165) Country-year age distance in gender attitudes 0.336 0.147 0.294 0.106 (CYDIST, $\div 100)$ (0.395) (0.543) (0.391) (0.537) R age (× 10) -0.031 -0.031 -0.031 -0.042^{***} (0.019) (0.020) (0.019) (0.006) I age (× 10) 0.011 0.012 0.004 0.004 R age × Lage 0.005^* 0.001 0.001	labour force participation rate				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Country-year WEF index in economic	-1.172	-1.233	-1.148	-1.194
Country-year age distance in gender attitudes 0.336 0.147 0.294 0.106 (CYDIST, $\div 100$) (0.395) (0.543) (0.391) (0.537) R age ($\times 10$) - 0.031 - 0.031 - 0.031 - 0.042^{***} (0.019) (0.020) (0.019) (0.006) I age ($\times 10$) 0.011 0.012 0.004 0.004 (0.009) (0.009) (0.007) (0.007) R age \times Lage 0.005* 0.001	participation (WEF)	(1.259)	(1.185)	(1.239)	(1.165)
$\begin{array}{ccccccc} (CYDIST, \div 100) & (0.395) & (0.543) & (0.391) & (0.537) \\ R \mbox{ age} (\times 10) & -0.031 & -0.031 & -0.031 & -0.042^{***} \\ & (0.019) & (0.020) & (0.019) & (0.006) \\ I \mbox{ age} (\times 10) & 0.011 & 0.012 & 0.004 & 0.004 \\ & (0.009) & (0.009) & (0.007) & (0.007) \\ R \mbox{ age} \times I \mbox{ age} & 0.005^{*} & 0.001 \end{array}$	Country-year age distance in gender attitudes	0.336	0.147	0.294	0.106
R age (× 10) -0.031 -0.031 -0.031 -0.042^{***} (0.019)(0.019)(0.019)(0.006)I age (× 10)0.0110.0120.0040.004(0.009)(0.009)(0.007)(0.007)R age × I age0.005*0.001	$(CYDIST, \div 100)$	(0.395)	(0.543)	(0.391)	(0.537)
(0.019) (0.020) (0.019) (0.006) I age (× 10)0.0110.0120.0040.004 (0.009) (0.009) (0.007) (0.007) R age × Lage0.005*0.001	R age (× 10)	-0.031	-0.031	-0.031	-0.042***
I age (\times 10)0.0110.0120.0040.004(0.009)(0.009)(0.007)(0.007)R age \times Lage0.005*0.001		(0.019)	(0.020)	(0.019)	(0.006)
(0.009) (0.007) (0.007) R age × Lage 0.005* 0.001	I age (× 10)	0.011	0.012	0.004	0.004
Rage \times Lage 0.005* 0.001		(0.009)	(0.009)	(0.007)	(0.007)
1	$R age \times I age$		0.005*		0.001
(0.002) (0.003)			(0.002)		(0.003)
I age × CYDIST -0.061^{***} -0.070^{***}	I age \times CYDIST			-0.061***	-0.070***
(0.018) (0.018)				(0.018)	(0.018)
R age \times CYDIST -0.276^{***}	R age \times CYDIST				-0.276^{***}
(0.026)					(0.026)
R age \times I age \times CYDIST -0.026^{***}	R age \times I age \times CYDIST				-0.026***
(0.008)					(0.008)
Age concentration instead of normative age	Age concentration instead of normative age				
distance in gender attitudes	distance in gender attitudes	1 070	1.007	1 202	1 001
Country-year female employment rate $1.2/2$ $1.88/$ 1.292 1.901	Country-year female employment rate	1.272	1.88/	1.292	1.901
$\begin{array}{c} (CYFEMPLOY) & (1.004) & (1.094) & (1.001) & (1.096) \\ Country are relative and concentration in 0.228 & 0.000 & 0.200 & 0.027 \\ \end{array}$	(CYFEMPLOY)	(1.604)	(1.694)	(1.601)	(1.696)
Country-year relative age concentration in $0.238 = -0.000 = 0.209 = -0.027$	Country-year relative age concentration in	0.238	-0.000	0.209	-0.027
gender attitudes (CYCON, \div 100) (0.314) (0.393) (0.308) (0.387)	gender attitudes (CYCON, \div 100)	(0.314)	(0.393)	(0.308)	(0.387)
R age (\times 10) -0.031 -0.031 -0.044****	R age (\times 10)	-0.031	-0.031	-0.031	-0.044***
(0.019) (0.020) (0.019) (0.007)	L (10)	(0.019)	(0.020)	(0.019)	(0.007)
$1 \text{ age } (\times 10) \qquad 0.011 \qquad 0.012 \qquad 0.003 \qquad 0.004 \qquad (0.000) \qquad (0.007) \qquad (0$	I age (\times 10)	0.011	0.012	0.003	0.004
(0.009) (0.007) (0.007) (0.007)	Deres I.e.	(0.009)	(0.009)	(0.007)	(0.007)
K age \times 1 age 0.005° 0.001	$R age \times I age$		0.005*		0.001
$(0.002) \qquad (0.003)$			(0.002)	0.045***	(0.003)
$-0.043^{+++} -0.030^{++++} -0.030^{++++} -0.030^{++++} -0.030^{++++} -0.030^{++++} -0.030^{++++} -0.030^{++++} -0.030^{+++++} -0.030^{+++++} -0.030^{+++++} -0.030^{+++++} -0.030^{+++++} -0.030^{+++++} -0.030^{+++++++} -0.030^{++++++} -0.030^{+++++++} -0.030^{++++++++++} -0.030^{+++++++++++++++++++++++++++++++++++$	rage × CrCON			-0.043^{+++}	-0.030^{++++}
(0.012) (0.013) D age v CVCONI (0.012)				(0.012)	(0.013)
-0.100^{+++} (0.016)	K age ~ C I CON				-0.100
$\mathbf{R} \text{ are } \mathbf{Y} \mathbf{L} \text{ are } \mathbf{Y} \mathbf{C} \mathbf{Y} \mathbf{C} \mathbf{N} $	R age \times Lage \times CYCON				_0 017***
(0.007)					(0.005)

Appendix 9. Three-level mixed-effects linear regression models predicting attitudes towards the rights of women to paid jobs, using alternative country–year level measures

Notes: N = 77,884 respondents, 6,243 interviewers, and 46 country–years. SE = Robust standard errors clustered at country level. R = Respondent. I = Interviewer. Models controlling for covariables listed in Appendix Table A1 and the country–year mean levels of respondent's age and interviewer's age and their interaction. The specifications for the random components are the same as those reported in Table 2. The WEF gender equality index ranges from 0–1, with a higher score indicating greater equality in the economic participation of women and men (see https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality). As in the equation $(2\sigma_R^2 \frac{m_i}{m} = a_0 + a_1 R_i^y + \varepsilon_i)$, the age concentration index is defined as twice the area between the concentration curve (i.e. the distribution of gender attitudes over respondents' age) and the diagonal that assumes equality in gender attitudes over respondent's gender-attitude report, \overline{m} denotes the country–year mean level of attitudes, and y_i denotes the respondent. y_i has a rank order such that $y_c < y_d$ when c <d. Thus, R_i^y is the fractional rank of y_i , and σ_R^2 denotes the variance of R_i^y . In the equation, ε_i is the error term and a_0 and a_1 are the parameters to be estimated when calculating the index. The concentration index of m_i equals $\widehat{a_1}$ in the underpinning regression (see http://pubdocs.worldbank.org/

<u>en/737711503325812648/HealthEquityCh8.pdf</u>). Weighted statistics with unweighted sample sizes. * p < 0.05, *** p < 0.001 (two-tailed tests).

Appendix 10. Tests for gender differences in interviewer-age effective of the sector	ets		
	With the		
	inclusion		
	of gender		
	interactio		
	n further		
	to in		
Predictor	Table 3	В	SE
R female \times I age (\times 10)	Model 2	-0.017	0.016
R female \times R age (\times 10) \times I age (\times 10)	Model 3	-0.005	0.004
R female × I age (× 10) × country–year age distance in gender attitudes (\div 100)	Model 4	-0.178***	0.026
R female \times R age (\times 10) \times I age (\times 10) \times country-year age distance in gender	Model 5	-0.017	0.012
attitudes (\div 100)			
I female \times I age (\times 10)	Model 2	0.012	0.025
I female \times R age (\times 10) \times I age (\times 10)	Model 3	-0.006	0.004
I female \times I age (\times 10) \times country-year age distance in gender attitudes (\div 100)	Model 4	-0.100	0.102
I female \times R age (\times 10) \times I age (\times 10) \times country–year age distance in gender	Model 5	0.040*	0.016

attitudes (\div 100) *Notes*: *N* = 77,884 respondents, 6,243 interviewers, and 46 country–years. R = Respondent. I = Interviewer. SE = Robust standard errors clustered at country level. Due to cell size considerations, I did not further test the higher-order interaction term between R female, I female, R age, I age, and country-year age distance in gender attitudes. Weighted statistics with unweighted sample sizes.

* *p* < 0.05, *** *p* < 0.001 (Two-tailed test).



Appendix 11. Bootstrapped results, sequentially removing one country–year from each model (different panels use different scales)

Note: Error bars indicate 95% confidence intervals. All effects in Model 2 are not statistically significant at the 10% level, apart from the model excluding UA5. All effects in Model 3 are statistically significant at the 10% level and above. All effects in Model 4 are statistically significant at the 1% level and above. All effects in Model 4 are statistically significant at the 1% level.

	M4	M5
Key predictor	B (SE)	B (SE)
Region–year age distance in gender attitudes (RYDIST, \div 100)	0.187	0.081
	(0.161)	(0.164)
R age (× 10)	-0.035**	-0.047***
	(0.013)	(0.006)
I age $(\times 10)$	-0.001	-0.000
	(0.009)	(0.009)
R age \times I age		-0.003
		(0.003)
I age \times RYDIST	-0.085^{***}	-0.079***
	(0.015)	(0.017)
R age \times RYDIST		-0.276***
		(0.014)
R age \times I age \times RYDIST		-0.038**
		(0.012)

Appendix 12. Modelling contextual moderation at region–year instead of country–year level

Notes: N = 77,883 respondents, 6,243 interviewers, and 522 region–years. SE = Robust standard errors clustered at country–year level. R = Respondent. I = Interviewer. All models included control variables listed in Appendix Table A1 and the country–year mean levels of respondent's and interviewer's age and their interaction. The specifications for the random components are the same as those reported in Table 2, except that I have replaced the country–year identifiers/measures with region–year identifiers/measures. See

<u>https://www.europeansocialsurvey.org/data/multilevel/guide/about.html</u> for more information on the Nomenclature of Territorial Units for Statistics used in the ESS. The population weights for region–years were calculated based on the country–year population weight and design weight, such that the weight for each region is proportional to the weighted population size of the region vis-à-vis the population size of a given country. Weighted statistics with unweighted sample sizes.

** *p* < 0.01, *** *p* < 0.001 (two-tailed tests).

	1 1 2	
Predictors	В	B (SE)
Country (ref. = AT)		
BE	0.140***	(0.022)
BG	-0.352***	(0.035)
СН	-0.038	(0.022)
CY	-0.628***	(0.029)
CZ	-0.345***	(0.022)
DE	-0.088 * * *	(0.023)
DK	0.553***	(0.023)
EE	-0.265***	(0.024)
ES	0.381***	(0.022)
FI	0.194***	(0.022)
FR	0.349***	(0.023)
GB	0.092***	(0.021)
GR	-0.632***	(0.025)
HR	-0.007	(0.029)
HU	-0.931***	(0.028)
IE	0.308***	(0.021)
IL	-0.108***	(0.024)
IS	0.385***	(0.022)
IT	-0.079**	(0.025)
LT	-0.346***	(0.029)
NL	0.237***	(0.024)
NO	0.410***	(0.021)
PL	-0.276***	(0.024)
РТ	0.159***	(0.028)
RU	-0.651***	(0.025)
SE	0.385***	(0.020)
SI	0.154***	(0.023)
SK	-0.469***	(0.024)
UA	-0.816***	(0.029)
Counterfactual (ref. = no)	-0.019	(0.025)
Country \times counterfactual (ref. = AT \times counterfactual)		
$BE \times counterfactual$	0.019	(0.029)
BG × counterfactual	0.041	(0.048)
CH × counterfactual	0.028	(0.037)
$CY \times counterfactual$	0.028	(0.036)
$CZ \times counterfactual$	0.014	(0.034)
$DE \times counterfactual$	0.047	(0.034)
DK × counterfactual	-0.022	(0.030)
$EE \times counterfactual$	0.038	(0.032)
$ES \times counterfactual$	0.084*	(0.036)
$FI \times counterfactual$	0.058	(0.033)
$FR \times counterfactual$	0.052	(0.033)
GB × counterfactual	0.035	(0.034)
$GR \times counterfactual$	-0.037	(0.033)
$HR \times counterfactual$	-0.100 **	(0.036)
$HU \times counterfactual$	0.076	(0.041)
$IE \times counterfactual$	0.002	(0.032)
$IL \times counterfactual$	-0.021	(0.034)

Appendix 13. OLS regression model estimating the impact of the counterfactual scenario (all respondents interviewed by a similarly aged interviewer within +/-10 years) on country mean gender attitudes towards the right of women to paid employment

IS × counterfactual	0.046	(0.027)
$IT \times counterfactual$	0.013	(0.037)
$LT \times counterfactual$	0.085*	(0.041)
$NL \times counterfactual$	0.086*	(0.035)
NO × counterfactual	0.053	(0.033)
$PL \times counterfactual$	0.017	(0.034)
$PT \times counterfactual$	-0.057	(0.039)
$RU \times counterfactual$	0.007	(0.036)
$SE \times counterfactual$	0.024	(0.031)
$SI \times counterfactual$	0.066*	(0.032)
$SK \times counterfactual$	0.070	(0.044)
$UA \times counterfactual$	0.036	(0.041)
R age	-0.004***	(0.000)
I age	0.000	(0.000)
R female (ref. = male)	0.333***	(0.005)
Years of schooling	0.036***	(0.001)
Marital status (ref. = never married)		
Married	-0.069***	(0.007)
Previously married	-0.028 **	(0.009)
Has at least one child (ref. $=$ no)	0.010	(0.007)
Lives with at least one child (ref. $=$ no)	0.028***	(0.007)
ISEI occupational prestige score	0.003***	(0.000)
Work status (ref. = currently working)		
Unemployed	-0.123***	(0.011)
Retired	-0.054***	(0.008)
Inactive	-0.050 ***	(0.007)
Mother worked at 14 (ref. $=$ no)	0.087***	(0.005)
Migration status (ref. = native)		
Second-generation migrant	0.054***	(0.010)
First-generation migrant	-0.110***	(0.010)
Ethnic minority (ref. = no)	-0.201***	(0.013)
Religiosity (high = more religious)	-0.116***	(0.003)
Self-transcendence	0.150***	(0.004)
Conservatism	-0.113***	(0.004)
Female interviewer (ref. = male)	0.048***	(0.006)
Interviewer experience within current survey round	0.000	(0.000)
Reissued interview	-0.040***	(0.011)
Number of visits for interview	0.005**	(0.002)
Respondent's understanding	0.100***	(0.004)
Respondent's efforts	0.027***	(0.003)
Respondent's reluctance	-0.021***	(0.003)
Interview interrupted by third party (ref. = no)	-0.054***	(0.009)
Survey round ESS 8 (ref. = ESS 5)	0.397***	(0.006)
Intercept	2.499***	(0.033)

Notes: The total sample used in this model combines the original sample and the counterfactual sample. N = 77,884 respondents, 6,243 interviewers, and 30 countries, for the original and counterfactual sample, respectively. SE = Standard errors. Ref. = Reference group. ISEI = International Socio-Economic Index. Unweighted sample sizes, and weights from entropy balancing are applied such that the characteristics of the counterfactual sample resembles those of the original sample, apart from the fact that respondents in the entropy reweighted counterfactual sample are all interviewed by a similarly aged interviewer within +/-10 years. The variables used in entropy balancing are also included in the model to ensure any remaining differences are controlled for.

* p < 0.05, ** p < 0.01, *** p < 0.001 (two-tailed tests).