

# **American Public Support for Democracy Has Declined Generationally**

## **Supplementary Information**

**Table S1: Question Wordings**

| Item labels  | Question wording  | Response set   |
|--|---|--|
| <i>World Values Survey</i>   |   |  |
| 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? |   |  |
| Evaluate democracy   | Having a democratic political system  |  |
| Reject military rule   | Having the army rule  | 1: very good<br>2: fairly good                                       |
| Reject strong leader   | Having a strong leader who does not have to bother with Congress and elections  | 3: fairly bad<br>4: very bad   |
| Reject expert rule   | Having experts, not government, make decisions according to what they think is best for the country   |  |
| Democracy has problems, but is best  | Democracy may have problems but it's better than any other form of government   | 1: agree strongly<br>2: agree<br>3: disagree<br>4: strongly disagree |
| <i>AmericasBarometer</i>   |   |  |
| Democracy has problems, but is best  | Changing the subject again, democracy may have problems, but it is better than any other form of government. To what extent do you agree or disagree with this statement? | 1: strongly disagree<br>2-6: unlabelled<br>7: strongly agree         |

Notes: An additive scale of the five WVS items shows adequate inter-item reliability (Cronbach's alpha = 0.67, mean correlation = 0.28).

**Table S2: Methodological Details of Survey Fieldwork**

**World Values Survey (United States sample)**

1995: <https://www.worldvaluessurvey.org/WVSDocumentationWV3.jsp?COUNTRY=1283>

1999: <https://www.worldvaluessurvey.org/WVSDocumentationWV4.jsp?COUNTRY=507>

2006: <https://www.worldvaluessurvey.org/WVSDocumentationWV5.jsp?COUNTRY=467>

2011: <https://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp?COUNTRY=341>

2017: <https://www.worldvaluessurvey.org/WVSDocumentationWV7.jsp>

**AmericasBarometer (United States sample)**

2006: <http://www.vanderbilt.edu/lapop/usa/2006-techinfo.pdf>

2008: <http://www.vanderbilt.edu/lapop/usa/2008-techinfo.pdf>

2010: <https://www.vanderbilt.edu/lapop/ab2010/2010-Design-Effects.pdf>

2012: <https://www.vanderbilt.edu/lapop/ab2012/AB-2012-Tech-Info-12.18.12.pdf>

2014: <http://www.vanderbilt.edu/lapop/ab2014/AB-2014-Tech-Info-112114-W.pdf>

2017:

[https://www.vanderbilt.edu/lapop/usa/United\\_States\\_AmericasBarometer\\_Tech\\_Info\\_2016\\_17\\_W\\_092217.pdf](https://www.vanderbilt.edu/lapop/usa/United_States_AmericasBarometer_Tech_Info_2016_17_W_092217.pdf)

2019: [https://www.vanderbilt.edu/lapop/usa/US\\_AmericasBarometer\\_2018-19\\_Technical\\_Report\\_W\\_101019.pdf](https://www.vanderbilt.edu/lapop/usa/US_AmericasBarometer_2018-19_Technical_Report_W_101019.pdf)

**Table S3: Parameter Estimates, AmericasBarometer GAM**

|                                      | Parameter estimate | Standard error | Lower 95% CI | Upper 95% CI |
|--------------------------------------|--------------------|----------------|--------------|--------------|
| Birth year spline variance parameter | .51                | .33            | .03          | 1.31         |
| Birth year fixed effect              | -2.36              | 1.25           | -4.33        | .52          |
| Age category variance parameter      | .14                | .16            | .01          | .61          |
| Republican                           | .71                | .05            | .60          | .81          |
| Democrat                             | .41                | .04            | .32          | .49          |
| Has degree                           | .30                | .05            | .20          | .39          |
| Female                               | -.34               | .04            | -.42         | -.27         |
| White                                | .08                | .04            | .00          | .17          |
| Income (standardised within waves)   | .20                | .02            | .16          | .23          |
| South                                | .04                | .04            | -.04         | .11          |
| Year: 2008                           | -1.02              | .14            | -1.30        | -.75         |
| Year: 2010                           | -1.05              | .14            | -1.32        | -.79         |
| Year: 2012                           | -1.10              | .14            | -1.38        | -.82         |
| Year: 2014                           | -1.34              | .14            | -1.62        | -1.07        |
| Year: 2017                           | -1.17              | .14            | -1.45        | -.90         |
| Year: 2019                           | -1.12              | .14            | -1.41        | -.84         |
| Cutpoint1                            | -4.61              | .18            | -4.97        | -4.25        |
| Cutpoint2                            | -4.03              | .18            | -4.39        | -3.67        |
| Cutpoint3                            | -3.28              | .17            | -3.63        | -2.93        |
| Cutpoint4                            | -2.09              | .17            | -2.43        | -1.74        |
| Cutpoint5                            | -1.26              | .17            | -1.61        | -.92         |
| Cutpoint6                            | -.29               | .17            | -.63         | .06          |

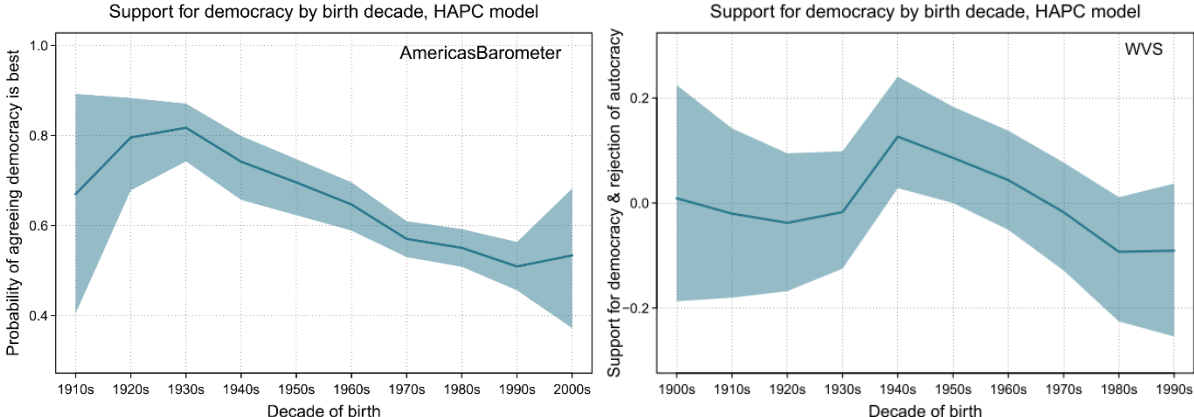
Notes: Results for AmericasBarometer Generalized Additive Model with ordinal logit link function estimated using Bayesian MCMC methods, as implemented in the brms() library for R. Three chains were run in parallel for 2,000 iterations, with the first 1,000 of these being dedicated to warmup of the MCMC algorithm. Convergence was diagnosed by examination of Rhat statistics and posterior predictive plots. “Parameter estimates” are the mean of the posterior distributions for each parameter across the 3,000 post-warmup iterations (i.e.,  $1,000 \times 3$  chains); “standard errors” are the standard deviation of these parameter posterior distributions.

**Table S4: Parameter Estimates, World Values Survey GAM**

|                                      | Parameter estimate | Standard error | Lower 95% CI | Upper 95% CI |
|--------------------------------------|--------------------|----------------|--------------|--------------|
| Birth year spline variance parameter | .66                | .33            | .26          | 1.47         |
| Birth year fixed effect              | -.22               | .74            | -1.69        | 1.23         |
| Age category variance parameter      | .11                | .14            | .01          | .36          |
| Republican                           | .08                | .03            | .02          | .15          |
| Democrat                             | .18                | .03            | .12          | .24          |
| Has degree                           | .43                | .02            | .38          | .48          |
| Female                               | -.15               | .02            | -.19         | -.10         |
| White                                | .25                | .03            | .20          | .31          |
| South                                | -.10               | .02            | -.15         | -.06         |
| Income (standardised within waves)   | .01                | .01            | -.01         | .03          |
| Year: 1999                           | -.33               | .04            | -.41         | -.25         |
| Year: 2006                           | -.31               | .04            | -.39         | -.22         |
| Year: 2011                           | -.34               | .05            | -.43         | -.25         |
| Year: 2017                           | -.44               | .05            | -.55         | -.34         |
| Intercept                            | -.06               | .08            | -.22         | .10          |
| Residual standard deviation          | .94                | .01            | .92          | .96          |

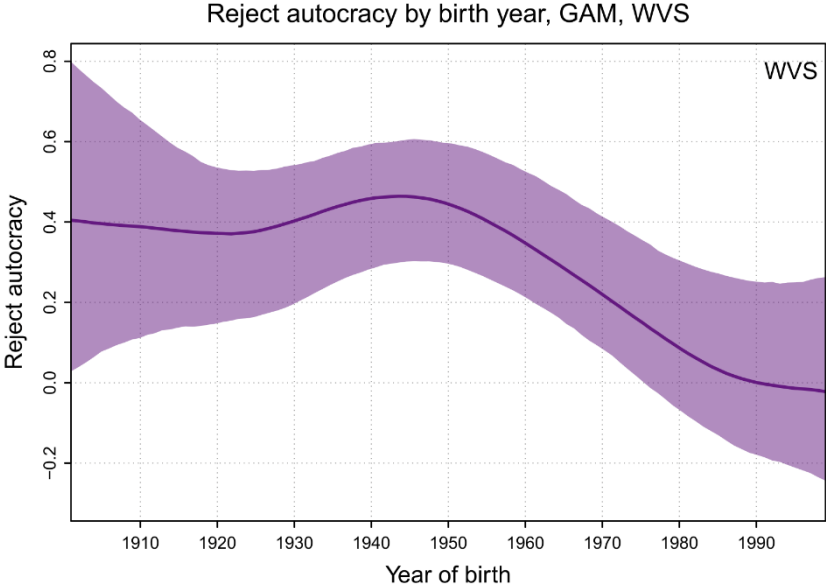
Notes: Results for World Values Survey Generalized Additive Model estimated using Bayesian MCMC methods, as implemented in the brms() library for R. Three chains were run in parallel for 2,000 iterations, with the first 1,000 of these being dedicated to warmup of the MCMC algorithm. Convergence is diagnosed by examination of Rhat statistics and posterior predictive plots. “Parameter estimates” are the mean of the posterior distributions for each parameter across the 3,000 post-warmup iterations (i.e.,  $1,000 \times 3$  chains); “standard errors” are the standard deviation of these parameter posterior distributions.

**Figure S1: Generational Effects, Hierarchical Age-Period-Cohort Models**



Notes: Estimates obtained from HAPC models, estimated using Bayesian MCMC methods. A hierarchical ordered logit specification is used to model the single item fielded by the AmericasBarometer (left); a hierarchical linear specification is used to model the support for democracy scale constructed using the five items fielded by the World Values Survey (right).

**Figure S2: GAM estimates of rejection of authoritarian rule (WVS) by year of birth**



Notes GAM estimates using a scale comprising the three “reject authoritarian rule” questions from the WVS; linear GAM used.