

Individual Life Horizon Influences Attitudes Towards
Democracy
Supplementary Material

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Materials and Methods

Data Sources and Sample Preparation

World Value Survey The primary data source for the empirical analysis is survey information from the World Value Survey (WVS) available at <http://www.worldvaluessurvey.org/wvs.jsp>. The variables of main interest regarding preferences for democracy are contained in survey rounds 3-6 (1994-1998, 1999-2004, 2005-2009 and 2010-2014). The analysis is conducted using an unbalanced panel of all 93 countries for which information is available for the relevant questions regarding individual attitudes towards democracy. This panel data set comprises 267,426 individual responses.

UN Life Tables Expected remaining years of life is constructed using life expectancy at exact age x (years), $e(x)$, from UN Life Tables provided by the United Nations, Department of Economic and Social Affairs, Population Division (2015). *World Population Prospects: The 2015 Revision*. The variable is defined as "average number of remaining years of life expected by a hypothetical cohort of males/females alive at age x who would be subject during the remaining of their lives to the mortality rates of a given period." The variable is available at the country level in 5-year intervals and for 5-year age brackets, separately by gender. The data were matched to the corresponding WVS waves ¹ for 5-year age brackets, which we match to the age reported in the WVS. We could not match data for the following countries, which are covered in the WVS: Andorra, Taiwan (both not available in UN life tables) and Serbia and Montenegro (covered as individual countries in UN Life Tables).

Data Preparation and Estimation Methods The resulting data set contains individual-level variation, which is aggregated in age-gender-country-period cells for use in panel regression models

$$\begin{aligned} \textit{Attitude toward Democracy}_{iagct} &= \alpha + \sum_{\tau=1}^T \beta_{\tau} \mathcal{I}(\tau = \textit{Remaining Years}_{agct}) \\ &+ \sum_{a=15}^A \delta_a \mathcal{I}(a_i = \textit{Age}_{iagct}) + \gamma X_{iagct} + \delta \mathcal{I}_{a,g,c,t} + \varepsilon_{iagct} \end{aligned} \quad (1)$$

- *Attitude to Democracy*_{*iagct*} measures the survey response regarding the attitudes towards democracy by an individual i with age $a \in [16, 97]$ and gender $g \in \{m, f\}$ in country c at time t . The survey questions used to create this measure are presented below.
- *Remaining Years*_{*agct*} measures the remaining years of life that this individual can expect to live according to the most recent (period) life tables for this country.
- X_{iagct} represents a vector of control variables such as years lived in democracy, marital status, number of dependent children in the household, income, education, and trust.

¹Wave 3: 1995-2000, Wave 4: 2000-2005, Wave 5: 2005-2010, Wave 6:2010-2015

- $\mathcal{I}_{a,g,c,t}$ denotes a vector of binary indicator variables that represent fixed effects for age groups, gender, country, and time (as well as interactions such as binary gender-specific age-group indicators or country-specific period indicators in some of the robustness material).

The empirical model is estimated by fixed-effects least squares. Robustness analysis also contains parametric specifications allowing for a quadratic polynomial in Remaining Years.

WVS Questions on Preferences for Democracy

E117: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country?"

Having a democratic political system"

- 1: Very good
- 2: Fairly good
- 3: Bad
- 4: Very bad

To facilitate the interpretation, the responses to this question have been recoded by reversing the scale as $5-i$, so that in the empirical analysis the responses are:

Attitude towards Democracy: Having a democratic political system

- 1: Very bad
- 2: Bad
- 3: Fairly good
- 4: Very good

The analysis is focused on question E117 because it is available for most survey rounds. In the robustness analysis, the following alternative questions have been used:

E114: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country?"

Having a strong leader who does not have to bother with parliament and elections"

- 1: Very good
- 2: Fairly good
- 3: Bad
- 4: Very bad

E123: "I'm going to read off some things that people sometimes say about a democratic political system. Could you please tell me if you agree strongly, agree, disagree or disagree strongly, after I read each one of them?"

Democracy may have problems but it's better than any other form of government" (reversed scale)

- 0: Strongly disagree
- 1: Disagree
- 2: Agree
- 3: Strongly agree

E235: "How important is it for you to live in a country that is governed democratically? On this scale where 1 means it is "not at all important" and 10 means "absolutely important" what position would you choose?"

- 1: Not at all important
- ...
- 10: Absolutely important

IW-Index: Inglehart and Welzel index created based on questions E114, E116, E117 and E123. It ranges from -6 (pro-autocracy) to +6 (pro-democracy).

Countries Included and Summary Statistics

The sample for our baseline regression comprises all 93 countries contained in the WVS. Countries that could not be matched with the UN Life Tables were eliminated from the sample. This applies to the following countries: Andorra, Taiwan (both not available in UN life tables) and Serbia and Montenegro (covered as individual countries in UN Life Tables).

As robustness checks we conducted the same analysis with different dependent variables. For these regressions the composition of the sample depends on the availability of data for the dependent variable (see table S1).

Table S3 shows a list of all countries included in the main sample and WVS data availability for round 3-6. In addition, column 5 states the average support for democracy (Outcome variable E117) in the most recent period, for which WVS data is available. Column 6, provides information about the average remaining years of life for a 40-year old person in the most recent period, for which WVS data is available.

Table S1: Summary Statistics: Outcome Variables

	Mean	Std. Dev.	Min	Max	N
E117	3.35	0.74	1	4	267,426
E114	2.76	1.03	1	4	253,469
E123	2.24	0.74	0	3	99,833
E235	8.45	2.02	1	10	144,461
IW-Index	2.72	2.24	-6	6	89,748

Table S2: Summary Statistics: Explanatory Variables (used in baseline specification)

	Mean	Std. Dev.	Min	Max	N
Remaining years of life	35.91	13.73	2	68	267,426
Age	40.68	16.06	15	97	267,426
Gender	0.49	0.50	0	1	267,426
Children	0.72	0.45	0	1	267,426
Most people can be trusted	0.26	0.44	0	1	256,534
Education	4.78	2.22	1	8	250,941
Income Steps	4.69	2.31	1	10	246,655
Democratic capital by age (PolityIV)	12.76	11.04	0	37	242,125

Table S3: Countries included in the baseline regression. Mean support for democracy (E117) and mean of remaining years are calculated for the last available survey round.

Country	Wave 3 1994-1998	Wave 4 1999-2004	Wave 5 2005-2009	Wave 6 2010-2014	Mean Support for democracy	Mean RY (at age 40)
Albania	1	1	0	0	3.59	39.29
Algeria	0	1	0	1	3.45	39.16
Argentina	1	1	1	1	3.50	38.36
Armenia	1	0	0	1	3.46	36.79
Australia	1	0	1	1	3.54	44.37
Azerbaijan	1	0	0	1	3.15	34.77
Bahrain	0	0	0	1	3.04	37.79
Bangladesh	1	1	0	0	3.66	34.57
Belarus	1	0	0	1	3.15	33.65
Bosnia	1	1	0	0	3.36	37.37
Brazil	0	0	1	1	3.07	38.87
Bulgaria	1	0	1	0	3.16	35.14
Burkina Faso	0	0	1	0	3.69	30.10
Canada	0	1	1	0	3.44	42.71
Chile	1	1	1	1	3.48	43.32
China	0	1	1	1	3.25	37.38
Colombia	1	0	1	1	3.13	38.64
Croatia	1	0	0	0	3.71	35.06
Cyprus	0	0	1	1	3.61	41.33
Czech Rep.	1	0	0	0	3.28	35.48
Dominican Rep.	1	0	0	0	3.58	37.24
Ecuador	0	0	0	1	3.36	40.47
Egypt	0	1	1	1	3.67	35.36
El Salvador	1	0	0	0	3.08	34.72

Table S3: Countries included in the baseline regression. Mean support for democracy (E117) and mean of remaining years are calculated for the last available survey round.

Country	Wave 3 1994-1998	Wave 4 1999-2004	Wave 5 2005-2009	Wave 6 2010-2014	Mean Support for democracy	Mean RY (at age 40)
Estonia	1	0	0	1	3.15	38.64
Ethiopia	0	0	1	0	3.75	31.77
Finland	1	0	1	0	3.28	40.58
France	0	0	1	0	3.36	41.71
Georgia	1	0	1	1	3.39	36.67
Germany	1	0	1	1	3.61	42.11
Ghana	0	0	1	1	3.75	31.31
Great Britain	0	0	1	0	3.44	41.28
Guatemala	0	0	1	0	3.13	36.57
Hong Kong	0	0	1	1	3.06	44.58
Hungary	1	0	1	0	3.36	34.56
India	1	1	1	1	3.01	33.98
Indonesia	0	1	1	0	3.54	32.92
Iran	0	1	1	0	3.32	36.72
Iraq	0	1	1	1	3.39	34.38
Italy	0	0	1	0	3.59	42.25
Japan	1	1	1	1	3.20	43.54
Jordan	0	1	1	1	3.39	36.51
Kazakhstan	0	0	0	1	3.28	33.10
Kuwait	0	0	0	1	3.29	35.92
Kyrgyzstan	0	1	0	1	2.93	34.93
Latvia	1	0	0	0	3.08	34.76
Lebanon	0	0	0	1	3.16	40.23
Libya	0	0	0	1	3.53	35.87
Lithuania	1	0	0	0	3.10	33.54
Macedonia	1	1	0	0	3.39	34.91
Malaysia	0	0	1	1	3.39	36.13
Mali	0	0	1	0	3.42	30.62
Mexico	1	1	1	1	3.01	40.28
Moldova	1	1	1	0	3.26	31.03
Montenegro	1	1	0	0	3.56	35.96
Morocco	0	1	1	1	3.72	36.55
Netherlands	0	0	1	1	3.32	42.50
New Zealand	1	0	1	1	3.47	43.12
Nigeria	1	1	0	1	3.53	28.30
Norway	1	0	1	0	3.65	41.45

Table S3: Countries included in the baseline regression. Mean support for democracy (E117) and mean of remaining years are calculated for the last available survey round.

Country	Wave 3 1994-1998	Wave 4 1999-2004	Wave 5 2005-2009	Wave 6 2010-2014	Mean Support for democracy	Mean RY (at age 40)
Pakistan	1	1	0	1	3.10	34.51
Palestine	0	0	0	1	3.33	35.68
Peru	1	1	1	1	3.37	38.13
Philippines	1	1	0	1	3.04	32.31
Poland	0	0	1	1	3.02	36.36
Puerto Rico	1	1	0	0	3.61	39.32
Romania	1	0	1	1	3.33	37.08
Russia	1	0	1	1	3.00	33.38
Rwanda	0	0	0	1	3.50	32.49
Serbia	1	1	0	0	3.43	35.11
Singapore	0	1	0	1	3.25	44.04
Slovakia	1	0	0	0	3.37	34.74
Slovenia	1	0	1	1	3.07	41.11
South Africa	1	1	1	1	3.00	27.73
South Korea	1	1	1	1	2.93	42.44
Spain	1	1	1	1	3.56	42.68
Sweden	1	0	1	1	3.68	42.53
Switzerland	1	0	1	0	3.57	42.89
Tanzania	0	1	0	0	3.66	28.42
Thailand	0	0	1	1	3.59	37.15
Trinidad/Tobago	0	0	1	1	3.35	36.61
Tunisia	0	0	0	1	3.53	37.86
Turkey	1	1	1	1	3.41	37.95
Uganda	0	1	0	0	3.43	27.60
Ukraine	1	0	1	1	3.15	34.49
United States	1	1	1	1	3.20	41.29
Uruguay	1	0	1	1	3.44	38.74
Uzbekistan	0	0	0	1	3.67	34.46
Venezuela	1	1	0	0	3.56	37.74
Vietnam	0	1	1	0	3.49	38.80
Yemen	0	0	0	1	3.39	32.24
Zambia	0	0	1	0	3.57	29.81
Zimbabwe	0	1	0	1	3.70	28.22

Additional Results Referenced in the Text

Effect on democratic attitudes: Cell Frequencies

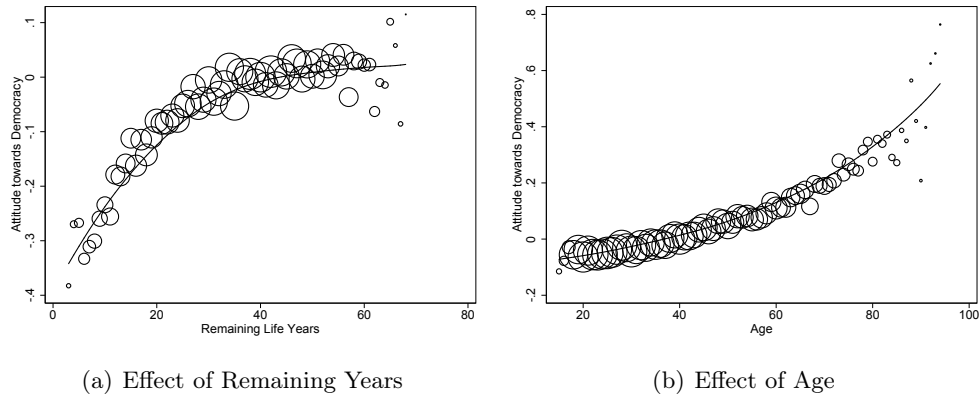


Figure S1: Determinants of Subjective Attitude Towards Democracy

Graphs for semi-parametric versions of the specifications in Table 1

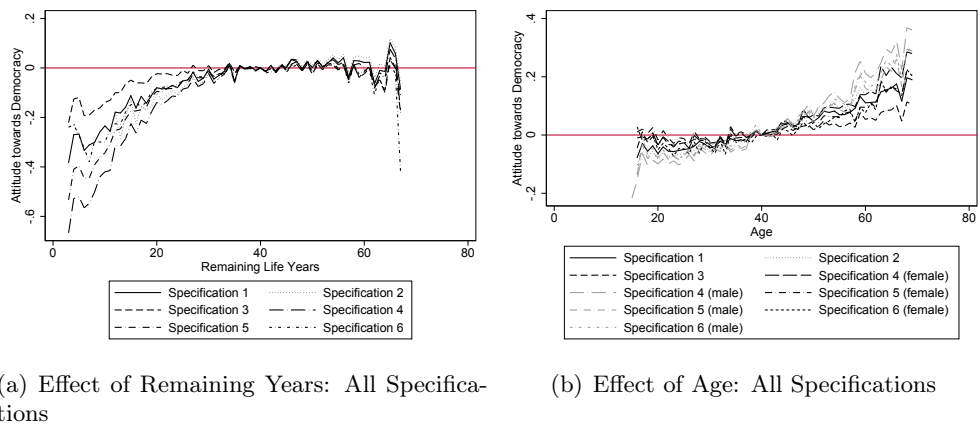
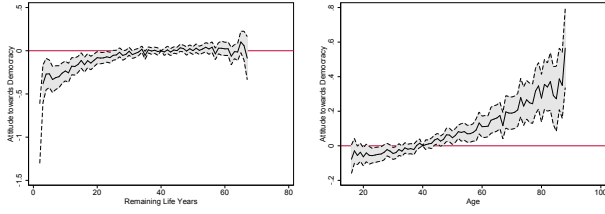
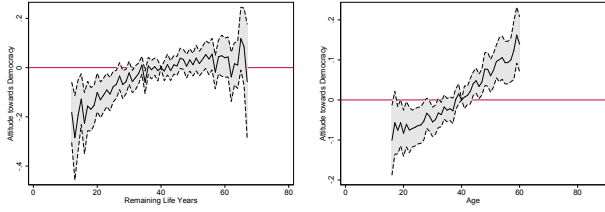


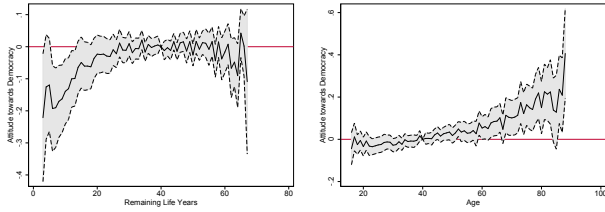
Figure S2: Determinants of Subjective Attitude Towards Democracy



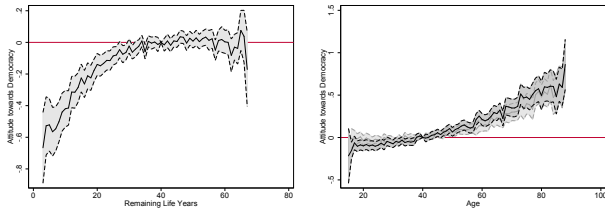
(a) Effect of Remaining Years: Specification (1) (b) Effect of Age: Specification (1)



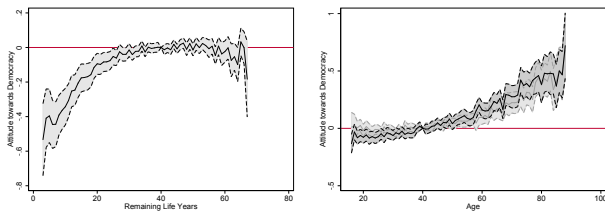
(c) Effect of Remaining Years: Specification (2) (d) Effect of Age: Specification (2)



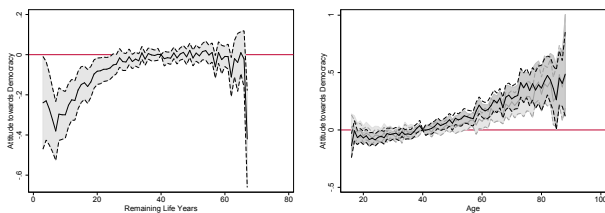
(e) Effect of Remaining Years: Specification (3) (f) Effect of Age: Specification (3)



(g) Effect of Remaining Years: Specification (4) (h) Effect of Age: Specification (4)



(i) Effect of Remaining Years: Specification (5) (j) Effect of Age: Specification (5)



(k) Effect of Remaining Years: Specification (6) (l) Effect of Age: Specification (6)

Figure S3: Determinants of Subjective Attitude Towards Democracy

Correlation between age and remaining years of life

Table S4: Correlation between age and remaining years of life

	(1)	(2)	(3)
	Age	Age<60	Age<40
Remaining years of life	-0.925	-0.876	-0.687

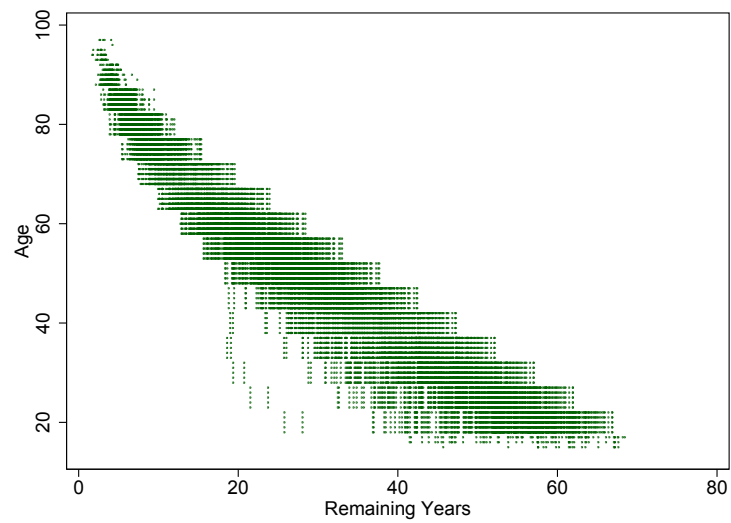


Figure S4: Correlation between Age and Remaining Years of Life

Variance Inflation Factors

Full Sample: Corresponding to Baseline Specification Table 1 Column (1)

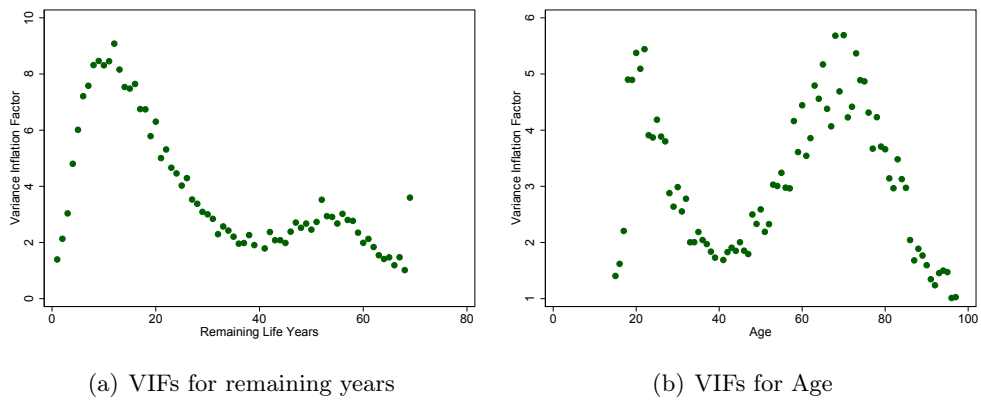


Figure S5: Variance Inflation Factors for coefficients on remaining years and age dummies

Full Sample: Corresponding to Full Specification Table 1 Column (6)

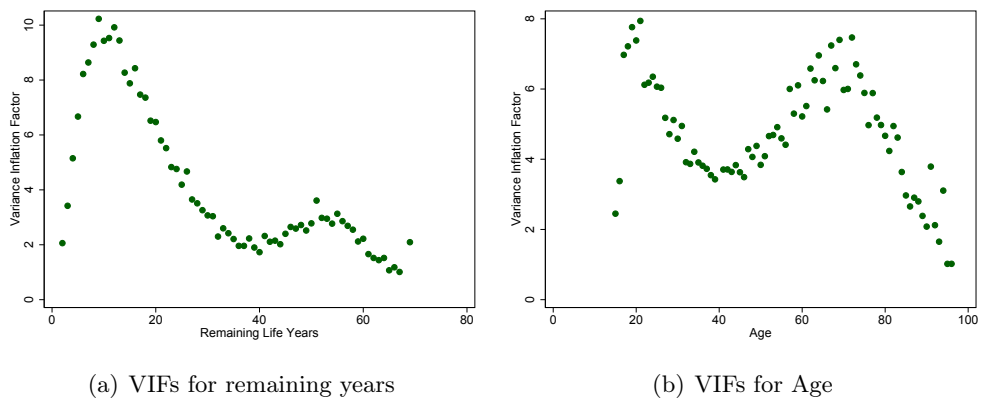


Figure S6: Variance Inflation Factors for coefficients on remaining years and age dummies

Sample Splits

60 years and younger

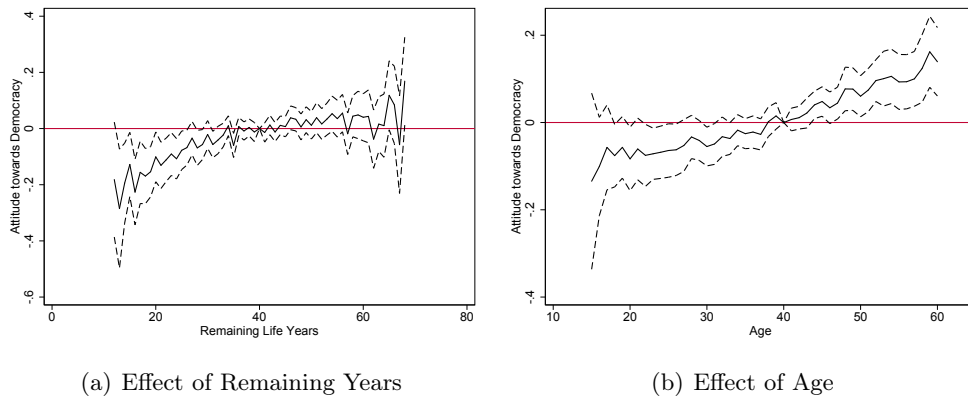


Figure S7: Determinants of Subjective Assessment of Having a Democracy for under 60-year-old people

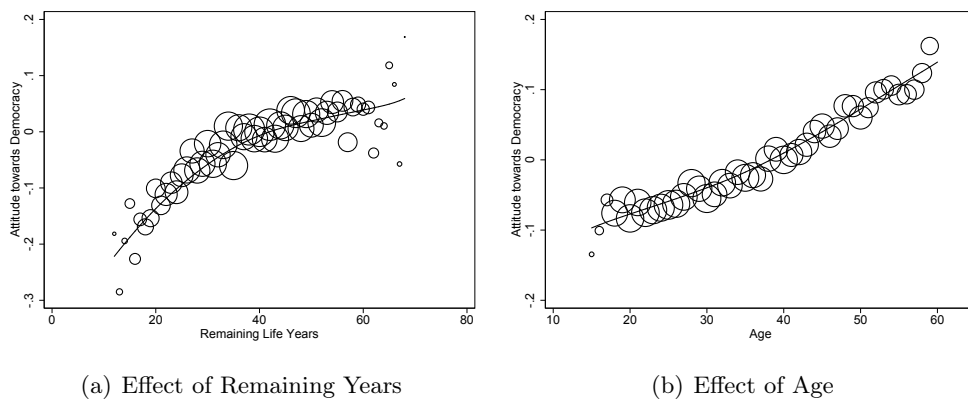


Figure S8: Determinants of Subjective Assessment of Having a Democracy for under 60-year-old people

40 years and younger

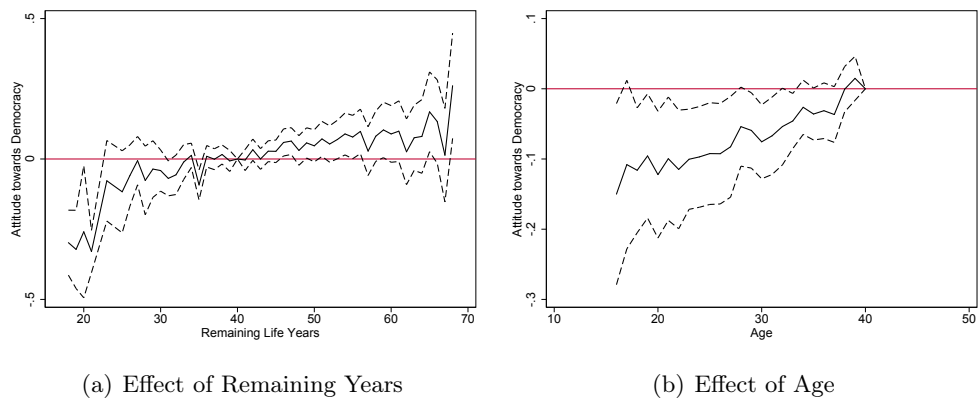


Figure S9: Determinants of Subjective Assessment of Having a Democracy for under 40-year-old people

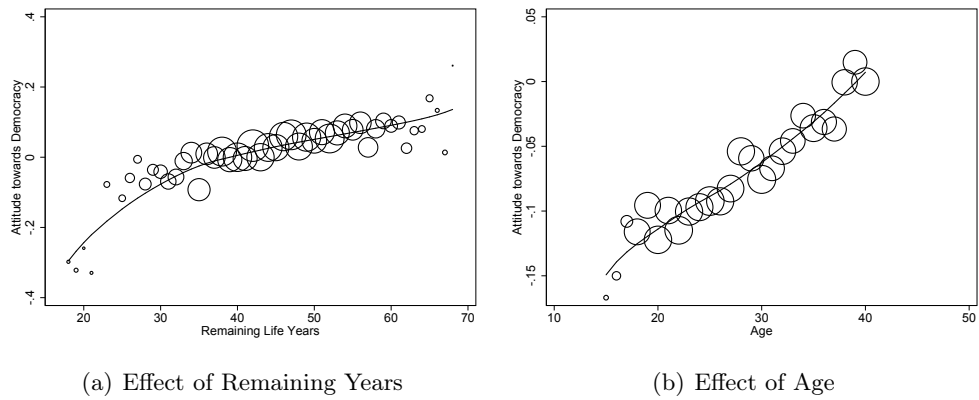


Figure S10: Determinants of Subjective Assessment of Having a Democracy for under 40-year-old people

Variance Inflation Factors

Restricted Sample: Age < 60

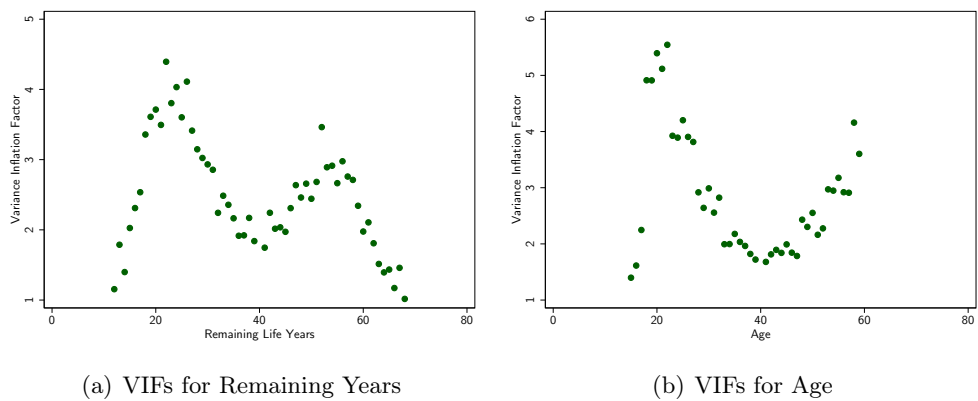


Figure S11: Variance Inflation Factors for coefficients on remaining years and age dummies

Restricted Sample: Age < 40

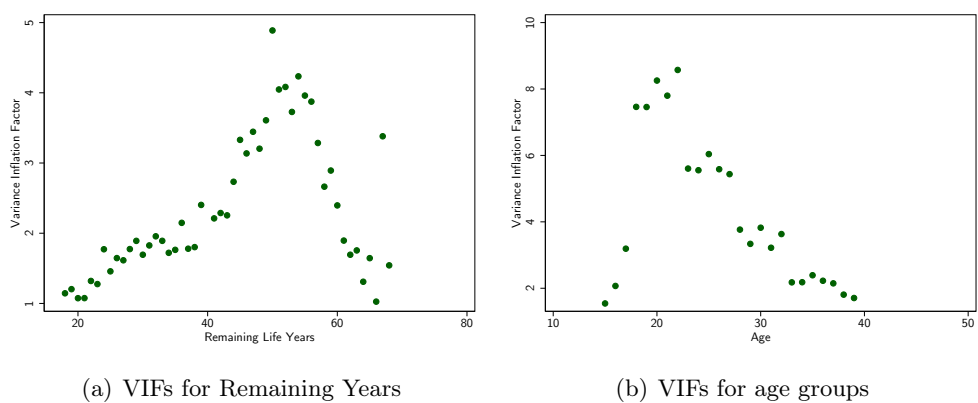


Figure S12: Variance Inflation Factors for coefficients on remaining years and age group dummies

Alternative Specifications

Table S5: Effect of remaining years of life on democratic attitudes: Alternative Specifications

	(1) All Ordered Logit	(2) Western Democracies OLS	(3) Non- Western Democracies OLS
Remaining years of life	0.0376*** (0.0088)	0.0175** (0.0064)	0.0109** (0.0036)
(Remaining years of life) 2	-0.000368*** (0.0001)	-0.000161*** (0.0000)	-0.0000808** (0.0000)
Country FE	✓	✓	✓
Survey round FE	✓	✓	✓
Age FE	✓	✓	✓
Gender FE	✓	✓	✓
R ²		0.06	0.08
N	267,426	62,319	205,107
Cluster	2,909	785	2,124

Ordered Logit estimation in column (1). OLS estimations in columns (2) and (3). Sample of Western democracies in Column (2) includes members of the European Union, Switzerland, Norway, USA, Canada, Australia and New Zealand. Sample in Column (3) includes all other countries contained in the data set. Standard errors (clustered by Country-Agegroup-Gender-Survey Round groups) in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

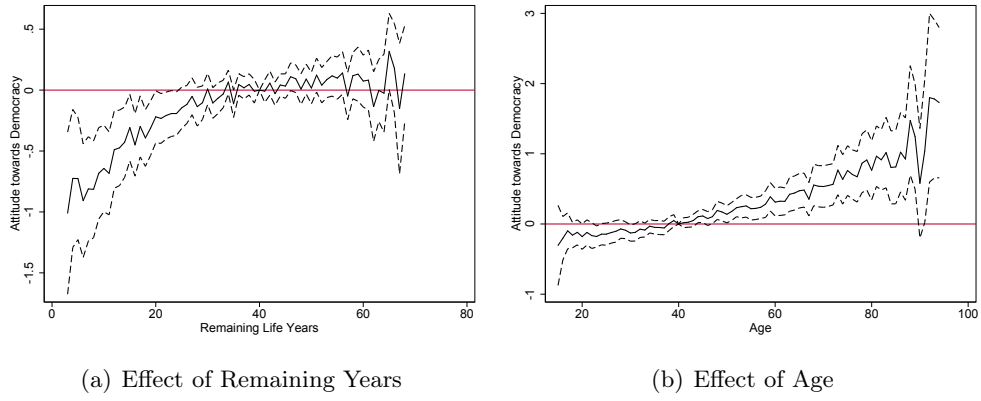


Figure S13: Ordered Logit estimation

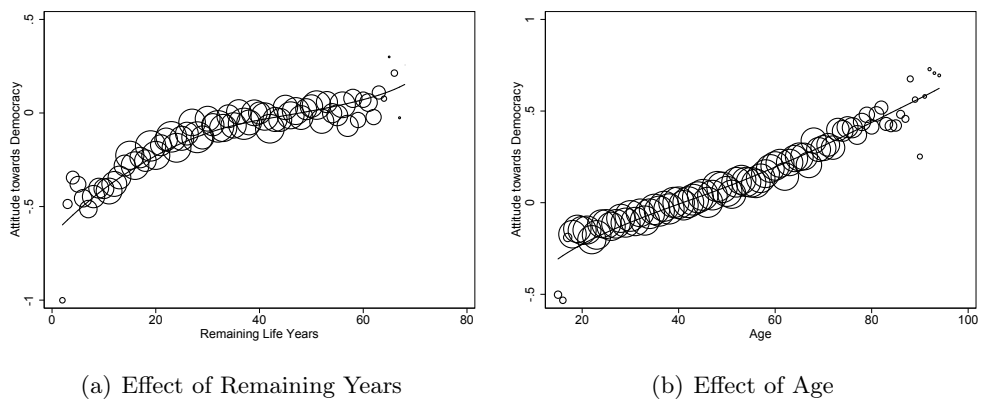


Figure S14: Baseline specification for Western democracies (members of the European Union, Switzerland, Norway, USA, Canada, Australia and New Zealand)

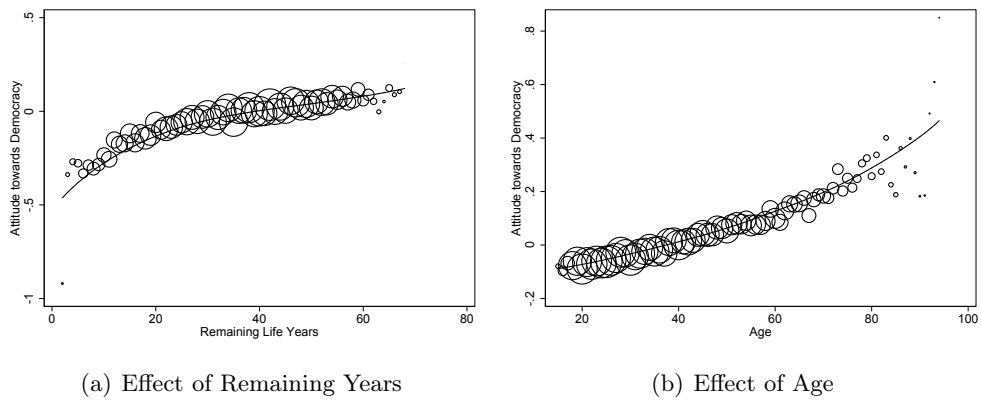


Figure S15: Baseline specification for all other countries, excluding Western democracies

Other Outcomes

Table S6: Effect of remaining years of life on democratic attitudes: Alternative Measures of Democratic Attitudes

	(1) E117	(2) E114	(3) E123	(4) E235	(5) IW Index
Remaining years of life	0.0185*** (0.0044)	0.0223*** (0.0050)	0.0228*** (0.0066)	0.0177** (0.0059)	0.0229*** (0.0053)
(Remaining years of life) 2	-0.000185*** (0.0000)	-0.000140*** (0.0000)	-0.000194* (0.0001)	-0.000245*** (0.0000)	-0.000187*** (0.0001)
Country FE	✓	✓	✓	✓	✓
Age FE	✓	✓	✓	✓	✓
Gender FE	✓	✓	✓	✓	✓
Survey round FE	✓	✓	✓	✓	✓
R ²	0.08	0.14	0.10	0.08	0.20
N	267,426	253,469	99,833	144,461	89,748
Cluster	2,909	2,903	1,181	1,610	1,160

Dependent variables are standardized (mean 0 and standard deviation 1) to facilitate comparison of coefficients. See the description above for details about the content and measurement of the different dependent variables. Standard errors (clustered by Country-Agegroup-Gender-Survey Round groups) in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

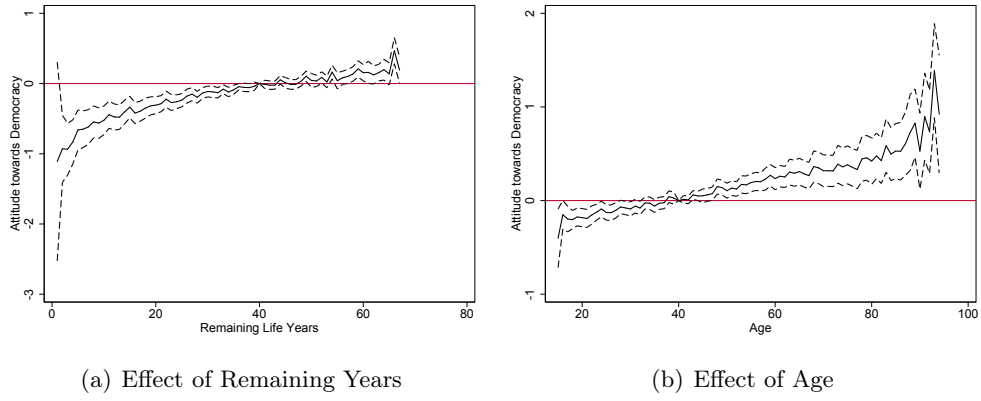


Figure S16: Outcome Variable: E114 (Strong leader)

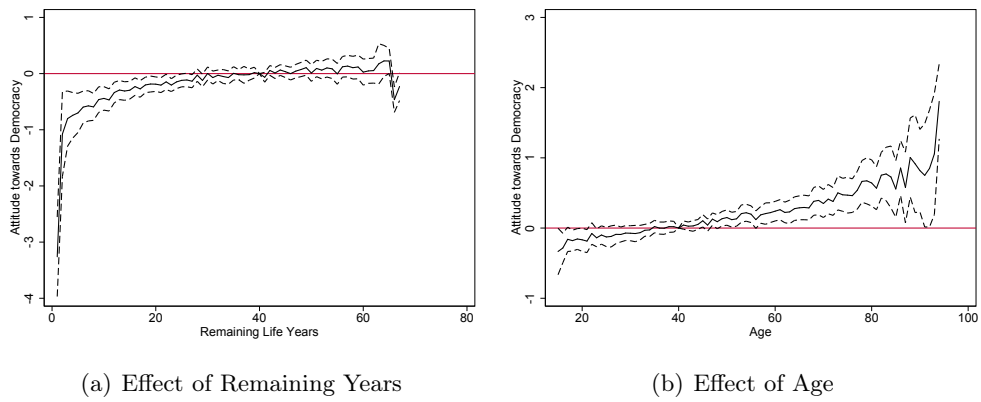


Figure S17: Outcome Variable: E123 (Democracy may have its problems but is better than other forms of government)

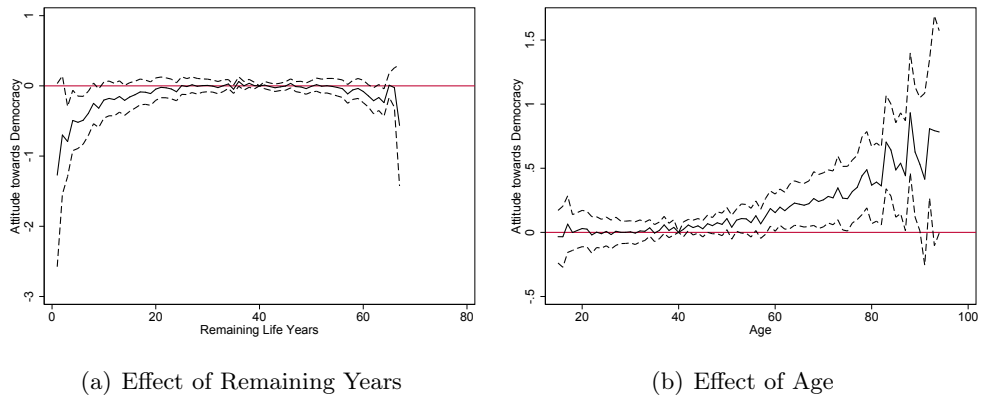
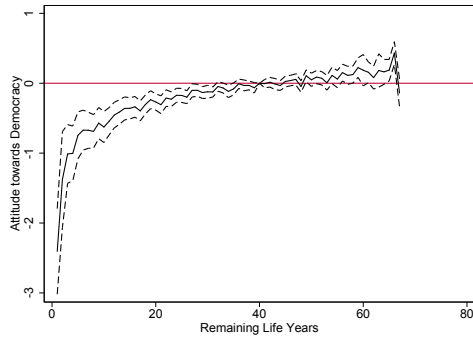
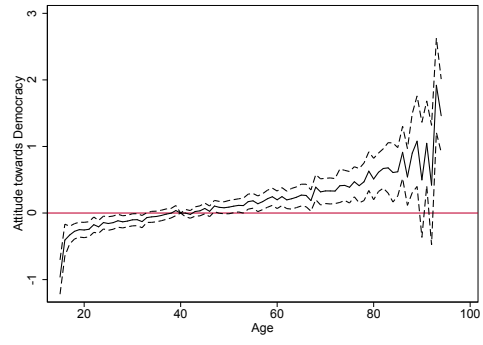


Figure S18: Outcome Variable: E235 (Importance of democracy)



(a) Effect of Remaining Years



(b) Effect of Age

Figure S19: Outcome Variable: IW Index

Beta Coefficients (regression coefficients obtained for all variables standardized with mean 0 and standard deviation of 1)

Table S7: Effect of remaining years of life on democratic attitudes: Beta coefficients corresponding to results in Table 1 Column (1) (extended for individual controls) and (6)

	(1)	(2)
	E117	E117
Remaining Years	0.267	0.269
Remaining Years ²	-0.185	-0.210
Democratic Capital	0.056	0.107
Children	-0.005	-0.005
Subj. Health	0.043	0.040
SEX		
Male	0.03	
TRUST		
High	0.025	0.027
EDUCATION		
No elementary		
Completed elementary	0.003	0.005
Incomplete secondary school	0.004	0.009
Complete secondary school	0.036	0.037
Incomplete university preparation	0.027	0.024
Complete university preparation	0.051	0.054
Some university (w/o degree)	0.062	0.062
University (with degree)	0.104	0.102
Country FE	✓	
Survey period FE	✓	
Age FE	✓	
Marital Status	✓	✓
Income Dummies	✓	✓
Country x Survey period FE		✓
Age x Gender FE		✓
R ²	0.11	0.11
N	195,281	195,281

Standardized regression coefficients (mean of 0 and a standard deviation of 1) reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table S8: Effect of remaining years of life on democratic attitudes:
Beta coefficients corresponding to results in Table S6

	(1)	(2)	(3)	(4)	(5)
	E117	E114	E123	E235	IW Index
Remaining Years	0.253	0.247	0.307	0.306	0.306
Remaining Years ²	-0.180	-0.244	-0.176	-0.183	-0.136
Country FE	✓	✓	✓	✓	✓
Age FE	✓	✓	✓	✓	✓
Gender FE	✓	✓	✓	✓	✓
Survey round FE	✓	✓	✓	✓	✓
R ²	0.08	0.14	0.10	0.08	0.20
N	267,426	253,469	99,833	144,461	89,748
Cluster	2,909	2,903	1,181	1,610	1,160

See the description above for details about the content and measurement of the different dependent variables. Standardized regression coefficients (mean of 0 and a standard deviation of 1) reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.