Political Behavior (2021) 43:1685–1705
https://doi.org/10.1007/s11109-021-09741-7

ORIGINAL PAPER

Possible Evolutionary Origins of Nationalism

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Accepted: 27 July 2021 / Published online: 23 August 2021
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Abstract

Why do some individuals support nationalist policies while others don't? The Savanna-IQ Interaction Hypothesis in evolutionary psychology suggests that more intelligent individuals may be more likely to acquire and espouse evolutionarily novel values whereas less intelligent individuals may be more likely to hold evolutionarily familiar values. Nationalism is evolutionarily familiar, so the Savanna-IQ Interaction Hypothesis suggests that less intelligent individuals may be more likely to be nationalist. The analyses of the General Social Survey (GSS) data in the US and the National Child Development Study (NCDS) data in the UK confirmed the prediction. Less intelligent Americans were more likely to have nationalist attitudes, and less intelligent British voters were more likely to support nationalist parties in five general elections over three decades. The tendency of less intelligent individuals to be more nationalist and belligerent may, among other things, form the microfoundation of democratic peace in international relations.

Keywords Psychology of international relations · Genopolitics

Introduction

> In contrast to other political theories, theories of nationalism are few and far between.
> Tamir (2019, p. 420)

Nationalism has been in resurgence in the United States (Lowry, 2019) and in Europe (De Vries, 2018; Noury & Roland, 2020), as symptomized by the election of Donald J. Trump as President and the Brexit referendum vote in 2016. In contrast to more globalist perspective of his predecessor, Barack Obama, Trump's "America

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First" doctrine is unambiguously and unabashedly nationalist. In representative democracy, the stated policies of the head of state are as much reflections of the national zeitgeist as its determinants, and the important question for political science is not why Trump is nationalist but why millions of American voters support his nationalist policies. What makes individuals more or less nationalist?

Political scientists have long studied nationalism and its determinants (Gellner, 1983; Hechter, 2000; Hutchinson & Smith, 1994; Kohn, 1944). While there have been various definitions of nationalism (Bonikowski, 2016, pp. 419–431; Hechter, 2000, pp. 5–9; Hutchinson & Smith, 1994, pp. 15–46), in this paper, I adopt Bertoli's (2017, p. 836) recent definition, based on earlier work on nationalism in political science (Anderson, 1983; Greenfeld, 1992; Hobsbawm, 1990): "the practice of identifying with a nation-state and viewing other nations as fundamentally different—often in negative ways." While the "nation-state" in modern usage, with millions of inhabitants, may be strictly modern, the evolutionary constraints on the human brain (Kanazawa, 2004a) may predispose humans to perceive the distinction between their own nation-state and other nation-states in terms of the more evolutionarily familiar "us vs. them" distinction. Thus Bertoli's definition of nationalism in more evolutionarily meaningful terms may translate into the practice of identifying with the ingroup ("us") and viewing outgroups ("them") as fundamentally different—often in negative ways.

The Savanna-IQ Interaction Hypothesis

One factor that hitherto has not been explored as a potential determinant of individual support for nationalism is intelligence. General intelligence likely evolved to solve evolutionarily novel adaptive problems that our ancestors did not encounter routinely in their environment (Kanazawa, 2004b). As a result, more intelligent individuals are more likely than less intelligent individuals to acquire and espouse *evolutionarily novel* preferences and values that our ancestors did not have during human evolutionary history. In contrast, they are theoretically no more likely than less intelligent individuals to acquire and espouse *evolutionarily familiar* preferences and values that our ancestors had (Kanazawa, 2010a, b). However, in practice, when evolutionarily novel and evolutionarily familiar values form polar opposites (as in liberalism and conservatism in the US; Kanazawa, 2010a), then more intelligent individuals may be less likely to hold evolutionarily familiar values simply by virtue of their greater likelihood to hold evolutionarily novel values, and less intelligent individuals may be more likely to hold evolutionarily familiar values simply by virtue of their lower likelihood to hold evolutionarily novel values. Thus *the Savanna-IQ Interaction Hypothesis* (Kanazawa, 2010a, b) posits that more intelligent individuals are more likely to acquire and espouse evolutionarily novel preferences and values, and less intelligent individuals are more likely to acquire and espouse evolutionarily familiar preferences and values.

Recent studies have used the Savanna-IQ Interaction Hypothesis to demonstrate the relationship between general intelligence and a wide range of evolutionarily novel preferences and values in many domains of life, such as political liberalism,

atheism, being nocturnal, preference for instrumental music, and the consumption of alcohol, tobacco, and psychoactive drugs. For example, Deary et al. (2008) have shown that more intelligent British children were more likely to grow up to support such progressive political parties as the Green Party or the Liberal Democratic Party. In general, as predicted by the Savanna-IQ Interaction Hypothesis, more intelligent individuals are more likely to hold "unnatural" preferences and values that our ancestors likely did not have and that evolution did not design humans to possess. In contrast, less intelligent individuals are more likely to possess "natural" preferences and values that our ancestors likely had and that evolution designed humans to possess (Kanazawa, 2012).

Another evolutionarily "natural" value that humans are likely evolutionarily designed to hold and thus our ancestors likely possessed is nationalism, which may be translated in more evolutionarily familiar terms as strong identification with the ingroup. Humans are an extremely social and physically vulnerable species that depended very heavily on their social groups for survival and protection. Ostracism from their groups was therefore tantamount to a death sentence, which is why the human brain is evolutionarily designed to experience ostracism from group as physical pain (Eisenberger et al., 2003) even when being ostracized is economically profitable (van Beest & Williams, 2006). At the same time, our ancestors engaged in frequent warfare with neighboring groups over mates and resources (Chagnon, 1997). In this context, our ancestors were likely fiercely loyal to one's own group and strongly identified with it. It would have been unthinkable for our ancestors to identify with other groups before their own or feel greater love or loyalty to another group, let alone to all of humanity, than to their own. All of our ancestors were thus likely "nationalist" in the sense of strongly identifying only with their own group and not with any of the outgroups.

Nationalism is therefore evolutionarily familiar and "natural." One of the fundamental assumptions of evolutionary psychology in general, and the Savanna-IQ Interaction Hypothesis in particular, is that modern humans still carry the "stone-age" brains, because there has not been sufficient time and the environment has not been sufficiently stable since the advent of agriculture 10,000 years ago for new complex psychological mechanisms to have evolved (Cochran & Harpending, 2009, pp. 8–10; Miller & Kanazawa, 2007, pp. 25–28; Tooby & Cosmides, 1990). So even though we now live in postindustrial society, modern humans still act as if they were living in the ancestral environment as hunter-gatherers (Kanazawa, 2004a), and we would view the nation-state in which we are citizens as our ingroup while other nation-states in the world would be outgroups. Our ancestors' fierce loyalty to their own hunter-gatherer band would translate, among other things, into nationalism for our nation-state today. We would therefore expect less intelligent individuals to be more fiercely loyal to their own group (their nation-state as well as other groups to which they belong) while more intelligent individuals to be less so. Less intelligent individuals would therefore be more likely to espouse nationalism. However, the Savanna-IQ Interaction Hypothesis would predict that less intelligent individuals are more loyal to *any* of their local, immediate groups (such as their local sports teams) against other, more distant entities. Nationalism remains the focus of the

inquiry here simply because political science has a long history of studying nationalism rather than, for example, loyalty to local sports teams.

This paper follows the footsteps of earlier studies such as Deary et al. (2008), which found that more intelligent children were more likely to grow up to vote for the Liberal Democratic Party and the Green Party in the UK, and Kanazawa (2010a), which found that more intelligent children were more likely to grow up to espouse liberal political values in the US, and explores the association between intelligence and nationalism. In particular, I test the prediction derived from the Savanna-IQ Interaction Hypothesis that less intelligent individuals are more likely than more intelligent individuals to hold more nationalist political preferences in two separate studies with large, nationally representative samples from the United States and the United Kingdom.

Empirical Analysis: United States

Data

The National Opinion Research Center at the University of Chicago has administered the General Social Surveys (GSS), either annually or, more recently, biennially, since 1972. Personal interviews are conducted with a nationally representative sample of non-institutionalized adults over the age of 18 in the United States. The GSS data used in this study are publicly and freely available to download at https://gssdataexplorer.norc.org/pages/show?page=gss%2Fgss_data.

Dependent Variable: Nationalism

In (and only in) 1996, 2004, and 2014, GSS asked a set of questions to assess the respondents' nationalist preference. Specifically, six questions assessed the respondents' attitudes toward American identity. "How much do you agree or disagree with the following statements?"

1. "I would rather be a citizen of America than of any other country in the world."
2. "There are some things about America today that make me feel ashamed of America." (R)
3. "The world would be a better place if people from other countries were more like the Americans."
4. "Generally speaking, America is a better country than most other countries."
5. "People should support their country even if the country is in the wrong."
6. "When my country does well in international sports, it makes me proud to be an American."

For each question, the respondents could choose: 1 = disagree strongly; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; or 5 = agree strongly. The responses were coded uniformly so that higher values always indicated greater support for

nationalism; Question 2 was reverse coded. I summed the respondents' six responses to form a measure of their attitudes toward American identity, which varied from 6 to 30. The attitudes toward American identity scale has previously been used as part of a measure of nationalism in the United States (Bonikowski & DiMaggio, 2016; Smith & Kim, 2006). The summed measure of nationalism was nearly perfectly normally distributed, so I analyzed it with OLS regression.

Independent Variable: Intelligence

The GSS measures the intelligence of its respondents by asking them to select a synonym for a word out of five candidates. Half of the respondents in each GSS sample answer 10 of these questions, and their total score (the number of correct responses) varies from 0 to 10. The raw scores were converted into the standardized IQ metric, with a mean of 100 and a standard deviation of 15. I used this IQ score as a measure of verbal intelligence, which is known to be highly correlated with general intelligence (Huang & Hauser, 1998; Wolfle, 1980).

Control Variables

In addition to the main independent variable, I controlled for the following factors in my multiple regression analyses: Age (chronological age); sex (0 = female, 1 = male); race (with two dummies for black and other races, with white as the reference category); religion (with four dummies for Catholic, Protestant, Jewish, and other religion, with no religion as the reference category); education (years of formal schooling); annual earnings (with 27-point quasi-logarithmic scale, from 0 = no earnings, 1 = less than $1000, to 26 = more than $170,000, here treated as interval); political attitude (1 = extremely conservative, 2 = conservative, 3 = slightly conservative, 4 = moderate, 5 = slightly liberal, 6 = liberal, and 7 = extremely liberal); and survey year (1996, 2004, or 2014).

Results

Table 1 presents the results of the OLS regression analysis. Column (1) shows that, when entered alone, intelligence had a significantly negative association with nationalism ($b = -.052$, $p < .001$, standardized coefficient = $-.200$). Less intelligent individuals expressed a greater degree of nationalism, measured by attitudes toward American identity, than more intelligent individuals did. Column (2) shows that controlling for age, sex, race, religion, education, earnings, political attitude, and survey year attenuated the effect of intelligence on nationalism only very slightly; the standardized coefficient decreased from $-.200$ to $-.159$. The unstandardized coefficient of $b = -.039$ in Column (2) suggested that a one standard deviation increase in intelligence (15 IQ points) decreased the nationalism score by .585 on the scale from 6 to 30, which was 15.9% of the standard deviation in nationalism.

A comparison of standardized coefficients within the regression equation in Column (2) reveals that intelligence had a stronger association with nationalism than did

Table 1 OLS regression of nationalism

	(1)	(2)
Intelligence	−.052***	−.039***
	(.005)	(.007)
	−.200	*−.159*
Sex		.172
		(.170)
		.024
Age		.042***
		(.005)
		.203
Race		
Black		−.040
		(.250)
		−.004
Other		−.299
		(.333)
		−.022
Religion		
Catholic		1.539***
		(.271)
		.187
Protestant		1.209***
		(.251)
		.172
Jewish		1.660**
		(.594)
		.069
Other		.064
		(.390)
		.004
Education		−.179***
		(.034)
		−.144
Earnings		.004
		(.011)
		.009
Political attitude		−.420***
		(.062)
		−.165
Survey year		−.029**
		(.009)
		−.074
Intercept	26.336	83.798
	(.498)	(18.945)
R^2	.040	.201

Table 1 (continued)

	(1)	(2)
n	2691	1501

General Social Surveys, 1996, 2004, 2014

Main entries are unstandardized regression coefficients

(Numbers in parentheses are standard errors)

Numbers in italics are standardized regression coefficients

*$p < .05$; ** $p < .01$; *** $p < .001$

all the variables included in the equation except for age, Christian religion, and political attitude. Quite predictably, older individuals were more nationalist ($b = .042$, $p < .001$, standardized coefficient = .203), and conservatives were more nationalist ($b = -.420$, $p < .001$, standardized coefficient = −.165). Both Catholics ($b = 1.539$, $p < .001$, standardized coefficient = .187) and Protestants ($b = 1.209$, $p < .001$, standardized coefficient = .172) were more nationalist than atheists and agnostics. Even though liberals are more intelligent than conservatives (Kanazawa, 2010a), and liberals are less likely to be nationalist than conservatives are, controlling for political attitude (in addition to all the other factors) did not attenuate the effect of intelligence on nationalism very much. Neither sex nor race predicted nationalism. Education predicted nationalism—more educated individuals were less nationalist—while earnings did not.

Discussion

The analysis of the GSS data strongly supported the prediction that less intelligent individuals are more likely to hold nationalist values. Less intelligent GSS respondents were more likely to endorse nationalist values exhibited in attitudes toward American identity. However, the GSS data have two shortcomings. First, the design of the survey is cross-sectional, where respondents' verbal intelligence and nationalism are measured at the same time. Thus the direction of causality is ambiguous, although it is difficult to imagine how nationalist values can affect one's intelligence. As a general rule, given its very high heritability, when intelligence is correlated with something else, it is almost always the cause, not the effect (Kanazawa, 2014b, 2017, 2019). Second, GSS measures respondents' intelligence with one 10-item synonyms test. It is therefore properly a measure of verbal intelligence, which is only one indicator of general intelligence. In the next section, I test my hypothesis with an entirely different dataset from an entirely different country that addresses these shortcomings of the GSS data.

Empirical Analysis: United Kingdom

Data

The National Child Development Study (NCDS) is a large, ongoing, and prospectively longitudinal study that has followed a *population* (not a sample) of British respondents since birth for over half a century. The study included *all* babies ($n = 17{,}419$) born in Great Britain (England, Wales, and Scotland) during one week (03–09 March 1958). The respondents were subsequently reinterviewed in 1965 (Sweep 1 at age 7; $n = 15{,}496$), 1969 (Sweep 2 at age 11; $n = 18{,}285$), 1974 (Sweep 3 at age 16; $n = 14{,}469$), 1981 (Sweep 4 at age 23; $n = 12, 537$), 1991 (Sweep 5 at age 33; $n = 11{,}469$), 1999–2000 (Sweep 6 at age 41–42; $n = 11{,}419$), 2004–2005 (Sweep 7 at age 46–47; $n = 9534$), 2008–2009 (Sweep 8 at age 50–51; $n = 9790$), and 2013 (Sweep 9 at age 55; $n = 9137$). There were more respondents in Sweep 2 than in the original sample (Sweep 0) because Sweep 2 sample included eligible children who were in the country in 1969 but not in 1958. In each sweep, personal interviews and questionnaires were administered to the respondents, to their mothers, teachers, and doctors during childhood, and to their partners and children in adulthood. Virtually all (97.8%) of the NCDS respondents were Caucasian. The NCDS data are publicly and freely available to registered users of the UK Data Service (https://ukdataservice.ac.uk/).

Dependent Variable: Support for Nationalist Political Parties

At every sweep after the cohort members turned 18 (except for Sweep 7), NCDS asked respondents two questions about the last general election before the interview: Whether the respondent voted in the general election, and, if so, which party the respondent voted for. Table 2 presents the list of political parties included in the survey in each NCDS sweep, the general election year, and how they are classified either as a nationalist or a non-nationalist political party. In Sweep 7, NCDS asked whether the respondent voted in the 2001 general election, but did not ask which party they voted for.

In the primary analysis, I first created a dummy to measure whether the respondent voted for a nationalist party in each general election. I included only voters in the primary analysis, and used binary logistic regression to analyze whether the NCDS respondents voted for a nationalist party. In addition, I counted the number of times (0–5) that each NCDS respondent voted for a nationalist party in the five general elections over 30 years. Because this is a count measure with overdispersion ($M = .213$, $s^2 = .496$), I analyzed it with negative binomial regression (Hilbe, 2007). I included only respondents who voted in all five general elections in this analysis of the cumulative count.

In the secondary analysis, I included all respondents (voters and nonvoters) and created a trinary variable for each general election: 0 = did not vote, 1 = voted for a nationalist party, 2 = voted for a non-nationalist party. I analyzed the trinary variable in the secondary analysis with a multinomial logistic regression.

Table 2 Classification of political parties, by general election

General election year (NCDS sweep)	Non-nationalist parties	Nationalist parties
1979 (4)	Conservative, Labour, Liberal, Communist, Workers Revolution, other	Welsh Nationalist, Scottish Nationalist, National Front
1987 (5)	Conservative, Labour, Liberal/Social Democrat/Alliance, Communist, other	Welsh Nationalist, Scottish Nationalist
1997 (6)	Conservative, Labour, Liberal Democrat, Green, other	Plaid Cymru, Scottish Nationalist, Referendum
2005 (8)	Conservative, Labour, Liberal Democrat, Green, other	Plaid Cymru, Scottish Nationalist, UK Independence
2010 (9)	Conservative, Labour, Liberal Democrat, Green, other	Plaid Cymru, Scottish Nationalist, UK Independence

National Child Development Study

Welsh Nationalist/Plaid Cymru and Scottish Nationalist parties are nationalist in a slightly different sense than National Front, Referendum, and UK Independence parties are. The latter parties identify with the nation-state (United Kingdom) as opposed to Europe and the rest of the world, whereas the former parties identify with the nation (Wales or Scotland) as opposed to the rest of the United Kingdom. In either case, however, supporters of all nationalist parties in my classification identify with the smaller and more immediate polity (nation or nation-state) against those of the larger and more distant polity (United Kingdom or Europe). In other words, all nationalist parties identify with the ingroup "us" as opposed to the outgroup "them."

Independent Variable: General Intelligence

The NCDS respondents took multiple intelligence tests at ages 7, 11, and 16. At 7, the respondents took four cognitive tests: Copying Designs Test, Draw-a-Man Test, Southgate Group Reading Test, and Problem Arithmetic Test. At 11, they took five cognitive tests: Verbal General Ability Test, Nonverbal General Ability Test, Reading Comprehension Test, Mathematical Test, and Copying Designs Test. At 16, they took two cognitive tests: Reading Comprehension Test, and Mathematics Comprehension Test. I performed a factor analysis at each age to compute their general intelligence score for each age. All cognitive test scores at each age loaded only on one latent factor, with reasonably high factor loadings (age 7: Copying Designs = .671, Draw-a-Man = .696, Southgate Group Reading = .780, and Problem Arithmetic = .762; age 11: Verbal General Ability = .920, Nonverbal General Ability = .885, Reading Comprehension = .864, Mathematical = .903, and Copying Designs = .486; age 16: Reading Comprehension = .909, and Mathematics Comprehension = .909). Then I performed another factor analysis to compute a childhood general intelligence score from the three scores at ages 7, 11, and 16. The three scores loaded only on one latent factor, with extremely high factor loadings (age 7 = .867; age 11 = .946, age 16 = .919). I converted the childhood general intelligence score into the standard IQ metric, with a mean of 100 and standard deviation of 15. I used the childhood general intelligence score in the standard IQ metric as my main independent variable.

Measures of general intelligence, especially those that consist of multiple tests as is the case here, are extremely accurate; their reliability is estimated to be about .90–.99 (Jensen, 1997, pp. 49–50), and they have high predictive validity for a wide range of educational, economic, and social outcomes (Jensen, 1997, pp. 270–305). Contrary to popular belief, they are not culturally biased against any group in that their predictive validity is comparable for all groups (Gottfredson, 1997, p. 14; Jensen, 1980; Kanazawa, 2012, pp. 38–40; Neisser et al., 1996, p. 93).

Control Variables

In my multiple regression analyses, I controlled for the respondent's sex (0 = female, 1 = male), religion (with three dummies for Roman Catholic, Anglican, and other Christian, with other religion or none as the reference), education (with a five-point ordinal scale: 0 = no qualification; 1 = CSE 2–5/NVQ 1; 2 = O levels/NVQ 2; 3 = A levels/NVQ 3; 4 = higher qualification/NVQ 4; 5 = degree/NVQ 5–6); and earnings (natural log of annual earnings in GBP1K). NCDS does not measure the respondents' political attitude on the liberal–conservative scale, as GSS does, apart from the political party they voted for in the last general election. Note that both race and age are constants in the NCDS data.

Table 3 Binary logistic/negative binomial regression of voter support for nationalist parties

	General election year					
	1979		1987		1997	
	(1)	(2)	(3)	(4)	(5)	(6)
Childhood intelligence	−.016**	−.029**	−.020**	−.027**	−.009	−.015
	(.005)	(.010)	(.007)	(.009)	(.005)	(.008)
Sex		.232		.122		.211
		(.229)		(.217)		(.174)
Religion						
Catholic		−.144		.119		−.697*
		(.402)		(.357)		(.333)
Anglican		−1.310***		−2.302***		−1.684***
		(.380)		(.598)		(.292)
Other Christian		1.328***		1.622***		.428*
		(.249)		(.226)		(.209)
Education		.003		−.012		−.008
		(.098)		(.092)		(.075)
Earnings		−.008		.030		−.008
		(.020)		(.021)		(.018)
Constant	−1.760	−.641	−1.763	−1.049	−2.338	−1.475
	(.535)	(.883)	(.659)	(.829)	(.529)	(.726)
Nagelkerke R^2	.007	.113	.009	.137	.002	.087
n	4830	2566	5005	4186	5090	4269
	General election year				Cumulative	
	2005		2010		(1979–2010)	
	(7)	(8)	(9)	(10)	(11)	(12)
Childhood intelligence	−.020***	−.022***	−.022***	−.021***	−.015***	−.015**
	(.004)	(.007)	(.004)	(.006)	(.004)	(.006)
Sex		.212		.476***		.306**
		(.148)		(.132)		(.118)
Religion						
Catholic		.087		−.017		.204
		(.338)		(.313)		(.237)
Anglican		−.143		−.779*		−.637**
		(.272)		(.306)		(.247)
Other Christian		.468		.233		.547**
		(.285)		(.271)		(.205)
Education		.051		−.022		.028
		(.064)		(.057)		(.052)
Earnings		−.027*		−.013		−.001
		(.013)		(.010)		(.010)
Constant	−.718	−.751	−.042	−.184	.054	−.155
					(.441)	
	(.451)	(.587)	(.418)	(.533)		(.511)

Table 3 (continued)

	General election year				Cumulative	
	2005		2010		(1979–2010)	
	(7)	(8)	(9)	(10)	(11)	(12)
Nagelkerke R^2	.012	.019	.016	.038		
Likelihood ratio χ^2 ($df=1$)					12.309	33.260
n	4202	3443	3654	2830	1803	1617

National Child Development Study

Main entries are unstandardized coefficients

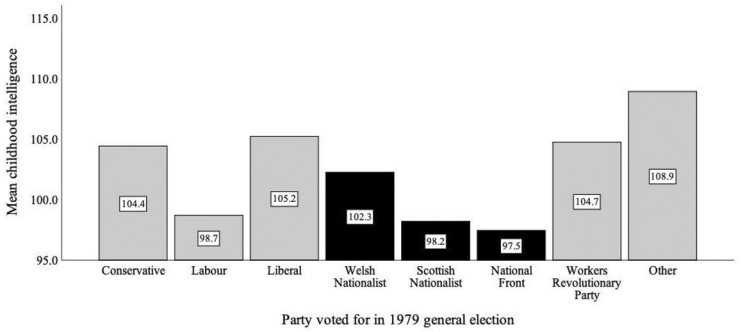
(Entries in parentheses are standard errors)

*$p<.05$; ** $p<.01$; *** $p<.001$

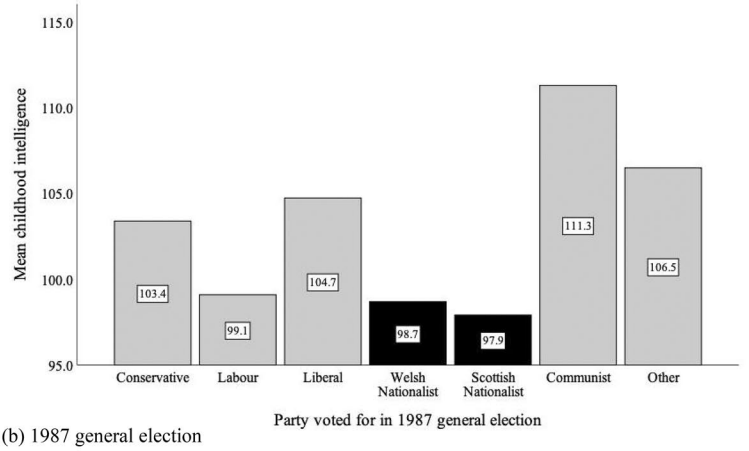
Results

Table 3, Columns (1)–(10), present the results of the binary logistic regression analysis. The first column within each general election (the odd-numbered column) shows the bivariate association between childhood general intelligence and whether or not the respondent voted for a nationalist party, and the second column within each general election (the even-numbered column) shows the same association when all the control variables are entered into the regression equation. Childhood general intelligence was significantly negatively associated with voting for a nationalist party, whether entered alone or with controls, for all general elections, except for 1997. In 1997, childhood general intelligence was still negatively associated with voting for a nationalist party, but the association was not statistically significant (Column (5): $p=.070$; Column (6): $p=.050$). In every election except for 2010, the association between childhood general intelligence and voting for a nationalist party became stronger with statistical controls for sex, religion, education, and earnings than without. Table 3, Columns (11)–(12), present the results of the negative binomial regression with the number of times that the respondent voted for a nationalist party (0–5) in five general elections over 30 years as the dependent variable. Column (10) shows that childhood general intelligence was negatively associated with the number of times the respondent voted for a nationalist party ($b=-.015$, $p<.001$), and Column (11) shows that controlling for religion, education, and earnings did not at all change the magnitude of the association ($b=-.015$, $p=.007$).

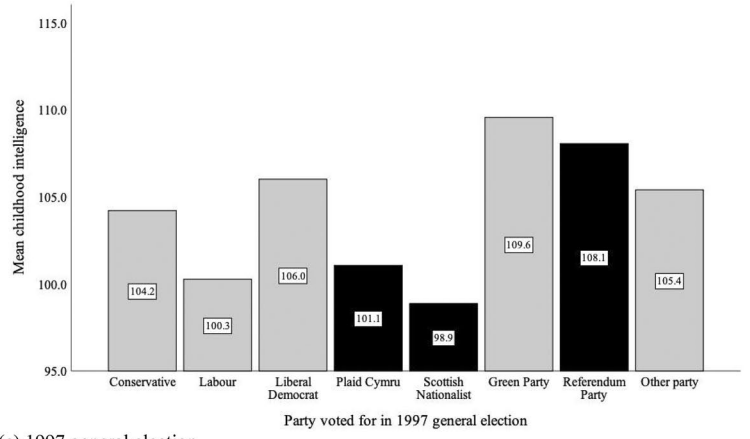
The effect of childhood general intelligence on support for a nationalist political party was substantial in its magnitude. For example, in the 1979 general election, net of sex, religion, education, and earnings, a one standard deviation increase in childhood general intelligence (15 IQ points) decreased the odds of voting for a nationalist political party by 35% ($e^{(-.029*15)}=.647$). Comparable standardized effects were 33% for the 1987 general election ($e^{(-.027*15)}=.667$), 20% for the 1997 general election ($e^{(-.015*15)}=.799$), 28% for the 2005 general election ($e^{(-.022*15)}=.719$), and 27% for the 2010 general election ($e^{(-.021*15)}=.730$).



(a) 1979 general election

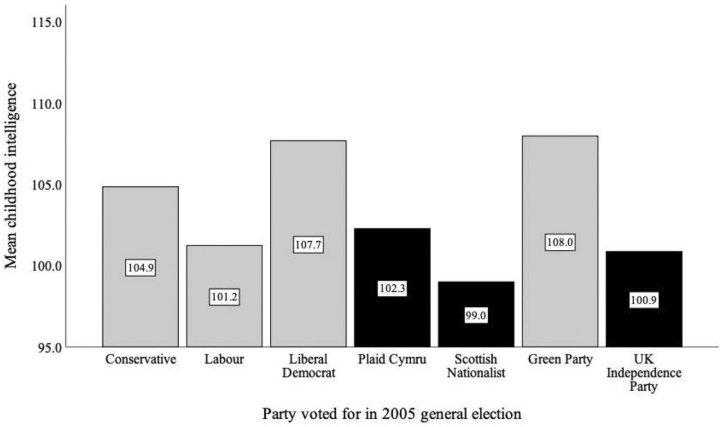


(b) 1987 general election

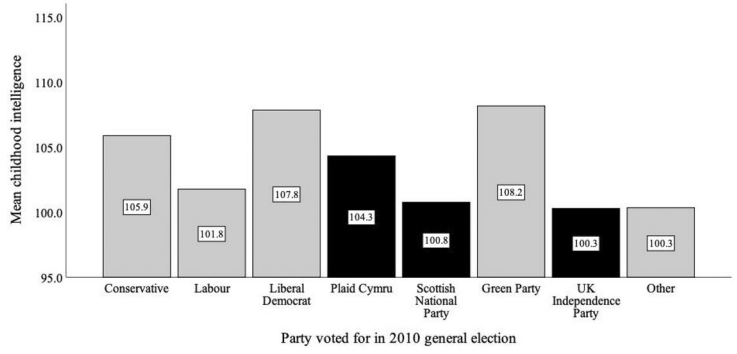


(c) 1997 general election

Fig. 1 Mean childhood general intelligence, by party voted for in the general election. Nationalist parties are represented in black, and non-nationalist parties are represented in gray



(d) 2005 general election



(e) 2010 general election

Fig. 1 (continued)

A comparison of unstandardized regression coefficients across binary logistic regression models in Table 3 shows that childhood general intelligence was the only variable included in the analysis that was consistently associated with support for nationalist political parties. In most elections, Anglicans tended to be less nationalist, and other Christians tended to be more nationalist. Neither sex, education, nor earnings had consistent significant effects on nationalism across the five general elections.

Figure 1, Panels (a–e), graphically present the mean childhood general intelligence of NCDS respondents by the party they voted for in each general election. Nationalist parties are in black, and non-nationalist parties are in gray. Panel (c) suggests that the reason that the negative association between childhood general intelligence and voting for a nationalist party did not reach statistical significance in 1997 was because of an anomaly of the Referendum Party. The 21 respondents who voted for the Referendum Party in the NCDS Sweep 6 sample had an unusually high mean childhood general intelligence (IQ = 108.1). If I excluded these 21 Referendum

Party voters, the association between childhood general intelligence and voting for a nationalist party in the 1997 general election became statistically significant both when entered alone ($b = -.014$, SE = .005, $p = .010$) and when entered with controls ($b = -.023$, SE = .008, $p = .005$). The Referendum Party in the UK was extremely short-lived and was in existence only from 1994 to 1997. Apart from this singular anomaly presented by the Referendum Party and its very few supporters, Fig. 1, Panels (a–e), show that voters for nationalist parties generally tended to have lower mean childhood general intelligence than those for non-nationalist parties, with the possible exception of Labour voters.

Table 4 presents the results of the multinomial logistic regression analysis that includes nonvoters. They show that, compared to nonvoters (the reference category), voters for non-nationalist parties were significantly ($p = .030$ in 1979, $p < .001$ in all other years) more intelligent, and voters for nationalist parties were either significantly (in 1979) or nonsignificantly (in all other years) less intelligent. Thus, in terms of childhood general intelligence, nonvoters appears to be somewhere between nationalist voters and non-nationalist voters.

While childhood general intelligence was associated with the lifetime number of times voting in general elections (0–6), in a negative binomial regression with the same control variables as in Table 3, Column (12), childhood general intelligence was less than a third as strongly associated with the lifetime number of times voting as it was with the cumulative number of times voting for a nationalist party ($b = .004$, $p = .020$, vs. $b = -.015$, $p = .007$). Thus, consistent with the prediction of the Savanna-IQ Interaction Hypothesis, childhood general intelligence was much more predictive of voting for a nationalist party than voting itself.

Discussion

The NCDS data use an entirely different measure of nationalism (electoral support for a nationalist political party, as opposed to attitudes used in the GSS data), and correct for two problems with GSS (cross-sectional design and an oblique measure of general intelligence). NCDS is prospectively longitudinal and measures general intelligence in childhood, decades before the dependent measures of voting behavior. It has an extremely accurate measure of general intelligence, taken from 11 cognitive tests administered at three different ages in childhood. Yet the results with the NCDS data were identical to the results with the GSS data, and equally supported my hypothesis. Less intelligent individuals were more nationalist; they were more likely to vote for nationalist political parties than more intelligent individuals were. Nationalist voters also appeared to be slightly less intelligent than nonvoters.

General Discussion

The analysis of the General Social Survey and the National Child Development Study data confirmed the prediction derived from the Savanna-IQ Interaction Hypothesis that less intelligent individuals are more likely to express evolutionarily

Table 4 Multinomial logistic regression of voter support for nationalist and non-nationalist parties (reference category = abstention)

	General election year					
	1979		1987		1997	
	Non-nationalist	Nationalist	Non-nationalist	Nationalist	Non-nationalist	Nationalist
	(1)	(2)	(3)	(4)	(5)	(6)
Childhood intelligence	.007*	−.021*	.013***	−.015	.013***	−.003
	(.003)	(.010)	(.003)	(.010)	(.003)	(.008)
Sex	−.020	.270	−.117	.015	−.116	.102
	(.074)	(.230)	(.072)	(.220)	(.071)	(.181)
Religion						
Catholic	.196	.045	.329*	.436	.297*	−.399
	(.122)	(.406)	(.128)	(.369)	(.134)	(.348)
Anglican	.375***	−.942*	.337***	−1.973**	.174	−1.510***
	(.082)	(.382)	(.079)	(.601)	(.097)	(.300)
Other Christian	.265*	1.595***	−.024	1.600***	.185	.615**
	(.115)	(.257)	(.113)	(.238)	(.108)	(.224)
Education	.134***	.135	.139***	.126	.188***	.180*
	(.032)	(.099)	(.031)	(.094)	(.031)	(.079)
Earnings	.030***	.023	.004	.037	.011	.006
	(.006)	(.020)	(.006)	(.021)	(.007)	(.018)
Constant	−.487	−1.163	−.462	−1.469	−.564	−1.979
	(.289)	(.871)	(.274)	(.829)	(.293)	(.754)
Nagelkerke R^2	.062		.066		.064	
n	3835		5364		5391	

	General election year			
	2005		2010	
	Non-nationalist	Nationalist	Non-nationalist	Nationalist
	(7)	(8)	(9)	(10)
Childhood intelligence	.016***	−.006	.019***	−.002
	(.003)	(.007)	(.004)	(.006)
Sex	−.024	.193	.052	.535***
	(.073)	(.156)	(.080)	(.142)
Religion				
Catholic	.800***	.867*	.634**	.592
	(.223)	(.386)	(.229)	(.362)
Anglican	.632***	.482	.559***	−.204
	(.151)	(.298)	(.159)	(.330)
Other Christian	.327	.794*	.403	.649*
	(.188)	(.319)	(.210)	(.316)

Table 4 (continued)

	General election year			
	2005		2010	
	Non-nationalist	Nationalist	Non-nationalist	Nationalist
	(7)	(8)	(9)	(10)
Education	.217***	.267***	.236***	.206***
	(.032)	(.068)	(.035)	(.061)
Earnings	.011	− .016	.005	− .008
	(.007)	(.014)	(.007)	(.011)
Constant	− 1.226	− 1.915	− 1.685	− 1.892
	(.292)	(.616)	(.324)	(.558)
Nagelkerke R^2	.074		.084	
n	4581		3777	

National Child Development Study

Main entries are unstandardized coefficients

(Entries in parentheses are standard errors)

*$p < .05$; **$p < .01$; ***$p < .001$

familiar nationalist preferences. With the GSS data, even net of age, sex, race, religion, education, earnings, political attitude, and survey year, intelligence had a significant effect on nationalism. With the NCDS data, even net of sex, religion, education, and earnings, less intelligent individuals were more likely to vote for a nationalist political party in every general election, except for 1997, where the anomaly presented by Referendum Party weakened the result. A one standard deviation increase in childhood general intelligence decreased the odds of voting for a nationalist political party by anywhere from 20 to 35%.

While the data analyzed in this paper supported one prediction from the Savanna-IQ Interaction Hypothesis that less intelligent individuals are more likely to be nationalist, the group boundary for a nation-state is necessarily arbitrary. The Savanna-IQ Interaction Hypothesis merely predicts that less intelligent individuals are more likely to be loyal *to their own group* while more intelligent individuals are more likely to be less loyal to it. It merely predicts that less intelligent individuals identify more strongly with their ingroup ("us" vs. "them") than more intelligent individuals do. The crucial boundary for "their own group" or the "ingroup" can be drawn elsewhere, and other plausible predictions can be drawn from the Savanna-IQ Interaction Hypothesis, such as less intelligent individuals are more likely to be loyal to their state and more intelligent individuals are more likely to be loyal to other states or the whole nation, or less intelligent individuals are more likely to be loyal to their city and more intelligent individuals are more likely to be loyal to other cities in the state or the whole state. In the latter instances, unlike nationalists, we lack the appropriate concepts and terminology, such as "statists" or "municipalists." Further theoretical developments and empirical research are clearly necessary to explore other implications of the Savanna-IQ Interaction Hypothesis, draw where

the pertinent group boundaries might be, and determine whether empirical data support these other predictions with regard to smaller (or larger) geographical boundaries. Would less intelligent individuals be more likely to be loyal to their own galaxy while more intelligent individuals would be more likely to be loyal to the intergalactic federation?

There are some limitations in the studies. First, the prediction derived from the Savanna-IQ Interaction Hypothesis was tested with data from the US and the UK, two Anglophone western representative democracies with very similar political institutions. The prediction that less intelligent individuals are more likely to be nationalist must be tested further in non-western, non-democratic societies. Second, the measure of general intelligence in the American data was very oblique and the GSS data were cross-sectional, making a causal interpretation difficult. However, both of these shortcomings were rectified and compensated by the very strong measure of general intelligence in the prospectively longitudinal British data. Third, observed effect sizes measured by the explained variance (R^2) were relatively small. However, Darlington (1990) and Funder and Ozer (2019) specifically argue against the use of R^2 as a measure of effect size and instead recommend using r. Abelson (1985) and Funder and Ozer (2019) convincingly demonstrate that even correlations as small as $r = .05$ may have a large consequential cumulative effect. Finally, in any study of the effect of intelligence, it is important to control for education, because, net of each other, intelligence and education sometimes have opposite effects. For example, more intelligent Americans are more likely to smoke tobacco while more educated Americans are less likely to do so (Kanazawa & Hellberg, 2010). However, given that childhood intelligence is causally prior to educational attainment, including both in an equation can potentially lead to biased estimates (Acharya et al., 2016). Caution is thus necessary in interpreting the results of the studies reported above.

There are inevitable normative concerns with any empirical finding that some groups of individuals are on average more intelligent than those in other groups. However, as Kanazawa (2012) forcefully argues, such normative concerns stem entirely from the unquestioned and (in Kanazawa's mind) indefensible equation of intelligence with human worth and character. People—academics and civilians alike—implicitly assume that to say that some individuals are less intelligent on average than others is tantamount to saying that such individuals are less worthy human beings. Without this unwarranted equation of intelligence with human worth, there would be no concern for normative implications of findings of average differences in intelligence between groups. It is well established empirically, for example, that some groups of individuals on average are taller or have higher blood pressure than others, but there are no normative implications of such findings because nobody equates height or (low) blood pressure with human worth; nobody thinks that taller people or people with lower blood pressure are better or more worthy human beings than others in the way that people seem to think that people with higher intelligence are better or more worthy human beings. Kanazawa (2012) argues that it is this unwarranted equation of intelligence with human worth that should be rejected on moral grounds, not the empirical findings of average

group differences in intelligence. Intelligence is just another measurable quantitative human trait like height or blood pressure.

My results from two population surveys from two of the oldest democracies in the world have significant implications for many areas of political science and international relations. For example, the democratic peace proposition (Ray, 1998) suggests that democracies are less likely to wage wars than authoritarian states are and they do not engage in wars with each other, but the exact mechanism of such democratic peace remains a matter of debate (Bueno de Mesquita et al., 1999; Dixon, 1994). My results above suggest a hitherto unexplored micromechanism of democratic peace in international relations.

Average intelligence of the population in democratic nations are higher than those of authoritarian states (Vanhanen, 2003), probably because representative democracy is evolutionarily novel (Kanazawa, 2012, pp. 199–204), and my results suggest that more intelligent populations are less nationalist. Prior studies show that nationalist individuals are more belligerent and less cooperative (Bonikowski & DiMaggio, 2016; Citrin et al., 1994; Hassin et al., 2007; Kemmelmeier & Winter, 2008) and a surge of nationalism often leads to interstate wars (Bertoli, 2017; Schrock-Jacobson, 2012; van Evera, 1994). Thus one mechanism for democratic peace in international relations may be the preferences of the citizens of democracies to have less nationalist (less purely self-interested and more cooperative) relations with other nations. If this is the case, then it lends greater support to the monadic version of democratic peace (which avers that democracies are uniformly more peaceful and less belligerent toward all other nations, democratic or otherwise, than authoritarian states are; Rummel, 1983) than to the dyadic or separate version (which avers that democracies are peaceful only toward other democracies, while at the same time just as belligerent toward authoritarian states as authoritarian states are; Doyle, 1983) (MacMillan, 2003). However, more theoretical and empirical research is clearly necessary to elucidate the potential role of the average intelligence of populations in the production of democratic peace.

Given the strong effect of intelligence on nationalism documented above, and given that the average intelligence of populations of western postindustrial societies is slowly declining in the twenty-first century in such nations as Australia (Cotton et al., 2005), Denmark (Teasdale & Owen, 2005), Norway (Sundet et al., 2004), and the United Kingdom (Shayer & Ginsburg, 2009; Shayer et al., 2007), due likely to the long-term consequences of dysgenic fertility (Kanazawa, 2014a), we can expect that such advanced industrial nations to experience greater levels of nationalist preference among their citizens, and, if my speculations about the microfoundations of democratic peace are correct, greater likelihood of interstate wars, over time in the near future.

Data Availability All replication materials are available at https://doi.org/10.7910/DVN/VCWAXV.

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