A four-party view of US environmental concern

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Research on US public concern about environmental issues finds ideology or political party are the most consistent background predictors. Party is commonly defined by three groups: Democrats, Republicans, and Independents. Here, using statewide New Hampshire survey data, we elaborate this approach to distinguish a fourth group: respondents who say they support the Tea Party movement. On 8 out of 12 science- or environment-related questions, Tea Party supporters differ significantly from non–Tea Party Republicans. Tea Party supporters are less likely than non–Tea Party Republicans to trust scientists for information about environmental issues, accept human evolution, believe either the physical reality or the scientific consensus on anthropogenic climate change, or recognise trends in Arctic ice, glaciers, or CO_2. Despite factual gaps, Tea Party supporters express greater confidence in their own understanding of climate change. Independents, on the other hand, differ less from non–Tea Party Republicans on most of these questions—although Independents do more often accept the scientific consensus on climate change. On many science and environmental questions, Republicans and Tea Party supporters stand farther apart than Republicans and Independents.

Keywords: environmental concern; public opinion; Tea Party; survey research; climate change

Introduction

Political orientation and education are the most consistent individual-level predictors of environmental concern across a wide range of issues, data, and analyses. Recent studies have noted interactions between these two predictors, such that education exhibits positive effects on environmental concern among liberals and moderates but near-zero or even negative effects among conservatives. Education–ideology or education–party interactions were first observed with climate-change dependent variables (Hamilton 2008, Hamilton and Keim 2009, McCright and Dunlap 2011), but have been noted for some other environmental issues as well (Hamilton *et al.* 2010, 2014, Hamilton and Safford 2014). Similar interactions occur between politics and other knowledge indicators besides education: objectively tested science literacy (Hamilton *et al.* 2014),

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numerical literacy (Kahan *et al.* 2011a), and self-assessed understanding of climate change (Hamilton 2011, McCright and Dunlap 2011).

Indicators for political orientation used in most of these studies come from survey questions where respondents self-identify their ideology or political party. In US studies, a simple three-party coding (Democrat, Independent, or Republican) has been common, and seems to predict environmental views as well as or better than ostensibly more precise seven-point scales from 'strong Democrat' to 'strong Republican', or alternatively from 'extremely liberal' to 'extremely conservative'. Recent national developments, however, highlight a new political division. In October 2013, Congressional Republicans, led by conservatives identified with the Tea Party movement, prevented passage of a budget, forcing a shutdown of the Federal government. They also threatened the economic chaos of default on the US national debt if their political demands were not met. A public backlash in the aftermath of this crisis brought out differences among Republicans who do or do not identify with the Tea Party movement.

The nominal focus of the fall 2013 crisis was opposition to the Affordable Care Act. Less dramatically, many other policy concerns have been slowed if not immobilised by similar party-line opposition—including policies related to the environment, resources, and science. Intense opposition from Republicans aligned with the Tea Party movement forms a common theme across issues.

Here we update research on 'the social bases of environmental concern' (a literature descending from Van Liere and Dunlap 1980) by testing a four-party indicator that distinguishes respondents who do or do not express support for the Tea Party movement. A series of statewide New Hampshire telephone surveys carrying science, environment, and climate belief or knowledge questions provides new data. Our multivariate analysis, following standard models but with the new four-party indicator, tests for Republican/Tea Party differences within the partisan spread.

The Tea Party and polarisation of environmental concern

Since the Tea Party's inception in 2009, political commentators and journalists have often caricatured this movement. There has been increasing scholarly attention as well, particularly after the 2010 elections in which the Tea Party was instrumental in turning power from a Democratic to a Republican majority in the US House of Representatives (Bullock and Hood 2012, Perrin *et al.* 2011, Skocpol and Williamson 2012, Wilson and Burack 2012). Studies are filling out an empirical picture.

First, compared with mainstream Republicans, Tea Party members are more likely to be older, middle-class, male, European-American Evangelicals with high levels of education (Maxwell and Parent 2012, 2013, Skocpol and Williamson 2012). Second, Tea Party members are more likely to be highly ideological, particularly around fiscal conservatism (Bullock and Hood 2012, Maxwell and Parent 2012, 2013, Skocpol and Williamson 2012) and libertarian principles (Skocpol and Williamson 2012, Knowles *et al.* 2013). Third, current research has not supported the popular notion that Tea Party membership is

directly related to racism, despite its monoracial profile (Skocpol and Williamson 2012, Knowles *et al.* 2013, Maxwell and Parent 2013).

While scholarship has differentiated Tea Party–supporting Republicans from mainstream Republicans on fiscal issues, there has been less research focused on environmental issues, apart from climate change. Ferguson *et al.* (2013), however, point out the Tea Party's much higher levels of endorsement from large private sectors that are subject to environmental regulations such as mining, big oil and gas, chemicals, and major utilities industries. This corporate endorsement pattern, making common cause with libertarian ideology, leads us to expect differentiation between Tea Party supporters and non–Tea Party Republicans on other environmental issues as well.

Rising US polarisation on environmental topics, led by the wedge issue of climate change, is well documented by survey research (Antonio and Brulle 2011, McCright and Dunlap 2010, 2011, Guber 2013, McCright *et al.* 2014b, Pew 2012). The Tea Party's rejection of climate-change science on a variety of religious, populist, and conspiratorial grounds has been vehement (Broder 2010), contributing to broader polarisation (McCright *et al.* 2014a). Other processes identified with the observed polarisation include *party sorting* and *elite cues*, whereby individuals more effectively segregate into political parties that align with their beliefs, making those parties ideologically more homogeneous (Fiorina and Abrams 2008, Brulle *et al.* 2012, Guber 2013, McCright *et al.* 2014b).

Whether led by elite cues or their own prejudices, many people acquire information selectively in ways that reinforce their beliefs, a process termed *biased assimilation* (Munro and Ditto 1997, Corner *et al.* 2012). Related theoretical frameworks include *motivated scepticism* and *confirmation bias* (Taber and Lodge 2006), *ideological filtering* and *information processing* (Wood and Vedlitz 2007, Borick and Rabe 2010), *cultural cognition* (Kahan *et al.* 2011b), or *reinforcing spirals* of media use (Zhao 2009). Both the top-down and cognitive explanations for growing polarisation also help to understand interaction effects between political views and education or information measures (Hamilton 2011, 2012, McCright and Dunlap 2011).

Although Tea Party supporters have not been distinguished in most previous studies of environmental concern, analytical methods and propositions from earlier work should extend to this new conservative endpoint. Moreover, distinguishing Tea Party supporters also highlights a new intermediate group: contemporary non–Tea Party Republicans, whose environmental concerns have not previously been studied.

Survey questions on science, environment, and climate

The Granite State Poll (GSP), run by the Survey Center at the University of New Hampshire, conducts telephone interviews with random samples of about 500 New Hampshire residents four times each year. In recent years, the GSP has included science, environment, or climate questions along with its more usual

focus on statewide political opinions. The GSP provides high-quality data that become nationally prominent in presidential primary seasons, and have been analysed for both political studies (e.g. Scala and Smith 2007) and basic research (e.g. Hamilton and Stampone 2013). GSP responses to climate questions are similar to those on national surveys (Hamilton 2012), suggesting the GSP has some value as a proxy.

Table 1 lists 12 science, environment, or climate questions that have been carried on the GSP one or more times over the past four years. For each, we have data from approximately 500 to 9000 interviews, conducted in quarterly surveys from summer 2010 through summer 2014. One GSP conducted in spring 2010 carried questions about climate but not about the Tea Party, so it is omitted from this analysis. On some questions, survey-to-survey variations occur, so we control for this possibility in later multivariate analysis. Such variations have little impact on overall conclusions, however.

Probability weights allow minor adjustments to achieve more representative results, based on sampling design and comparison of sample characteristics with census data. Where Table 1 percentages do not total 100, the remainder said they 'don't know' or gave no answer. For example, we see that 56% of respondents say they personally believe that human beings evolved from earlier forms of life, over millions of years. Thirty-three per cent believe instead that God created human beings pretty much in their present form within the past 10,000 years. Only 11% who were asked this stark question said they did not know, or declined to answer. The evolved/millions response, shown in bold in Table 1, defines a dichotomous dependent variable (1 = evolved/millions, 0 = other response including 'don't know') used in later analysis. Evolution questions have historically been viewed as an indicator for science literacy (National Science Board 2010) that divided the US public. In our newer data, however, evolution divisions are overshadowed by wider partisan gaps on climate change and trust in scientists.

Besides opinion and knowledge items, the GSP asks standard background questions including political party, allowing respondents to self-identify as Democrat, Republican, or Independent. Following the rise to national prominence of the Tea Party movement, the GSP added a separate question asking whether respondents support, oppose, or are neutral regarding 'the political movement known as the Tea Party'. Although Tea Party supporters are a broader, less formal group than Tea Party members (the focus of other studies), for analysis here we use the 'support' responses to define a four-party breakdown with Democrats (39%), Independents (16%), Republicans (20%), and Tea Party supporters (25%). People who declined to answer either political question are set aside. Tea Party supporters in our data tend to be a few years older and disproportionately male; Democrats have the highest proportion of college graduates. Later analysis will control for demographic differences.

Table 1.   Science, environment, and climate questions from the Granite State Poll, summer 2010 to summer 2014.

Trustsci – Would you say that you **trust (62%)**, don't trust (16%), or are unsure (21%) about scientists as a source of information about environmental issues?

Evolve – Which of the following two statements comes closer to your personal beliefs?
  • **Human beings evolved from earlier forms of life, in a process that took millions of years. (56%)**
  • God created human beings pretty much in their present form within the past 10,000 years or so. (33%)

Rules – Have conservation or environmental rules that restrict development generally been **a good thing for your area (41%)**, a bad thing (13%), or have they had no effect there (46%)?

Conserve – Do you think it is more important to use natural resources to create jobs, or to conserve natural resources for future generations?
  • Use natural resources to create jobs. (35%)
  • **Conserve natural resources for the future. (44%)**
  • Creating jobs and conserving resources are both equally important. (21%)

Climate – Which of the following three statements do you personally believe?
  • **Climate change is happening now, caused mainly by human activities. (55%)**
  • Climate change is happening now, but caused mainly by natural forces. (34%)
  • Climate change is NOT happening now. (6%)

SciAg – Which of the following two statements do you think is more accurate?
  • **Most scientists agree that climate change is happening now, caused mainly by human activities. (43%)**
  • There is little agreement among scientists whether climate change is happening now, caused mainly by human activities. (39%)

Ice – Which of the following three statements do you think is more accurate? Over the past few years, the ice on the Arctic Ocean in late summer…
  • **Covers less area than it did 30 years ago. (71%)**
  • Declined but then recovered to about the same area it had 30 years ago. (10%)
  • Covers more area than it did 30 years ago. (7%)

CO_2 – Which of the following three statements do you think is more accurate? Scientific measurements have confirmed that in recent decades, the concentration of CO_2 or carbon dioxide in the Earth's atmosphere is **increasing (63%)**, decreasing (5%), or staying about the same (17%)?

Glacier – Which of the following three statements do you think is more accurate? Scientific measurements of glaciers around the world have confirmed that over the past 30 years…
  • Most of the observed glaciers are growing in size. (2%)
  • About equal numbers of glaciers are growing and shrinking. (18%)
  • **Most of the observed glaciers are shrinking in size. (72%)**

Weather – If the Arctic region becomes warmer in the future, do you think that will have no effects (5%), minor effects (29%), or **major effects (60%)** on the weather where you live?

Volcano – Which of the following three statements do you think is more accurate? Over the past few decades,
  • **Human activities have released much more CO_2 than volcanoes. (40%)**
  • Humans and volcanoes have released about the same amounts of CO_2. (16%)
  • Volcanoes have released much more CO_2 than humans. (12%)

Understand – How much do you feel that you understand about the issue of global warming or climate change? Would you say **a great deal (26%), a moderate amount (53%)**, only a little (17%), or nothing at all? (4%)

Note. Interviewers rotated the order of response choices. Weighted percentages are based on all respondents who were asked a question; **bold responses** define dependent variables for Figures 1–3 and Table 2.

Some of the survey questions in Table 1 are introduced in earlier papers based on subsets of the GSP pool or other surveys. For example, Hamilton (2012) focuses on climate belief and knowledge questions asked on a national survey, comparing these with New Hampshire results. Looking just at New Hampshire, Hamilton and Stampone (2013) examine the connection between *climate* responses and temperature anomalies around the interview day; Hamilton and Lemcke-Stampone (2014) conduct a similar analysis of temperature effects on the Arctic *weather* question. Place-to-place variation in responses to the *trustsci*, *rules*, and *conserve* questions have been compared across many regional surveys (Hamilton *et al.* 2014, Hamilton and Safford 2014). These previous analyses confirm that a three-party political indicator consistently predicts environment and climate-related views. Frequently, a pattern of *education × party* interaction effects also emerges. Here we extend earlier work by analysing a wider range of science, environment, and climate questions, including both opinion and knowledge items. We do so using 17 statewide surveys from summer 2010 through summer 2014, and test the new four-party indicator for politics.

A four-party breakdown of views

Figure 1 breaks down responses on the 12 science, environment, and climate questions according to our four-party scheme. The number of respondents, noted in each chart, varies with the number of GSP surveys asking a particular question. In light of recent science and environmental statements by Tea Party political leaders (Broder 2010, McCright *et al.* 2014a), it comes as no surprise to see a pronounced gradient on most issues.

Tea Party supporters are much less likely than other groups to trust scientists for environmental information (34%). Our question evokes 'impact science' in Alan Schnaiberg's (1977, 1980) conceptual scheme, encompassing research that can highlight negative externalities of economic activities. Conservatives tend to look less favourably on environment-related impact science, but instead look more favourably on 'production science' that serves to advance economic production (McCright and Dunlap 2011, McCright *et al.* 2013). However, Tea Party supporters in our data also less often believe that humans evolved over millions of years (37%), a biological proposition representing neither impact nor production science. Responding to general environmental questions, Tea Party supporters are disinclined to think that environmental rules have been good (25%), or that it is more important to conserve natural resources for the future (23%).

Regarding climate change, Tea Party supporters less often believe that it is happening now and is caused mainly by human activities (23%) or that most scientists agree on this point (24%). Perhaps as a consequence of those beliefs, they are less likely to know or accept change-related climate facts. Only 45% know that atmospheric CO_2 levels are increasing, 51% know that late-summer Arctic sea ice area over the past few years is lower than 30 years ago, 48% know most of the observed glaciers are shrinking, and 26% know that humans in recent
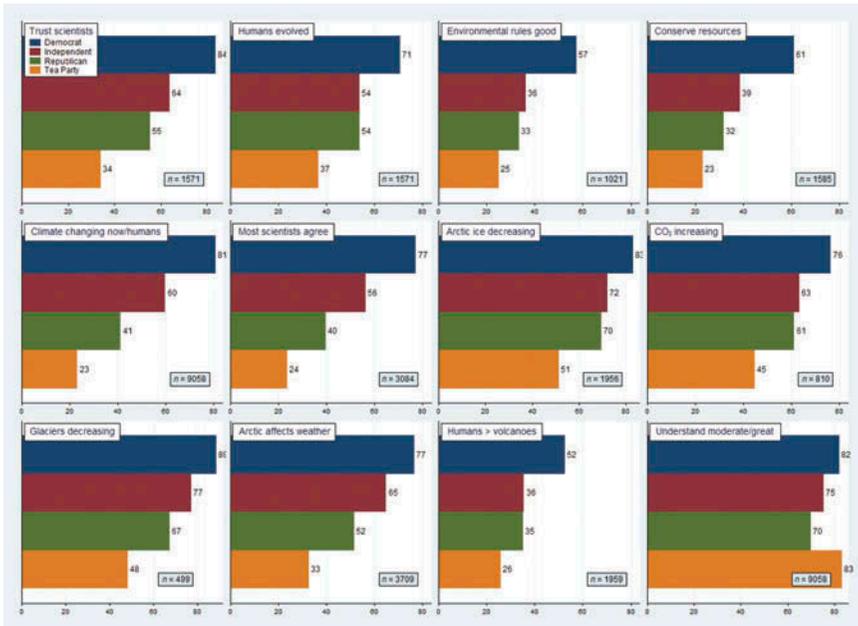
Figure 1. Science, environmental, and climate perceptions by political party identification – Democrats, Independents, Republicans, and Tea Party supporters.
Weighted percentages from New Hampshire statewide polls over 2010–2014; numbers responding to these questions are noted in each chart.

years have emitted much more CO_2 than volcanoes. After these climate-knowledge results, the last chart in Figure 1 is striking: Tea Party supporters express more confidence (83%) than non–Tea Party Republicans (70%) or Independents (75%) that they understand a moderate amount or a great deal about climate change. Higher confidence combined with lower recognition of basic science facts reflects understanding shaped by political outlook (Hamilton 2012, Hamilton *et al*. 2012).

Contrasts between Tea Party supporters and non–Tea Party Republicans form a secondary pattern in Figure 1. Also noteworthy is the relative lack of contrast between Independents and non–Tea Party Republicans. Across many of the charts in Figure 1 (apart from some climate opinions), the bars for Independents and non–Tea Party Republicans are nearly equal in length. Studies contrasting Republicans as a whole with other groups would miss this division within the party, which has become nationally important.

Most polarised of these questions is *climate*, which has been repeated on the GSP since 2010, creating a unique statewide time series (Hamilton and Stampone 2013). Figure 2 tracks the change, or rather stability, of beliefs about anthropogenic climate change from summer 2010 through summer 2014. It is tempting to
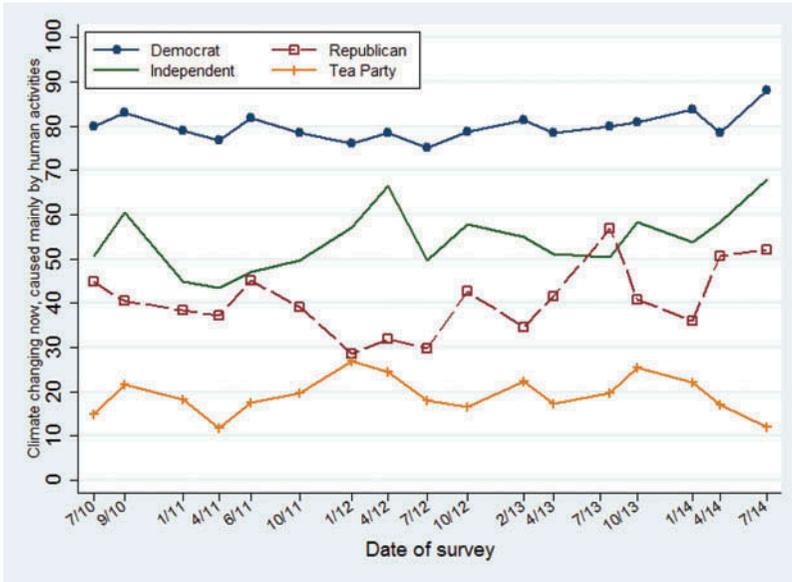
Figure 2.   Tracking the percentage who believe that climate change is happening now, caused by human activities.
Results from more than 8000 interviews from summer 2010 to summer 2014, broken down by political party identification — Democrats, Independents, Republicans, and Tea Party supporters. Confidence intervals at each data point are approximately ±7 points for Democrats and ±14 points for other groups.

interpret the wiggles in such public-opinion time plots, which might even respond to daily weather (Hamilton and Stampone 2013). Much poll-to-poll variation is probably random, however. Confidence intervals are on the order of ±7 points for the Democrat values, and up to ±14 points for the other, numerically smaller, groups. Party-line divisions remain strikingly persistent, however. The overall gap between Democrats and Tea Party supporters is 57 points.

Testing contrasts between parties

As noted, Tea Party supporters differ from other groups in demographic as well as political respects. Neither demographic differences nor survey-to-survey variations account for the patterns in Figure 1, however. Table 2 presents 12 logistic regression models that evaluate four-party political effects while controlling for age, gender, and education. The models include *education × party* interaction terms, which have not previously been tested with Tea Party supporters as a distinct group. Independent variables are coded as follows:

Table 2. Weighted logistic regression of science, environment or climate responses (see Table 1) on age, gender, education, political party, and the interaction of education with party. Models also include intercept dummy variables for individual surveys ($k - 1$ dummy variables representing k surveys), which are estimated but not shown.

						Dependent variables						
	Trust	Evolv	Rule	Cons	Clim	SciAg	Ice	CO_2	Glac	Weath	Volc	Under
Predictor												
Age	−0.02[c]	−0.03[c]	−0.00	−0.02[c]	−0.01[c]	−0.00	−0.00	−0.01	−0.01	−0.00	−0.01[c]	−0.00
Female	0.14	−0.82[c]	0.15	0.10	0.33[c]	0.16	−0.03	−0.18	−0.53[a]	0.08	−0.25[a]	−0.55[c]
Education	0.35[b]	0.25	0.49[b]	0.02	0.07	−0.01	0.30[a]	0.14	−0.16	−0.05	0.28[a]	0.26[c]
Party												
Dem	1.31[c]	0.60[b]	1.04[c]	1.09[c]	1.56[c]	1.28[c]	0.73[b]	0.69[a]	1.23[b]	0.94[c]	0.93[c]	0.53[c]
Ind	0.36	0.03	0.39	0.24	0.72[c]	0.58[b]	0.17	0.12	0.24	0.46[b]	0.23	0.26[a]
Rep	...	...	...	...	...	...	...	...	...	...	...	...
Tea	−0.74[b]	−0.68[b]	−0.05	−0.42	−0.67[c]	−0.70[c]	−0.69[b]	−0.56	−0.81[a]	−0.76[c]	−0.23	0.69[c]
Educ × Party												
Dem	0.36[a]	0.53[b]	−0.02	0.22	0.42[c]	0.63[c]	0.01	0.17	0.29	0.24[a]	−0.14	0.35[c]
Ind	−0.08	0.24	−0.14	−0.02	0.09	0.14	−0.09	0.35	0.32	0.14	−0.31	0.17
Rep	...	...	...	...	...	...	...	...	...	...	...	...
Tea	−0.09	0.04	−0.41	0.06	−0.24[b]	−0.03	−0.17	−0.02	0.09	−0.02	−0.27	0.15
Number of surveys	3	3	2	3	17	6	4	2	1	7	4	17
Estimation sample	1531	1531	994	1534	8742	2995	1881	783	486	3595	1898	8742

[a]$p < 0.05$; [b]$p < 0.01$; [c]$p < 0.001$.

Age in years (18 to 96);

Gender: 0 male, 1 female;

Education: –1 high school or less, 0 some college or technical school, 1 college graduate, 2 postgraduate degree; and

Party: separate (0, 1) indicators for Democrats, Independents, and Tea Party supporters, so non–Tea Party Republicans comprise the reference or base category.

The *education* and *party* coding schemes are chosen such that main effects for *education* in Table 2 represent the effect of education among non–Tea Party Republicans. The main effects for each category of *party* represent the contrast between that group and non–Tea Party Republicans, if both have some college or technical school education. Intercept dummy variables denoting individual surveys are included with each model to control for possible survey-to-survey variations, but their inclusion has little effect on individual-level coefficients. For simplicity, the many (and mainly non-significant) intercept dummy variables are not shown in Table 2.

Age exhibits modest negative effects, intermittently significant, on the science, environment, or climate responses in Table 1. *Gender* effects are likewise intermittent. Women are significantly less likely to believe in evolution, yet more likely to believe in anthropogenic climate change. They less often claim to have moderate or great understanding of climate change, and less often answer the *glacier* and *volcano* questions correctly (frequently choosing 'don't know' instead).

Education has positive main effects (i.e. positive effects among non–Tea Party Republicans) on 5 of the 12 items. The main effects shown for 'Democrat' describe contrasts between Democrats and non–Tea Party Republicans when both have some college/technical school educations. These Democrat versus non–Tea Party Republican contrasts are significant for all 12 dependent variables. More interestingly, the main effects shown for 'Tea Party' indicate significant contrasts between Tea Party and non–Tea Party Republicans (when both have some college/technical school education) across 8 of the 12 models. On the other hand, Republicans who do not support the Tea Party express views similar to Independents across most questions. The four exceptions, where non–Tea Party Republicans differ from Independents, all involve climate-change beliefs and understanding. These results are consistent with earlier findings that climate-change beliefs divide most sharply along partisan lines (McCright and Dunlap 2011, Guber 2013, Hamilton *et al.* 2014, Hamilton 2014, McCright *et al.* 2014a).

Education × party interaction effects, widely observed with more traditional party or ideology indicators (e.g. Hamilton 2008, 2011, 2012, McCright 2011, McCright and Dunlap 2011), occur in this four-party analysis as well. The effects of *education* are positive and significantly stronger for Democrats, compared with non–Tea Party Republicans, regarding trust in scientists, evolution, and four climate items in Table 2. For the most polarised question, *climate*, the effects of
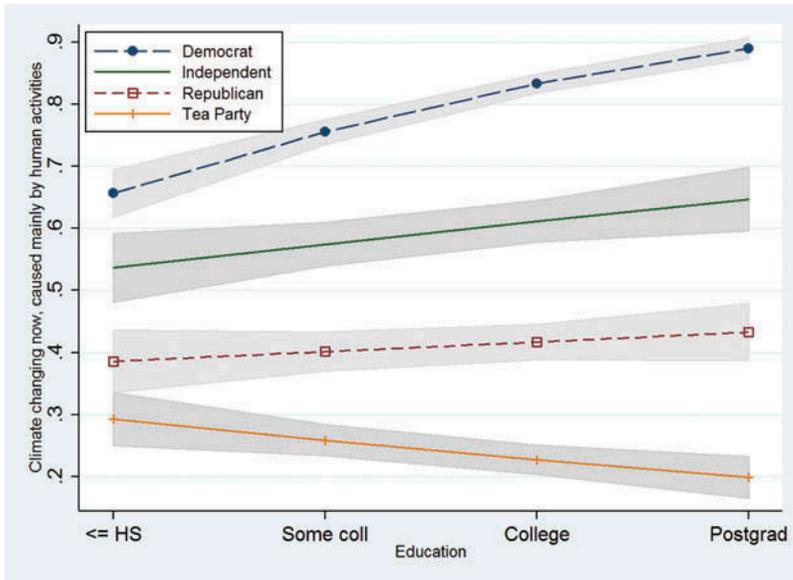
Figure 3. Belief in anthropogenic climate change by education, for Democrats, Independents, Republicans, and Tea Party supporters.
Interaction effect with confidence intervals calculated from logistic regression (5th column, Table 2), adjusting for age, gender, and survey.

education are negative and significantly different for Tea Party supporters compared with non–Tea Party Republicans. Thus, among non–Tea Party Republicans, agreement with the scientific consensus on climate change is almost unaffected by education. Among Tea Party supporters, however, agreement with the scientific consensus declines with education. Figure 3 visualises this interaction as an adjusted marginal plot, based on the logit model for *climate* in Table 2.

Robustness of findings

Although our data involve up to 17 independent samples, all come from the small state of New Hampshire. How representative are these? On many of our specific climate-change belief and knowledge questions, New Hampshire responses resemble those seen on a national survey—not only in their overall percentages, but also in the pattern of relationships with background factors (Hamilton 2012). New Hampshire residents are somewhat more inclined to trust scientists for environmental information, and more confident in their understanding of climate change, but they are similar to national respondents in their responses on resource conservation and environmental rules. Demographically,

New Hampshire residents tend to be more secular, better educated, and less racially diverse compared with some other regions. It seems plausible that Tea Party differences could be larger in regions that have more Evangelical influence, for example. In this respect, the already strong New Hampshire–based contrasts might even understate nationwide differences. Comparisons with other regional, national, or international data should be of interest in future research.

Pooling multiple surveys raises the concern that some results might be a spurious consequence of survey-to-survey variation caused by other factors, such as political, economic, or even weather events that occurred between surveys. To control for this possibility, our Table 2 models include intercept dummy variables denoting each survey (*k* surveys being represented by *k* − 1 dummy variables). Although survey-to-survey variations occur on a few questions, these tend to be orthogonal to individual-level predictors, and have little impact on their estimated coefficients. Fitting simpler models without intercept dummy variables results in coefficients just slightly different from those in Table 2, with no change to any of the conclusions.

Unlike Democrats and Republicans, the Tea Party is not a national party or a voter registration category in most states, including New Hampshire. It lacks a unique survey definition as well. Our four-party political grouping is constructed from two questions. The first is a traditional seven-point scale from strong Democrat to strong Republican, with Independent in the middle. The second question asks whether respondents support the Tea Party movement. For present purposes, we classed all supporters into the 'Tea Party' group, regardless of their initial political identification. In practice, however, the Tea Party functions largely as a subset of Republicans, so an alternative approach could be to define supporters only within the initially Republican group. That alternative definition (which was used for an earlier report about just one of these surveys, Hamilton 2014) yields a smaller fraction of 'Tea Party Republicans' – 19% of the total sample, instead of 25% for the more inclusive 'Tea Party supporters' definition we use here. Applied to the multivariate models employed here, however, the main findings are substantially the same with either definition. Non–Tea Party Republicans differ significantly from Tea Party Republicans, and do not differ significantly from Independents, in a pattern much like that seen in Table 2.

Conclusion

Although some respondents self-identify as both Democrats and Tea Party supporters, or as Independents and Tea Party supporters, in electoral practice the Tea Party movement has been mainly identified with the Republican Party. We find substantial differences between Tea Party supporters and non–Tea Party Republicans, however, in perceptions about science, the environment, and climate. Tea Party supporters are less likely than non–Tea Party Republicans to trust scientists for information about environmental issues, accept human evolution, believe either the physical reality or the scientific consensus on anthropogenic

climate change, or recognise trends in Arctic ice, glaciers, or CO_2. Despite factual gaps, Tea Party supporters express greater confidence in their own understanding of climate change. Independents, on the other hand, differ less from non–Tea Party Republicans on most of these questions – although Independents do more often accept the scientific consensus on climate change. Regarding many science and environmental questions, Republicans and Tea Party supporters stand farther apart than Republicans and Independents.

We replicated the *education × party* interactions noted in previous research, but here for the first time using a four-party political scheme. Education has positive effects on trust in scientists, belief in evolution, support for environmental protection, acceptance of the scientific consensus on anthropogenic climate change, and several tests of climate knowledge – among Democrats, and for many of these items, among Independents or non–Tea Party Republicans as well. Among Tea Party supporters, however, the effects of education tend to be weaker; agreement with the scientific consensus on anthropogenic climate change actually declines with education. Although more nuanced, these findings are broadly consistent with those of earlier studies. Biased assimilation (Munro and Ditto 1997, Corner *et al*. 2012), elite cues (Darmofal 2005, Brulle *et al*. 2012), and related concepts invoked to explain *education × party* and similar interactions apply equally well to a four-party framework.

Our results highlight significant divisions between Tea Party supporters and non–Tea Party Republicans, which resemble an extension of the party sorting process noted by other researchers (Guber 2013, McCright and Dunlap 2014b). At the same time, however, we find fewer significant divisions between other Republicans and unaligned or Independent voters. Both findings have implications worth exploring in regard to public discourse on science, environment, and climate, which in recent years has tended towards immobilising partisanship. The keys to gridlock on at least some environmental problems may depend not on divisions between the two main parties, as often assumed, but rather on divisions between factions of one party.

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