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A Little More Action, Please: Increasing the Understanding about Citizens’ Lack of Commitment to Protecting the Environment in Different National Contexts

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This study advances the current understanding of why many citizens do not display a high level of commitment to protecting the environment. We examine cross-national differences in the salience of attitudinal and behavioral profiles distinguished by their comparably low levels of pro-environmental behavior, in both the public and private spheres. Based on theories of postmaterialism and collective action problems, we expect gross domestic product (GDP) per capita and levels of generalized trust to be related to the salience of these attitudinal and behavioral profiles cross-nationally. First, low levels of GDP very likely constrain pro-environmental behavior through decreasing environmental concern, which should increase the probability of citizens displaying an attitudinal and behavioral profile characterized by low levels of both environmental concern and pro-environmental behavior. Second, collective action problems in low-trust countries should also constrain behavior by undermining the propensity of environmentally concerned individuals to act on their concerns, which should increase the probability of citizens displaying a profile characterized by low levels of pro-environmental behavior despite high levels of concern. Using latent class analysis and multilevel modeling, we analyze data from the International Social Survey Programme (2010) and show that the probability of individuals displaying these profiles is clearly linked to GDP and national levels of generalized trust, in the expected manner. In contrast to previous research, we demonstrate that these societal factors are complementary insofar as they relate to fundamentally different individual-level processes underlying pro-environmental behavior.

Keywords pro-environmental behavior; environmental concern; GDP per capita; generalized trust; International Social Survey Programme (ISSP)

Despite an overwhelming scientific consensus that anthropogenic climate change is real (Cook et al. 2013; Oreskes 2004) and that its current path will result in extremely adverse
social, economic, and political consequences (Pachauri 2014), the pro-environmental efforts of ordinary citizens are demonstrably far from sufficient to reverse climate change and global warming (Giddens 2015; Norgaard 2011; Russill 2008). Moreover, cross-national studies demonstrate that while the level of commitment to protecting the environment is generally low, there are considerable differences in pro-environmental behavior across countries (e.g., Hadler and Haller 2011; 2013), suggesting that societal factors tied to the national context have crucial implications for the pro-environmental efforts of ordinary citizens.

Comparative research attempting to explain cross-national differences in the pro-environmental efforts of ordinary citizens has to a great extent focused on economic prosperity, showing that citizens’ environmental engagement is generally lower in poorer countries (e.g., Franzen and Vogl 2013a; Freymeyer and Johnson 2010; Gelissen 2007). One explanation is based on Inglehart’s (1995, 1997) postmaterialist thesis, which argues that citizens in poorer countries face greater material (i.e., existential) risks and therefore are oriented more toward material concerns than postmaterial concerns such as the environment. Indeed, while previous studies show that environmental concern is a key determinant of pro-environmental behavior (e.g., Oreg and Katz-Gerro 2006), people in poorer countries have, in general, been shown to be less environmentally concerned (e.g., Franzen and Meyer 2010) and thus less likely to take forceful action to protect the environment.

Another increasingly prominent perspective in explaining ordinary citizens’ commitment to protecting the environment focuses on collective action problems and the role of trust. While the environment is a public good that calls for collective action and cooperation among citizens, the costs of contributing often outweigh the benefits, which provides incentives for individuals to free ride on the environmental efforts of others. However, previous research suggests that collective action problems are more easily resolved in contexts characterized by widespread generalized trust because people are more likely to cooperate when others can be trusted (La Porta et al. 1997; see also Axelrod 1984; Ostrom 1998, 2014; Scholz and Lubell 1998). Conversely, settings characterized by low levels of generalized trust tend to give rise to “social traps” or “social dilemmas” (see also Rothstein 2005), where people often lack the trust and social capital necessary to cooperate even though it is in their best interest to do so. As a result, people in low-trust countries will very likely often fail to act pro-environmentally, even if they are environmentally concerned (cf., Franzen and Vogl 2013a; Sønderskov 2008).

Whereas previous research has studied both economic prosperity and trust levels in relation to environmental attitudes and behavior, most studies do not examine these macrolevel factors in relation to the distinct individual-level processes assumed to underlie behavioral outcomes. While several studies include both GDP and national trust levels in their analyses, they are predominantly analyzed in relation to one-dimensional and continuous measures of pro-environmental behavior, thereby disregarding the fundamentally different individual-level processes presumably underlying behavior. Here, we argue that while low levels of GDP can constrain behavior through decreasing overall environmental concern and engagement, collective action problems and low levels of trust can also be expected to constrain pro-environmental behavior, primarily among environmentally concerned individuals.

In this study we use international survey data from 32 countries and latent class analysis to identify two attitudinal and behavioral profiles that are distinguished by their low levels of
pro-environmental behavior yet differ with respect to their level of environmental concern (“low concern/low behavior” and “high concern/low behavior”). Based on two prominent streams in the sociological literature—the postmaterialist/prosperity thesis and theories of collective action—we then use multilevel analysis to examine whether GDP per capita and national levels of generalized trust are related to the salience of these profiles cross-nationally; that is, whether each of these macrolevel factors can be linked to fundamentally different individual-level processes underlying citizens’ lack of commitment to protecting the environment.

PREVIOUS RESEARCH

The literature on pro-environmental behavior distinguishes between behaviors in the public and private spheres (Stern 2000). Whereas public-sphere behaviors such as protesting or contributing to an environmental organization may have an indirect but substantial effect on societies’ efforts to address environmental problems, private-sphere behaviors such as sustainable consumption and the use of renewable energy can have a more direct effect on environmental problems if many people simultaneously engage in them. Focusing on the active environmental engagement of ordinary citizens is important, not least considering that the everyday behaviors of citizens are either directly or indirectly responsible for a substantial proportion of greenhouse gas emissions (Vandenbergh and Steinemann 2007). Moreover, citizens’ civic involvement and active participation in the democratic process also constitutes a crucial component of policymaking in relation to climate change mitigation (Hackmann et al. 2014).

At present, it has become obvious that the overall efforts of ordinary citizens are far from sufficient to reverse the trend of climate change and global warming (Giddens 2015; Norgaard 2011). In line with this general observation, empirical research demonstrates that only a small share of the population in many countries is highly committed to protecting the environment by actively and consistently engaging in pro-environmental behaviors. Furthermore, several studies have found substantial cross-national differences in the incidence of public- and private-sphere behaviors (Hadler and Haller 2011, 2013; Hadler 2017). For instance, Hadler and Haller (2011) show that while there are considerable behavioral differences across countries, few countries display a high level of commitment to protecting the environment. The authors show that while citizens in most countries at least to some extent engage in certain types of private-sphere behaviors, only a small share of the population engage in one or more types of public-sphere behaviors.

Existing research on the underlying determinants of pro-environmental behavior can be divided into two broad categories. One category refers to individual-level explanations, in terms of the various psychological and motivational factors that influence behavior (e.g., Gifford 2011; Steg and Vlek 2009; Stern 2000). Another category refers to contextual or societal explanations of individuals’ pro-environmental behavior (e.g., Hadler 2017; Pisano and Lubell 2017). While numerous studies have shown that both these types of factors have important consequences for environmental behavior, fewer studies explicitly focus on the interaction between individual-level processes and contextual (societal) factors. In the following, we discuss previous research in relation to the individual and contextual levels, and then
we present our hypotheses with regard to the interaction between contextual factors and indi-

cidual-level processes.

Individual-Level Processes

Much of the previous research on pro-environmental behavior has focused on processes at
the individual level, mainly by studying the psychological factors that promote or impede the
environmental efforts of individuals (e.g., Bamberg and Möser 2007; Gifford and Nilsson
2014). A range of studies emphasize the importance of environmental concern as a key moti-
vating factor underlying pro-environmental behavior (for overviews, see Oreg and Katz-
Gerro 2006; Stern 2000). As a point of departure, several empirical studies use Ajzen’s
(1985, 1991) theory of planned behavior to consistently demonstrate that environmental con-
cern is linked to pro-environmental behavior in both the private sphere (Guagnano et al.
1995; Pagiaslis and Krontalis 2014) and the public sphere (Lubell 2002; Oreg and Katz-
Gerro 2006). A range of studies show that environmental concern is positively related to
sociodemographic factors such as education and income, suggesting that individuals who
face greater material risks are less likely to worry about the environment (e.g., Franzen and
Vogl 2013a). In a Maslowian sense, environmental concerns might simply be crowded out
by material concerns, in particular when material circumstances are dire (cf., Inglehart 1971).

Although individuals may occasionally engage in pro-environmental behavior for reasons
other than concern about the environment, such as monetary gain or the prospect of saving
time (De Young 2000), environmental concern appears to be a crucial precondition for pro-
environmental behavior. However, previous research has shown that environmental concern
and other environmental attitudes do not always translate into pro-environmental behavior. In
fact, several studies identify a gap between citizens’ environmental concern and their pro-
environmental behavior, emphasizing that the concern-behavior relationship is often surpris-
ingly weak (Gardner and Stern 1996; Kempton 1993; Bamberg 2003; Kennedy et al. 2009;
Kollmuss and Agyeman 2002; Olli et al. 2001; Scott and Willits 1994). This suggests that
people often fail to act pro-environmentally despite considerable concerns about the
environment.

Several studies emphasize the importance of applying “game theory”—type approaches,
such as the famous prisoner’s dilemma, when attempting to understand why people fail to act
collectively even though it is in everyone’s best interest to free ride (Hardin 1971, 1982;
Rothstein 2005). Because the costs of contributing to a common good often outweigh the
benefits, it is rational for individuals to defect from cooperation and instead free ride on the
contributions of others, especially if they think that others will also do so (see also Olson
1965; Ostrom 1998). As the environment is a common good, individuals have incentives to
defect from collective efforts to protect the environment (see, for example, Lubell 2002). Because
individuals who are not concerned about the environment have few incentives to
protect it in the first place, collective action problems in relation to pro-environmental behav-
ior should primarily affect those who are environmentally concerned. Hence, from the
perspective of collective action problems, the gap between environmental concern and pro-
environmental behavior therefore makes sense because these problems should mainly manifest among environmentally concerned individuals failing to act on their concerns (cf., Franzen and Vogl 2013b).

Based on the above, we distinguish between two fundamentally different individual-level processes underlying citizens’ lack of commitment to protecting the environment. First, individuals might fail to act pro-environmentally due to a lack of environmental concern. These individuals should therefore display relatively low levels of both environmental concern and pro-environmental behavior. Second, individuals might fail to act pro-environmentally despite high levels of environmental concern, especially in the presence of collective action problems. These individuals should therefore display low levels of pro-environmental behavior despite high levels of environmental concern. In this study we argue that the distinction between these processes is crucial, not least considering that different societal factors very likely influence their salience cross-nationally.

Societal Explanations

Previous studies have identified cross-national differences in environmental attitudes and behaviors (Franzen and Vogl 2013a; Hadler and Haller 2011, 2013) as well as in the gap between environmental concern and behavior (Aoyagi-Usui et al. 2003; Eom et al. 2016; Pisano and Lubell 2017; Tam and Chan 2017, 2018; Wright and Klyn 1998). This suggests that certain national contexts are more likely to facilitate high levels of commitment to protecting the environment among citizens and more likely to facilitate the translation of citizens’ environmental concerns into pro-environmental behavior. A prominent societal explanation proposed to account for cross-national differences in the overall environmental engagement of ordinary citizens can be found in the postmaterialist thesis. According to Inglehart (1971, 1995, 1997), citizens of increasingly prosperous countries experience diminishing existential risks and therefore develop postmaterialist values, including increasing concern and care for the environment. Following Inglehart, many studies empirically confirm that people in poorer countries are generally less environmentally concerned and less frequently engage in pro-environmental behavior (Diekmann and Franzen 1999; Franzen and Meyer 2010; Franzen and Vogl 2013a; Freymeyer and Johnson 2010; Gelissen 2007; Oreg and Katz-Gerro 2006; Pirani and Secondi 2011; but see Fairbrother 2013). In other words, due to the necessity of prioritizing material concerns people in poorer countries are generally less likely to be environmentally concerned. Given that environmental concern is a key driver of pro-environmental behavior, it is not surprising that previous studies also find relatively low levels of pro-environmental behavior in poor and underdeveloped countries (e.g., Hadler and Haller 2011).

While previous studies based on the postmaterialist thesis have linked economic prosperity to cross-national differences in citizens’ overall environmental engagement, the literature on collective action problems suggests that other societal (contextual) factors have important implications for citizens’ environmental efforts. A prominent theme in this literature emphasizes the role of generalized trust in alleviating collective action problems and free riding, as people are more likely to engage in collective action if they trust that others will also
cooperate (Hardin 2001, 2002; Rothstein 2005). According to Uslaner (2002:255), widespread trust fosters a “cooperative spirit” in society; when most people can be trusted, it becomes more rational to focus on the mutual benefits of cooperation rather than on narrow self-interest. As a result, the logic of the famous prisoner’s dilemma usually does not apply in high-trust settings (Joshi et al. 2000; La Porta et al. 1997; see also Axelrod 1984; Ostrom 1998; Scholz and Lubell 1998). Settings characterized by low levels of generalized trust, on the other hand, tend to give rise to “social traps” or “social dilemmas” (see also Rothstein 2005), where people lack the trust and social capital necessary to cooperate even though it is in their best interest to do so.

While generalized trust is typically measured at the level of the individual, it does not merely reflect important positional or psychological differences in the tendency of individuals to trust others whom they do not know. It also reflects the “trustworthiness of society”; that is, the extent to which most people in society can or cannot be trusted (Glaeser et al. 2000; Newton 2001; see also Lewis and Weigert 1985). In fact, several studies show that national levels of generalized trust are associated with the strength of the concern–behavior relationship (e.g., Sønderskov 2008), even when controlling for trust at the individual level (Tam and Chan 2018). However, few studies distinguish between individuals displaying low levels of pro-environmental behavior due to collective action problems and those who display low levels due to a lack of environmental concern. As a result, GDP and trust levels across countries are typically treated as competing factors in explaining why people are not highly committed to protecting the environment instead of as separate explanations for different individual-level processes associated with low levels of pro-environmental behavior.

Hypotheses

We derive two sets of hypotheses. The first set concerns two distinct attitudinal and behavioral profiles characterized by comparably low levels of pro-environmental behavior (H1a and H1b). If citizens are not generally concerned about environmental issues, for example, in the presence of competing (i.e., material) concerns, there is little to suggest that they would engage in pro-environmental behavior. We therefore expect to identify one attitudinal and behavioral profile characterized by relatively low levels of both environmental concern and pro-environmental behavior (“low concern/low behavior”). However, if collective action problems are present, then even environmentally concerned citizens will very likely fail to act on their concerns. We therefore expect to identify a second profile characterized by relatively low levels of pro-environmental behavior despite high levels of environmental concern (“high concern/low behavior”). As result, we derive the following hypotheses:

H1a: Due to competing concerns, we expect to identify one profile characterized by low levels of both environmental concern and pro-environmental behavior.

H1b: Due to collective action problems, we expect to identify another profile characterized by high levels of environmental concern and low levels of pro-environmental behavior.
A second set of hypotheses refers to the relationships between GDP per capita and national levels of generalized trust, on the one hand, and the salience of the attitudinal and behavioral profiles across countries, on the other hand. Based on the postmaterialist/prosperity thesis, we expect that the low-concern/low-behavior profile will be more salient in societies characterized by poor economic conditions because competing material concerns should be more likely to override postmaterial concerns such as the environment. Second, based on the literature on collective action problems and generalized trust, we expect the high-concern/low-behavior profile to be more salient in countries with low levels of generalized trust. As a result, we derive the following hypotheses:

H2a: Citizens are more likely to belong to the low-concern/low-behavior group in countries with lower levels of GDP per capita.

H2b: Citizens are more likely to belong to the high-concern/low-behavior group in countries with lower levels of generalized trust.

DATA AND METHOD

To analyze citizens’ environmental concern and pro-environmental behaviors cross-nationally, we used data from the International Social Survey Programme (ISSP) that covers 32 countries (abbreviation and n in parentheses): Argentina (AR, n = 1,100), Austria (AT, n = 1,000), Belgium (BE, n = 1,097), Bulgaria (BG, n = 983), Canada (CA, n = 967), Chile (CL, n = 1,408), Croatia (HR, n = 1,190), Czech Republic (CZ, n = 1,419), Denmark (DK, n = 1,267), Finland (FI, n = 1,123), France (FR, n = 2,127), Germany (DE, n = 1,344), Great Britain (GB, n = 896), Israel (IL, n = 1,183), Japan (JP, n = 1,252), Korea (KR, n = 1,553), Latvia (LV, n = 947), Lithuania (LT, n = 985), Mexico (MX, n = 1,598), New Zealand (NZ, n = 1,153), Norway (NO, n = 1,358), the Philippines (PH, n = 1,188), Russia (RU, n = 1,582), Slovakia (SK, n = 1,120), Slovenia (SI, n = 1,067), South Africa (ZA, n = 3,053), Spain (ES, n = 2,505), Sweden (SE, n = 1,162), Switzerland (CH, n = 1205), Taiwan (TW, n = 2,207), Turkey (TR, n = 1638), and the United States (US, n = 1,400). The data were collected in the year 2010 and consist of samples representative of the adult population in each country.

We measured environmental concern using the following item: “Generally speaking, how concerned are you about environmental issues?” Item responses ranged from “not at all concerned” (1) to “very concerned” (5). To distinguish respondents who are concerned from those who are not, we used a dichotomized version of the item, in which responses “4” and “5” are coded as “1” and the lower values as “0.”

To measure pro-environmental behaviors in the public sphere, we used four indicators: whether the respondent (i) is a member of an environmental organization or group, and whether the respondent within the last five years has (ii) signed a petition about an environmental issue, (iii) given money to an environmental group, or (iv) taken part in a protest or demonstration about an environmental issue. Available item responses were “yes” and “no.”
To distinguish respondents who have engaged in one or more forms of public-sphere behavior from those who have not, we constructed a measure in which respondents who responded “yes” on one or more of the items were coded as “1,” while respondents who responded “no” on all items were coded as “0.”

To measure pro-environmental behaviors in the private sphere, we used five indicators: “How often do you (i) sort glass, tins, plastic, or newspapers, and so on, for recycling; (ii) buy fruits and vegetables grown without pesticides or chemicals; (iii) reduce the energy or fuel you use at home for environmental reasons; (iv) choose to save or reuse water for environmental reasons; and (v) avoid buying certain products for environmental reasons.” Available item responses were “always” (1), “often” (2), “sometimes” (3), and “never” (4). Due to the large share of respondents who responded either “often” or “always” on at least one of the items (81.2 percent) and the ambiguous nature of the term “often,” we used a measure in which those who responded “always” on one or more items were coded as “1” and thus distinguished from those who did not (coded as “0”).

Generalized trust was measured using the following survey item: “Generally speaking, would you say that most people can be trusted, or that you can’t be too careful in dealing with people?” Item responses ranged from, “You can’t be too careful” (1) to “Most people can be trusted” (5). To capture the cooperative and trusting spirit across societies, rather than individual-level variation within societies, we analyzed generalized trust at the country level by aggregating individuals’ responses into country averages. GDP per capita was measured using data from the International Monetary Fund. The measure is expressed in thousands of US dollars and has been corrected for purchasing power parity, taking into consideration cross-national differences in purchasing power.

To take into account other potentially relevant macrolevel factors identified in the literature, we also controlled for environmental quality/degradation (see Hadler 2017; Pisano and Lubell 2017) and level of individualism (see, for example, Eom et al. 2016; Tam and Chan 2018). Environmental quality/degradation was measured with the Environmental Performance Index (EPI), which ranks countries on their performance across various issue categories relating to environmental health and ecosystem vitality (see Emerson et al. 2010). The EPI index ranges between 0 and 100, where higher values indicate higher performance. Individualism was measured using Hofstede et al.’s (2010) Individualism-Collectivism Index. This dimension concerns the relationship between the individual and larger social groups, thereby ranking countries by the extent to which the cultural orientation puts emphasis on individuality and uniqueness, or conformity and interdependence. The individualism-collectivism index ranges between 0 and 100, where higher values indicate a higher degree of individualism.

In the multilevel regression models (detailed below), we used three sociodemographic control variables—age, sex, and education—to account for compositional effects. The age variable was measured in number of years. Sex is a dichotomous variable, with women coded as “1” and men as “0.” Education is an ordinal scale, distinguishing the following educational attainment levels: “no formal qualification” (0), “lowest formal education” (1), “lower secondary completed” (2), “higher secondary completed” (3), “university degree incomplete” (4), and “university degree completed” (5).
We used latent class analysis (LCA) to distinguish different attitudinal and behavioral profiles—such as the combinations low concern/low behavior and high concern/low behavior—with regard to environmental concern and pro-environmental behaviors. In LCA, latent classes or profiles can be identified based on distinct combinations of responses to multiple survey items (Hagenaars and Halman 1989; Vermunt and Magidson 2002). In other words, LCA distinguishes ideal types based on qualitatively different sets of responses and then estimates the probability of individuals displaying these ideal typical profiles.

The results in LCA are presented in terms of a multicluster solution, with the best fitting model having $n$ clusters, each with a distinct profile in terms of the combination of item responses. Item response probabilities (0–1) are presented for each cluster, where probabilities close to zero and one indicate that the item substantially contributes to the meaning of a cluster. LCA also presents the overall cluster membership probability, which represents the probability of any random individual belonging to each cluster, thus reflecting the salience of each attitudinal and behavioral profile.

In the analysis, we also include “country” as a covariate, enabling us to obtain country-specific cluster sizes, which reflects the salience of different attitudinal and behavioral profiles across countries. Hence, LCA enables the distinction between our profiles of main interest, low concern/low behavior and high concern/low behavior, and their relative salience in the total sample as well as in individual countries. Moreover, while including country as a covariate allows cluster sizes to vary cross-nationally, item response probabilities are constrained to be equal across countries. This ensures that the inherent meaning of each cluster is equivalent across countries, which is crucial for the cross-national comparison of their respective salience to be meaningful.

In LCA, model fit is assessed by chi$^2$ estimation of the $L^2$. Generally, if an $n$-cluster model fits the data well, the $L^2$ value is substantially lower than for models with fewer clusters. However, to assess which $n$-cluster solution has the best fit, it is commonplace to use the Bayesian information criterion (BIC) and choose the solution with the lowest BIC (Raftery 1999). Additionally, LCA calculates posterior cluster membership probabilities; that is, scores representing each individual’s probability of displaying a particular profile. We then used these probability scores in further multivariate analyses that estimate the effect of societal factors on individuals’ propensity to display a particular attitudinal and behavioral profile.

To estimate the effect of GDP per capita and national levels of generalized trust on individual-level cluster membership probabilities, we used multilevel analysis (MLA). This method is particularly useful in situations like this in which the structure of the data is hierarchical—individuals (level 1) are nested within national contexts (level 2)—and where country-level factors are expected to influence individual-level outcomes such as attitudes and behavior (see, for example, Snijders and Bosker 1999). MLA further allows decomposition of the variance in the dependent variable, enabling assessment of the extent to which factors at both the individual and country levels explain the variance in the dependent variable; that is, the probability of displaying a particular attitudinal and behavioral profile.

Furthermore, several studies have also found a relatively high correlation between GDP and national levels of generalized trust (Delhey and Newton 2005; Knack and Keefer 1997).
In terms of causality, while trust and GDP might to some extent be mutually reinforcing, trust appears to be more conducive to GDP rather than vice versa (Algan and Cahuc 2010; Zak and Knack 2001). Nevertheless, this type of situation requires a more sophisticated statistical approach, such as MLA, which enables simultaneous estimation and control for several macrolevel effects. This is essential considering that previous studies have also identified additional macrolevel factors, beyond GDP and trust, with relevance to pro-environmental behavior and the concern-behavior gap.

RESULTS

Below, the analysis is presented in four steps. First we present the results from the LCA, where we identify latent clusters with different profiles regarding environmental concern and pro-environmental behavior. Second, we examine cross-national differences in the sizes of these latent clusters. Third, we study the macrolevel relationship between cluster sizes and the societal factors GDP per capita and national levels of generalized trust. Finally, we use multilevel modeling to analyze the influence of the societal factors on individuals’ cluster membership probabilities while controlling for individual-level background variables as well as additional macrolevel variables identified in previous research.

Latent Class Analysis

In Table 1 we present the model-fit measures for six LCA models. Focusing on the BIC value, we find that the model with the lowest BIC, and hence the best fit to the data, is the five-cluster model. The $L^2$ value for the five-cluster model provides further indication of a good model fit, as it is substantially reduced (97.7 percent) compared to the baseline one-cluster model. Figure 1 presents each cluster’s characteristics in terms of item response probabilities and relative cluster sizes (percentages). Item responses range from zero to one, with values close to one indicating high levels of environmental concern and pro-environmental behaviors in the public and private spheres.

In the analysis we pay particular attention to the clusters that display relatively low levels of pro-environmental behavior in both the public and private spheres; in other words, where item responses for public- and private-sphere behavior are close to zero. Two of the latent

<table>
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<th>Cluster</th>
<th>$L^2$</th>
<th>$L^2$ reduction</th>
<th>BIC ($L^2$)</th>
<th>df</th>
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<td>94.5%</td>
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<td>99.4%</td>
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</table>

Table 1: Latent Class Analysis (LCA), Model-Fit Measures
clusters distinguish themselves in this regard. Both Cluster 1 and Cluster 3 display relatively low levels of both public-sphere (0.12 for Cluster 1 and 0.05 for Cluster 3) and private-sphere behavior (0.28 and 0.12, respectively). In line with H1a, we find that one of the low-behavior clusters, Cluster 3, also displays a low level of environmental concern (0.01). In line with H1b, we find another low-behavior cluster displaying high levels of environmental concern (0.83). These two clusters thus closely correspond to our theoretically derived expectations of two distinct “low-behavior” profiles that differ in their levels of environmental concern.

Focusing on cluster sizes for all five clusters (Figure 1), the results reveal that Cluster 1, which is the largest, constitutes 27.8 percent of the total sample. Meanwhile, Cluster 3, which is the third largest, constitutes 19 percent of the sample. Together, Clusters 1 and 3 constitute 46.8 percent of the total sample, suggesting that almost half of the respondents in the studied countries display relatively low levels of pro-environmental behavior in both the public and private spheres. More specifically, almost half of the sample consists of individuals who very often do not engage in any type of public-sphere behavior while rarely displaying a high commitment to any type of private-sphere behavior. The finding that Cluster 1 is substantially larger (8.8 percent) than Cluster 3 suggests that inaction among the environmentally concerned is a more prevalent phenomenon than inaction due to a lack of environmental concern.

Although not the primary focus of this study, it can be noted that 53.2 percent of the total sample have profiles displaying relatively high levels of pro-environmental behavior in at least
one sphere (i.e., public or private). In Cluster 5 we find the highest levels of both environmental concern (0.93) and public-sphere pro-environmental behavior (0.74), and the second highest probability of private-sphere behavior (0.85). This cluster is the smallest of the clusters, constituting 15.2 percent of the total sample. In fact, respondents in Cluster 5 are by far the most actively engaged in terms of public-sphere behavior, with an approximately 0.5 or higher probability difference compared to all other clusters. Cluster 5 therefore appears to represent the purest example of actively engaged ecological citizens, diametrically opposed to the profile of Cluster 3, in terms of environmental concern and pro-environmental behavior.

Finally, Clusters 2 and 4 display profiles similar to each other, characterized primarily by relatively high levels of pro-environmental behavior in the private sphere. In Cluster 4, the probabilities are moderately high for environmental concern (0.68) and very high for private-sphere behavior (1), while the probability of public-sphere behavior is low (0.12). In Cluster 2, we find a similar, albeit attenuated, profile in which the level of private-sphere behavior is moderately high (0.66) while environmental concern is relatively low (0.28). The low level of environmental concern in Cluster 2 is not surprising given that previous studies show that people can engage in environmentally significant behaviors, especially in the private sphere, for non-environmental reasons such as social norms (Reno et al. 1993) or economic incentives (De Young 2000).

Cross-National Differences in Latent Cluster Sizes

In the second step of the analysis we examine cross-national differences in latent cluster sizes, focusing on the sizes of the “low-behavior” clusters (Clusters 1 and 3). Figure 2 shows the country-specific cluster sizes for each of the 32 countries studied. Overall, the figure reveals striking cross-national differences. Interestingly, Clusters 1 and 3 (dark bars) constitute over 50 percent of the sample in 14 countries and over 90 percent in Russia, Turkey, and Bulgaria. In these countries, most citizens display comparably low levels of pro-environmental behavior. In other countries—such as France, Belgium, and Austria—Clusters 1 and 3 constitute less than 2 percent of the sample, thereby exemplifying staggering cross-national differences with regard to the share of the population displaying relatively low levels of pro-environmental behavior.

Finally, turning to Cluster 5 we unsurprisingly find that in countries where the “low-behavior” Clusters 1 and 3 are large, Cluster 5 is relatively small, and vice versa. This means that in the countries with the most actively engaged pro-environmental citizens, the two “low-behavior” clusters are small. Taken together, the results from Figure 2, which reveal considerably large cross-national differences in the sizes of these low-behavior groups, suggest that societal factors tied to the national context are at least partly responsible.

Societal Explanations: Macrolevel Analysis

We now turn to the macrolevel relationships between the societal factors, GDP per capita and national level of generalized trust, and latent cluster sizes for the two low-behavior
FIGURE 2. Cluster sizes (Clusters 1–5) in 32 countries, in descending order by size of Cluster 1.
clusters (1 and 3). We examine the relationship between each societal factor and latent cluster sizes across countries by using scatter plots.

In Figure 3, GDP per capita (x-axis) is plotted against the country-specific cluster sizes for Cluster 3 (y-axis). Across all countries, the GDP per capita average is USD 35,000, while the average size of Cluster 3 is 19 percent. The figure shows that the size of the low-concern/low-behavior profile of Cluster 3 is negatively related to GDP levels cross-nationally. All countries above the GDP per capita average have Cluster 3 sizes below 19 percent, while 12 out of the 16 countries below the GDP average have Cluster 3 sizes above 19 percent.

For example, whereas South Africa has a relatively low GDP of USD 11,800 and a relatively large Cluster 3 size of 48 percent, in contrast Switzerland has a GDP of USD 53,000 and a Cluster 3 size of 0.01 percent. Although most countries follow this linear pattern to a reasonable degree, there are a few outliers. For example, the Philippines has the lowest GDP in the total sample, and its Cluster 3 is smaller than average (9.2 percent). Nevertheless, apart from a few countries that might be considered outliers, we find that, in line with H2a, citizens are more likely to display low levels of pro-environmental behavior combined with a lack of environmental concern in countries with lower levels of economic prosperity.

In Figure 4, national means for generalized trust (x-axis) are plotted against the country-specific cluster sizes for Cluster 1 (y-axis). Across all countries the average level of generalized trust is 2.69, while the average size of Cluster 1 is 27.8 percent. The figure shows that the size of the high-concern/low-behavior profile of Cluster 1 is negatively related to the levels of generalized trust across countries. Out of the 13 countries with above-average levels of

FIGURE 3. GDP per capita and country-specific cluster sizes for Cluster 3.
generalized trust, 11 countries have Cluster 1 sizes below 27.8 percent, while 14 out of the 19 countries below the generalized trust average have Cluster 1 sizes above 27.8 percent.

For example, whereas the level of generalized trust in Turkey is relatively low (1.78), the size of Cluster 1 is comparatively large (57 percent). In contrast, the trust level in Sweden is high (3.54) while the size of Cluster 1 is small (6 percent). In line with H2b, citizens are more likely to display low levels of pro-environmental behavior combined with high levels of environmental concern in countries with low levels of generalized trust. This suggests that while environmental collective action problems appear to persist in many countries, these problems are attenuated in national contexts characterized by high levels of generalized trust.

Societal Explanations: Multilevel Analysis

In the previous part of the analysis we showed that GDP per capita is related to the size of Cluster 3 and that country averages of generalized trust are related to the size of Cluster 1. However, as GDP and generalized trust at the country level are correlated, it is difficult to distinguish the unique effect of each societal factor based on macrolevel data alone. In the final step of the analysis, we therefore use multilevel modeling to study the effects of GDP per capita and generalized trust on the individual-level cluster membership probabilities with regard to Clusters 1 and 3. Moreover, while we find a relationship at the macro level, this does not reveal whether these societal factors in fact influence individuals' propensity to
display different attitudinal and behavioral profiles with regard to environmental concern and pro-environmental behavior.

Table 2 presents five multilevel models for cluster membership probabilities with regard to Cluster 3. Turning first to the variance in cluster membership probabilities at the country level, we find that the ICC for the empty model (not displayed in the table) is 0.23. This confirms our findings from the macrolevel analysis, showing that there are considerable differences across countries in terms of individuals’ probability of belonging to the low-concern/low-behavior cluster. When introducing the individual-level sociodemographic background variables of gender, age, and education in Model 1, the country-level variation remains identical to that of the empty model. Hence, cross-country differences in Cluster 3 membership probabilities cannot be attributed to compositional effects in different countries.

In Model 2 we introduce GDP per capita. In line with H2a, the effect of GDP is statistically significant and negative, meaning that individuals are less likely to belong to Cluster 3 in countries with higher GDP levels. A one-unit increase in GDP level is associated with a 0.007 decrease in the probability for individuals to belong to Cluster 3. Given that GDP per capita is measured in thousands of US dollars, the effect can be considered substantial because of the large differences in GDP between rich and poor countries. Furthermore, we also find that the ICC is substantially reduced (31 percent) when including GDP per capita. These results suggest that individuals are more likely to belong to the profile of Cluster 3 in countries with low levels of economic prosperity. The negative effect of GDP remains equally strong and statistically significant in Model 3, where generalized trust at the country level is included. Meanwhile, the effect of generalized trust is not statistically significant. This supports the notion that individuals in poorer countries experience a higher prevalence of existential risks and are thus more likely to prioritize material rather than environmental concerns. Therefore, in turn, they are less likely to engage in pro-environmental behavior. In the final two models we control for environmental degradation using the Environmental Performance Index (Model 4) as well as Hofstede’s Individualism-Collectivism Index (Model 5). Here too the effect of GDP remains equally strong and statistically significant.

Table 3 presents five multilevel models for cluster membership probabilities with regard to Cluster 1. The empty (baseline) model (not reported in the table) indicates a substantial variation in cluster membership probabilities across countries (ICC = 0.36). This again confirms our findings from the macrolevel analysis, showing that there are considerable differences across countries in terms of individuals’ probability of belonging to the high-concern/low-behavior cluster.

Although some of the control variables included in Model 1 have a nonnegligible effect on Cluster 1 membership probabilities, such as the positive effect of education, the variation at the country level (ICC) remains identical to that of the empty model. This suggests that cross-country differences in membership probabilities cannot be attributed to compositional effects associated with the included individual-level variables. In Model 2 we introduce generalized trust at the country level.4 In line with H2b, the effect of generalized trust is statistically significant and negative, meaning that individuals are less likely to belong to Cluster 1 in countries with relatively high levels of generalized trust. The effect can be considered substantial, as a one-point increase in average trust levels yields a 0.28 decrease in individuals’
## TABLE 2
Cluster 3 Membership Probability by Individual-Level and Societal Factors, Multilevel Linear Regression

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>std e</td>
<td>b</td>
<td>std e</td>
<td>b</td>
</tr>
<tr>
<td><strong>Individual level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (woman = 1)</td>
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<td>0.002</td>
<td>-0.024***</td>
<td>0.002</td>
<td>-0.024***</td>
</tr>
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<td>-0.001***</td>
<td>0.000</td>
<td>-0.001***</td>
</tr>
<tr>
<td>Education (1–7)</td>
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<td>0.000</td>
<td>-0.023***</td>
<td>0.000</td>
<td>-0.023***</td>
</tr>
<tr>
<td><strong>Country level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP per capita</td>
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<td>0.002</td>
<td>-0.007**</td>
<td>0.002</td>
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<tr>
<td>Generalized trust</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPI</td>
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<td>-0.002</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
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<td>0.519***</td>
<td>0.053</td>
<td>0.530***</td>
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<tr>
<td>Country-level variance</td>
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<td>0.005</td>
<td>0.013***</td>
<td>0.003</td>
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<td>0.155</td>
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<td>0.155</td>
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<td>−2RLL</td>
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<td>9.019.2</td>
<td>9.022.9</td>
<td>9.028.7</td>
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<td>44,495</td>
<td>44,495</td>
<td>44,495</td>
<td>44,495</td>
</tr>
</tbody>
</table>

* = p > 0.05; ** = p > 0.01; *** = p > 0.001.

**Note:** Cell entries are unstandardized regression coefficients (b) and standard errors (std e). The “education” variable ranges from 1 (no formal qualification) to 7 (higher education degree).
# TABLE 3
Cluster 1 Membership Probability by Individual-Level and Societal Factors, Multilevel Linear Regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
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<td>b</td>
<td>std e</td>
<td>b</td>
<td>std e</td>
<td>b</td>
</tr>
<tr>
<td><strong>Individual level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (woman =1)</td>
<td>-0.002</td>
<td>0.003</td>
<td>-0.002</td>
<td>0.003</td>
<td>-0.002</td>
</tr>
<tr>
<td>Age (years)</td>
<td>-0.001**</td>
<td>0.000</td>
<td>-0.001**</td>
<td>0.000</td>
<td>-0.001**</td>
</tr>
<tr>
<td>Education (1–7)</td>
<td>0.006***</td>
<td>0.001</td>
<td>0.006***</td>
<td>0.001</td>
<td>0.006***</td>
</tr>
<tr>
<td><strong>Country level</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP per capita</td>
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<td>0.003</td>
<td>0.284***</td>
<td>0.056</td>
<td>-0.176*</td>
</tr>
<tr>
<td>Generalized trust</td>
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<td>0.003</td>
<td>-0.176*</td>
<td>0.080</td>
<td>-0.007*</td>
</tr>
<tr>
<td>EPI</td>
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<td>0.036</td>
<td>1.069***</td>
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<td>0.628***</td>
</tr>
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<td>Individualism</td>
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<td>0.000</td>
<td>0.072</td>
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</tr>
<tr>
<td>Intercept</td>
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<td>0.010</td>
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<tr>
<td>Individual-level variance</td>
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<td>0.242</td>
<td>0.250</td>
<td>0.226</td>
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<tr>
<td>ICC</td>
<td>44,495</td>
<td>44,495</td>
<td>44,495</td>
<td>44,495</td>
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</tr>
<tr>
<td>n</td>
<td></td>
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</tr>
</tbody>
</table>

* p > 0.05; ** p > 0.01; *** p > 0.001.

**Note:** Cell entries are unstandardized regression coefficients (b) and standard errors (std e). The “education” variable ranges from 1 (no formal qualification) to 7 (higher education degree).
probability of belonging to Cluster 1. Furthermore, we also find that the ICC is substantially reduced (33 percent) after the introduction of generalized trust at the country level.

To examine whether the effect of generalized trust on Cluster 1 membership probabilities persists when controlling for economic prosperity, we run an additional model including GDP per capita (Model 3). The results show that while the effect of GDP is not statistically significant, the effect of generalized trust on Cluster 1 membership probabilities is still significant when controlling for GDP, although the effect size is reduced from 0.28 to 0.18. The final two models show that the effect of generalized trust also remains substantial and statistically significant when we control for the Environmental Performance Index (Model 4) as well as the Individualism-Collectivism Index (Model 5). These results support the notion that environmentally concerned individuals in low-trust countries are less likely to act on their concerns by engaging in pro-environmental behavior.

Taken together the results from the multilevel analysis support hypotheses H2a and H2b, showing that the probability of individuals to display the attitudinal and behavioral characteristics of Cluster 3 is closely linked to GDP per capita, while the probability for individuals to display the characteristics of Cluster 1 is related to national levels of generalized trust. These results suggest that both GDP and trust levels are important societal characteristics explaining citizens’ lack of commitment to protecting the environment. Hence, our results suggest that two separate individual-level processes explain the relatively low levels of pro-environmental behavior among ordinary citizens, each linked to a distinct societal factor. While people in low GDP countries are less environmentally concerned and therefore less engaged in pro-environmental behavior, people who are environmentally concerned can also fail to act pro-environmentally, especially in low-trust countries where collective action problems are more likely to emerge.

**DISCUSSION**

Citizens’ lack of commitment to protecting the environment constitutes a fundamental obstacle in societies’ overall efforts to mitigate climate change. It is therefore essential to improve our understanding of why many citizens across the globe are not highly committed to protecting the environment. While previous studies have shown that environmental concern is a key motivating factor underlying pro-environmental behavior, other studies have shown that even environmentally concerned individuals often fail to act on their concerns. This suggests that at least two fundamental processes explain why so many citizens do not display high levels of commitment to protecting the environment.

In this study we aimed to distinguish between these two individual-level processes underlying pro-environmental behavior as well as to show how they relate to very different societal factors. At the individual level we theoretically derived one attitudinal and behavioral profile characterized by low levels of both environmental concern and pro-environmental behavior. We argued that individuals displaying this profile would fail to act pro-environmentally, mainly due to prioritizing material concerns over environmental ones when faced with economic hardship. We also derived another profile characterized by low levels of pro-
environmental behavior despite high levels of environmental concern. We argued that the lack of pro-environmental behavior among environmentally concerned individuals is very likely due to collective action problems, as it appears rational to free ride on the environmental efforts of others. While the literature rarely distinguishes between these two individual-level processes when studying pro-environmental behavior, we provided empirical evidence confirming the existence of two low-behavior profiles corresponding to our theoretical expectations. Furthermore, our results show that 48 percent of the total sample display one of these attitudinal and behavioral profiles. This means that almost half of the respondents lack a high level of commitment to protecting the environment, but for very different reasons.

A key finding from the LCA is that the low-concern/low-behavior cluster constitutes only about 20 percent of the total sample, while the high-concern/low-behavior cluster constitutes almost 30 percent of the total sample. Counterintuitively, a lack of a high commitment to protecting the environment appears to be more widespread among environmentally concerned individuals than among those who are not concerned. In contrast to previous studies emphasizing the importance of increasing public awareness and concern about environmental problems such as climate change (Gifford and Nilsson 2014; Lee et al. 2015; Weber and Stern 2011), our results support the findings from a growing number of studies concluding that while many people are generally aware and concerned about environmental problems such as climate change, their actions often do not reflect this fact (see, for example, Whitmarsh 2011). A crucial contribution of the present study is that we empirically demonstrate that promoting pro-environmental behavior among already environmentally concerned individuals appears to be an even more crucial task than raising environmental awareness and concern (cf., Luís et al. 2018).

At the macrolevel our findings show that the prevalence of the two low-behavior profiles clearly varies across countries. We proposed that two key societal factors to a great extent account for cross-national differences in the salience of these attitudinal and behavioral profiles as well as individuals’ probability of displaying them. In line with the postmaterialist thesis, we argued that citizens are more likely to display the low-concern/low-behavior profile in less prosperous countries; that is, in countries with low levels of GDP per capita. Based on theories of collective action problems, we argued that citizens are more likely to display the high-concern/low-behavior profile in countries characterized by low levels of generalized trust. Our macrolevel analysis supported these hypotheses by showing that the sizes of the latent clusters were strongly correlated with GDP and trust, in the expected manner. Finally, the multilevel analysis confirmed our hypotheses, showing that the relationships between the societal factors and individuals’ probability of displaying these profiles were statistically significant, even when controlling for additional country-level factors identified in previous research.

In summary, our results confirm the findings from previous studies showing that economic prosperity is associated with environmental attitudes and behavior (e.g., Franzen and Vogl 2013a; Freymeyer and Johnson 2010; Gelissen 2007). Furthermore, our results also confirm previous studies emphasizing the role of generalized trust in the relationship between environmental attitudes (e.g., environmental concern) and pro-environmental behavior (Sønderskov 2008; Franzen and Vogl 2013b; Tam and Chan 2018). However, this study adds
to present knowledge by showing that GDP and trust do not have uniform effects on behavioral outcomes but instead relate to individual-level processes that differ between groups of citizens within countries. Hence, in contrast to previous studies that have treated GDP and generalized trust as competing factors influencing environmental attitudes and behaviors, our results illustrate that these societal factors appear to be complementary, as they relate to distinctly different individual-level processes undermining individuals’ commitment to protecting the environment.

One potential limitation of the study might lie in the mode of operationalization, at least with regard to private-sphere behaviors. For these behaviors, we distinguished between those who were highly committed to protecting the environment, and thus answered “always” with regard to at least one type of behavior, and those who did not. Here, one could argue that answering “often” might also be indicative of a high level of commitment. However, “often” is arguably too subjective and ambiguous a statement to be interpreted exclusively as indicative of a high level of commitment, since it most likely refers to very different levels of commitment for different individuals.

Another potential limitation relates to the wording of some of the items measuring private-sphere behaviors. For instance, the items about recycling and buying ecological groceries do not explicitly ask about respondents’ environmental motivations, which suggests that engagement in these behaviors could be primarily driven by other motivations. Therefore, we conducted additional analyses where we excluded these variables. These analyses showed that our main results are robust with regard to (1) the existence of two distinct low-behavior profiles with high and low levels of concern, respectively, and (ii) the expected effects of generalized trust and GDP on individuals’ probability of displaying these attitudinal and behavioral profiles.

Given the salience of the profile that displays relatively low levels of pro-environmental behavior despite high levels of environmental concern in low-trust countries, future empirical research should devote more attention to approaches focusing on collective action problems. More specifically, future studies should broaden the perspective beyond generalized trust to include other related factors that potentially alleviate environmental collective action problems. In particular, previous research has largely ignored the embeddedness of citizens’ environmental attitudes and behaviors in political and institutional contexts. Given that the institutionalism literature emphasizes the role of institutions in both regulating human behavior (e.g., Hall and Taylor 1996) and generating social capital and trust (e.g., Rothstein 2011), a fruitful avenue for future research is to study the institutional embeddedness of pro-environmental behavior.

This study shows that while pro-environmental behavior can be promoted through increasing environmental awareness and concern, the effectiveness of this approach appears more limited than previously thought, especially in more economically developed countries where environmental concern is widespread. Our study therefore constitutes a crucial contribution to the growing literature emphasizing the importance of applying sociological perspectives and macrotheoretical approaches to explain the individual-level processes underlying pro-environmental behavior. From a policymaking standpoint, promoting a high commitment to
protecting the environment among citizens thus requires that attention be given to at least two distinct individual-level processes, each linked to different societal factors.

ACKNOWLEDGEMENT

This research was funded by the Marianne and Marcus Wallenberg Foundation [MMW 2014.0034].

NOTES

1. This battery included an additional item concerning car use. Due to the relatively large share of respondents reporting that they “did not have” or “could not drive” a car (24.5 percent), we excluded this item from our analyses.

2. Principal component analysis indicates that all manifest indicators for public- and private-sphere behavior load on two dimensions, with factor loadings around or above 0.6.

3. These data are from the year 2010 and can be accessed at the website of the International Monetary Fund: http://www.imf.org.

4. To ensure that the effect of trust at the contextual level was not primarily a result of trust at the individual level, we also controlled for trust at latter (not reported in the table). However, the inclusion of individual-level trust was not significant and did not alter the effect of trust at the contextual level.

5. To ensure that our results were robust under different modes of operationalization of private-sphere behavior, we used an additional approach that excludes the items that do not explicitly ask about respondents’ environmental motivation (i.e., recycling and buying fruits/vegetables without pesticides or chemicals). In these analyses, the results with regard to the LCA confirmed our hypotheses regarding two distinct low-behavior profiles, with high and low levels of environmental concern, respectively. The additional analyses also confirmed the results in the multilevel analysis between the societal factors (GDP and trust) and cluster membership probabilities, although the effects were not as strong and occasionally significant only at the 0.1 level. The results from these analyses can be obtained from the authors upon request.

REFERENCES


