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Environmental group membership, collective action and generalised trust

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The effect of generalised trust on environmental group membership is investigated from a collective action perspective. A cross-national analysis is conducted. It shows a robust and consistent, positive effect of generalised trust on environmental group membership. Drawing on an existing model of environmental group membership, the analysis demonstrates the usefulness of generalised trust and a collective action perspective in that they improve this model.

Why do people join environmental organisations? Membership of such organisations involves a collective action dilemma, which has been neglected in most studies of environmental group membership. In order to include the collective action dilemma, I draw on the concept of generalised trust which, according to the literature, is expected to help solve problems of collective action. If environmental group membership involves a collective action dilemma and if generalised trust helps solve such problems, we would expect environmental group membership to increase in the presence of trust. This hypothesis is put to the test by adding generalised trust to the model of environmental group membership presented by Dalton (2005).

A cross-national analysis is carried out and it sustains the hypothesis. Furthermore, the addition of trust improves the performance of Dalton's model significantly in terms of explanatory power and robustness. Hence, the analyses do not refute Dalton's model but instead demonstrate that generalised trust and a collective action perspective improve the model and our understanding of environmental group membership.

The article is in five sections. The second section presents Dalton's model, generalised trust is introduced and defined, and finally, the hypotheses are deduced. The third section presents the analytical design and the measures

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employed. In the empirical analysis in the fourth section, generalised trust is added to Dalton's model in a cross-national analysis. The fifth section presents the conclusion and points to some prospective ways to include the concept of generalised trust in environmental political science.

Environmental group membership: existing knowledge, generalised trust and new hypotheses

An environmental group is an association seeking to improve the environment through lobbying, advocating, or protest (Diani and Donati 1999). Thus, environmental groups – among other things – seek to improve a common good that benefits most of society, assuming that environmental quality is at a suboptimal level. The members of these groups are people who voluntarily contribute to the group through monetary donations and/or active participation. Environmental groups in many respects resemble other voluntary organisations like the trade unions described in Mancur Olson's classic work (1971). From Olson's perspective, environmental group membership is difficult to explain, since members and non-members alike enjoy most of the benefits produced by such groups, but only the members incur the costs (Olson 1982, p. 34). Following Olson, we would not expect people to join environmental groups because of the asymmetry between costs and benefits and the concomitant collective action problem.

However, people do join environmental organisations. A straightforward explanation could be that Olson's logic does not apply to this aspect of human behaviour, and that things other than cost–benefit ratios motivate people. This stance has been taken by many of the scholars who deal with environmental movements (e.g. Jordan and Maloney 1997, Kousis 1999, Frank *et al.* 2000, Dalton and Rohrschneider 2002, Dalton 2005). Dalton (2005) points to four factors that affect whether people choose to join environmental organisations or not, and none of these is explicitly related to collective action problems. These four factors, which all supposedly affect *national* levels of environmental group membership, are *postmaterial values*, *socio-economic development*, *democratic institutions and political opportunity structure*, and *environmental conditions*. Dalton's model will be presented more thoroughly below since it will be used as the point of departure in the test of the effect of generalised trust on environmental group membership.

Dalton's model

Dalton argues that *postmaterial values* stimulate environmental mobilisation because postmaterialists are more concerned with quality of life issues, hold participatory values and have a 'green' ideological orientation (Dalton 2005, pp. 449–450).

Socio-economic development promotes membership by intensifying several societal factors that arguably stimulate membership. These factors include

dense commutation structures, urbanisation, mass education and social mobility (Dalton 2005, pp. 446–447). Hence, socio-economic development is a proxy for several factors, which all supposedly enhance the possibilities for large-scale environmental mobilisation.

Democratic institutions and political opportunity structures can stimulate or inhibit mobilisation. In less democratic countries, protest organisations may be deemed illegal, whereas they are tolerated or even encouraged in advanced democratic states (Dalton 2005, pp. 448–449).

Finally, *environmental conditions* are arguably an objective factor that stimulates environmental activism. Extensive environmental problems make more people react and demand improvements through mobilisation. This leads to an expected negative relationship between environmental quality and membership (Dalton 2005, p. 450).

In sum, according to Dalton, values and objective conditions affect membership, not costs and benefits. Dalton tests this hypothesis in a cross-national study but, as demonstrated below (Table 3), the results are not very convincing. The effect of postmaterialism is vague and fragile, the other factors are statistically insignificant, and the overall performance of the model is not outstanding (cf. Dalton 2005, Table 2). Thus, neither Olson's perspective nor Dalton's is able to explain why people join environmental organisations. However, both perspectives do provide insights into environmental group membership, and in order to exploit these I will combine them and add the concept of generalised trust.

Following Olson, I maintain that environmental group membership *may* involve a collective action problem due to asymmetry between individual costs and benefits. However, under certain conditions, the collective action problem may diminish, making environmental mobilisation possible. Below I shall argue that the presence of generalised trust could be one such condition.

Furthermore, this paper maintains that Dalton's four factors are well-founded theoretical explanations, but that the omission of the potential collective action problem poses a serious problem, which explains the mediocre performance of the model. If the collective action problem is too overwhelming, then no one would join an environmental organisation, regardless of values, environmental conditions and political opportunity structures. In this case, Dalton's factors will not explain variation in environmental group membership. On the other hand, if the collective action problem is less severe, people do join environmental organisations if they hold postmaterial values, etc. Hence, to improve Dalton's model, we need to include information on the magnitude of the collective action problem. Again, this points to the usefulness of generalised trust and we will now turn to this concept.

Introducing and defining generalised trust

Academic interest in generalised trust has been increasing, most likely because of its connection with the even more popular concept of social capital. I focus

on generalised trust, but look briefly at the relationship between generalised trust and social capital. During the last 10 years, the concept of social capital has been used in numerous publications, and several different definitions and measures have been advocated (cf. Narayan and Pritchett 2000, Paldam 2000). The different definitions have different takes on the relationship between generalised trust and social capital. Putnam (1993, p. 167) defined social capital as 'trust, norms and networks', and some scholars have kept Putnam's original definition and hence argued that the different elements are part of the same phenomenon (Grootaert and van Bastelaer 2002). Others have defined social capital as generalised trust, thus rejecting the other elements (Paldam and Svendsen 2000, Rothstein 2005, pp. 54–67). Yet others see generalised trust as an effect of social capital (Putnam 2000, Ostrom and Ahn 2003). A final position uses the concept of generalised trust without explicitly relating it to social capital (Uslaner 2002). I take the latter approach, but briefly discuss the relationship between generalised trust and associational activity below. The perspective taken here posits that generalised trust is an important and distinct concept in relation to collective action. The reasoning behind this perspective is that studies have shown that the different elements of social capital are too weakly related to be combined into one concept (Bjørnskov 2006) and that the different elements produce completely different results (Knack and Keefer 1997).

Leaving social capital aside and turning to generalised trust, it should be noted that generalised trust is sometimes called *social trust* (Putnam 1993), *interpersonal trust* (Brehm and Rahn 1997), or *thin trust* (Putnam 2000). Here I will stick to generalised trust and define it along the same lines as Uslaner (2002, Chapter 2). Generalised trust is the belief that people in general are trustworthy and that most people share the same basic norms as oneself. This differentiates it from its opposite – *mistrust* – but also from *particularised trust*, where people only trust people they know and not people in general.

Particularised trust – or ordinary trust – is expected to ease cooperation and hence solve problems of collective action between people who know one another (Granovetter 1985). Analogically, generalised trust can be expected to foster cooperation between actors who do not know one another (La Porta *et al.* 1997). An expectation that most people will cooperate increases the expected payoff from cooperation and, consequently, increases the likelihood of cooperation in situations that involve many actors.

This notion of generalised trust can be connected to environmental group membership and hypotheses can be deduced.

Generalised trust and environmental group membership

As argued above, membership of an environmental organisation might constitute a large-scale collective action problem due to the difference between costs and benefits. Hence, if generalised trust helps solve problems of collective action, we expect – all else being equal – that people having generalised trust

are more likely to join such groups. On the macro-level, Inglehart and Welzel have argued and shown that generalised trust is a good indicator of a prodemocratic civic culture – i.e. a well functioning democracy (2005). This also gives reason to expect a positive effect of generalised trust on environmental group membership. With this in mind, my hypothesis can be stated thus: countries with high densities of generalised trust have – all else being equal – higher environmental group membership rates than countries with lower levels of generalised trust.

The ‘all else being equal’ assumption means that generalised trust affects membership when other explanatory factors are controlled for. More explicitly, it is expected that generalised trust affects membership when Dalton’s factors are controlled for, and these factors will therefore be included in the analyses. However, Dalton’s factors not only serve as control variables; it is expected that the addition of generalised trust to the model will increase the effect of Dalton’s factors. As noted above, Dalton’s factors are considered well-founded explanations, which, however, neglect the potential collective action problem associated with membership. By adding generalised trust, we take the collective action problem into account, which should increase the effect of the other factors and improve the model.

Before testing the hypothesis, one issue must be addressed. Some readers familiar with the social capital literature will probably object to my hypothesis, arguing that causality is turned on its head. Associational activity, like environmental group membership, is often seen as a cause and not an effect of generalised trust (Brehm and Rahn 1997). Others will argue that the expected direction of causation from generalised trust to membership is meaningless since they both constitute social capital (Putnam 1993). This is a serious objection that, if true, undermines the entire argument. However, empirical studies have discarded the reversed causality. Endogeneity tests have shown that causality runs solely from generalised trust to associational activity (Uslaner 2002, Nannestad 2006; see, however, Brehm and Rahn 1997). Furthermore, analysis of data from the third wave of the World Values Survey shows that active members of environmental organisations are no more trusting than passive members.¹ Apparently, active membership of environmental organisations does not increase generalised trust. Based on this evidence, it is maintained that the causality runs as argued.

Design and measures

The hypothesis will be tested in a cross-national analysis. Generalised trust is added to Dalton’s model, analysing the effect of aggregated generalised trust on national levels of environmental group membership.

To assess the robustness and to compare the results with Dalton’s different measures and methods are employed. First, the data and methods used by Dalton are employed, adding only generalised trust. Second, the analysis is rerun with slightly changed data and method. These data have been corrected

for some minor errors and, in some cases, a more valid operationalisation is used. Furthermore, three countries are excluded from these analyses due to missing data. The data were also missing in Dalton's analysis, but the countries were included via pairwise deletion of missing data. Pairwise deletion of missing values is generally considered invalid (Norusis 1994, p. 476), and I therefore rely on listwise deletion. This consequently excludes three countries. Table 1 lists the included countries.²

A description of the measures employed in the analysis using Dalton's data can be found in Dalton (2005), with the exception of generalised trust. Generalised trust and the other measures employed in the other analyses are measured as follows.

The dependent variable – *national levels of environmental group membership* – is measured with data from the fourth European and World Values Survey (EWVS) from 1999 to 2002. I use the question 'Do you belong to a conservation, environmental, or animal rights groups?' (cf. Dalton 2005, EWVS 2006, a071). The national level of membership is the share in each country that replies in the affirmative to this question (after removing respondents who failed to answer the question and employing a weight that corrects sample bias; EWVS 2006, s017).

Table 1 lists the national membership level in the included countries.³ Turkey, where less than 1% of the population belongs to an environmental organisation, comes in at the bottom of the list. Quite a few countries have low levels of membership; only nine show levels above 10%. The Netherlands tops the list with an astonishing 43%. This could be a measurement error, but according to other sources, about 25% of the population are members of a *national* environmental organisation, not counting membership of local organisations (van der Heijden 2002), and so 43% seems realistic.

The descriptive statistics in Table 1 show that the measure is heavily skewed to the right since the membership level in most countries is close to zero. As we shall see below, this causes problems when estimating the model and to remedy this problem a transformed measure is used in some of the analyses. Membership levels are transformed by the natural logarithm, which puts greater emphasis on changes at lower membership levels. Furthermore, other non-linear models are explored through interaction terms.

Generalised trust is measured using data from the same source, the dichotomous question 'Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?' (EWVS 2006, a165). The national level of generalised trust is the share expressing generalised trust by replying 'Most people can be trusted'.⁴ The operationalisation is far from optimal because it relies on a single, dichotomous question. The question only has two possible responses so the measure could be highly imprecise. This problem is probably less severe at the macro-level, where the aggregation from individual responses to a national mean can counterbalance imprecise responses. Low validity could be another problem as we measure a complex phenomenon using just one question.

Table 1. Cross-country levels of environmental group membership and generalised trust (%; sorted by membership).

Country	Membership	Generalised trust	Country	Membership	Generalised trust
Turkey	0.2	6.8	Japan	3.2	43.1
Portugal	0.5	10.0	Slovenia	3.3	21.7
Morocco	0.5	23.5	Italy	3.8	32.6
Ukraine	0.6	27.2	South Africa	4.1	11.8
Lithuania	0.7	24.9	Algeria	4.4	11.2
Latvia	0.7	17.1	Finland	4.5	58.0
Russian Federation	0.7	23.7	Mexico	4.5	21.3
Belarus	0.9	41.9	Rep. Moldova	4.6	14.7
Romania	1.0	10.1	Iceland	4.6	41.1
China	1.2	54.5	Rep. Macedonia	4.9	13.5
Poland	1.2	18.9	Korea, Rep	6.2	27.3
Bulgaria	1.3	26.9	Czech Republic	6.6	23.9
United Kingdom	1.5	30.0	India	7.0	41.0
Hungary	1.7	21.8	Viet Nam	7.6	41.1
Estonia	1.7	22.8	Philippines	8.0	8.4
Bosnia-Herzegovina	1.9	15.8	Canada	9.1	38.8
Spain	2.1	36.3	Austria	9.1	33.9
Croatia	2.1	18.4	Uganda	10.1	7.6
Argentina	2.2	15.4	Albania	10.4	24.4
France	2.2	22.2	Greece	11.0	23.7
Zimbabwe	2.4	11.9	Sweden	11.3	66.3
Ireland	2.6	35.8	Belgium	11.4	30.7
Slovakia	2.6	15.7	Venezuela	11.9	15.9
Germany	2.7	34.8	Denmark	13.1	66.5
Chile	3.0	22.8	USA	15.6	35.8
Peru	3.1	10.7	Netherlands	43.5	59.8
Summary	Membership	Generalised trust	Natural log of membership		
Mean	5.3	27.2	1.1		
Minimum	0.2	6.8	-1.8		
Maximum	43.5	66.5	3.8		
Skewness	3.77	1.0	-0.2		

Source: EVWS (2006, a071, a165, s017).

However, Uslaner investigates the validity of the question and finds that it is high – at least in American surveys (2002, pp. 68–75).

Table 1 also lists the country levels of generalised trust. Denmark, Sweden, Finland and the Netherlands top the list with about two thirds of their

populations expressing generalised trust. At the bottom of the list, we find Uganda and the Philippines where less than 10% of the populations express generalised trust.

Postmaterialism is also measured using EWVS data, the four-item materialist/postmaterialist battery (Inglehart *et al.* 2004, pp. 410–411, EWVS 2006, y002). The national level of postmaterialism is the national share labelled *postmaterialist* by the battery. Thus, it measures the share of respondents who give the highest priority to ‘giving people more to say in important government decisions’ and ‘protecting freedom of speech’ over ‘maintaining order in the nation’ and ‘fighting rising prices’.⁵

Socio-economic development is measured using *GDP per capita* from the World Bank (2005). Since the EWVS survey data are collected in different years in different countries (1999–2002), GDP data from the survey year are used.⁶

The same method is used for *democratic institutions and political opportunity structures*. This is measured by the Press Freedom Index from Freedom House (2004).⁷

Environmental conditions are measured using data from the Environmental Sustainability Index (ESI) (GLOTF 2002). The ESI consists of five components, each describing different aspects of national environmental sustainability. I use the average score on two of these components: *environmental systems* and *reducing environmental stresses*, where a high score indicates sound environmental conditions. These two components consist of 28 underlying variables that describe the state of the national environment on a range of different aspects covering land, water and air. Only these two components are used because the other three describe national contributions to global environmental problems and institutional aspects of sustainability (including civil liberties and an environmental group membership measure).⁸ These three components are excluded because they do not measure the state of the local environment, and some of them actually measure some of the other explanatory variables or the dependent variable. Using only the average of the two components, the measure describes the overall state of the national, local environment where people live, and hence the measure corresponds very well with the theoretical concept. However, it is impossible to obtain data gathered in exactly the same year as the other variables, but since most variables in the two components were measured in the late 1990s, the temporal deviation is minor (cf. GLOTF 2002, Annex 6).

Table 2 lists the bivariate correlation between the independent and the dependent variable. The bivariate relationships all have the expected signs and are significant. We now turn to the test of the effect of generalised trust on environmental group membership through multivariate analyses.

Empirical analysis: generalised trust and environmental group membership

We start by recreating the results obtained by Dalton (2005, Table 2), which are displayed in Model I, Table 3. As noted above, the model does not perform

Table 2. Bivariate correlations (*r*).

	National levels of environmental group membership
Generalised trust	0.42***
Postmaterialism	0.36***
GDP per capita	0.36***
Press freedom	0.30**
Environmental conditions	-0.24*
<i>N</i>	52

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

very well; only postmaterialism is significant and the R^2 is quite low. It drops even further if we exclude countries for which data are missing by employing the more valid method of listwise deletion of missing values (Model II). The poor performance could indicate an omitted variable, which is underlined in Model III. When generalised trust is added, we obtain a better model in terms of explanatory power. Hence, the addition of generalised trust improves our understanding of environmental group membership and the analysis sustains the expected effect of generalised trust. However, the model is not without problems in that outliers affect the results.

We therefore use the data described above (dubbed *Sønderskov data*); Models IV through VII are based on these data. With these slightly changed data, the models are generally improved. Model IV also sustains the expected effect of generalised trust, but again the results are affected by outliers, which make them less valid. Therefore, the logarithmic transformed membership variable is employed in Models V and VI, which solves the outlier problem. These models sustain the hypothesis; generalised trust has a positive significant effect on environmental group membership. Citizens in countries with high densities of generalised trust are more inclined to join environmental organisations and generalised trust thus improves our understanding of environmental group membership. This is underlined in Model VI; when generalised trust is omitted, the explanatory power drops substantially. Furthermore, by omitting generalised trust, the effects of the other variables are lowered. Hence, the inclusion of generalised trust not only improves explanatory power, it also raises the effects of the other explanations. This indicates, as expected, that by taking the size of the collective action problem into account, the other explanations have the expected effects. Thus, the omission of the potential collective action problem explains the mediocre performance of Dalton's original model. As we shall see below, this assertion is supported in Model VII.

The superior performance of the model with a log-transformed dependent variable shows that the marginal effects of the explanatory variables are lower at low mobilisations levels, whereas the effects increase at higher levels. This suggests that a certain level of one or more of the explanatory variables has to be present before large-scale mobilisation occurs. Dalton and Rohrschneider

Table 3. Predicting cross-national levels of environmental group membership (OLS).

Predictor	Model I Membership (Dalton data)	Model II Membership (Dalton data)	Model III Membership (Dalton data)	Model IV Membership (Sønderskov data)	Model V Membership (logarithmic) (Sønderskov data)	Model VI Membership (logarithmic) (Sønderskov data)	Model VII Membership (Sønderskov data)
Generalised trust (GT)			0.19** (0.07)	0.21*** (0.07)	0.03** (0.01)		0.38 (0.23)
Postmaterialism (PM)	0.26* (0.15)	0.25 (0.16)	0.29* (0.15)	0.37** (0.15)	0.05** (0.03)	0.04 (0.03)	-0.47* (0.24)
GDP per capita	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)
Press freedom	0.06 (0.06)	0.06 (0.07)	0.10 (0.06)	0.12* (0.07)	0.02* (0.01)	0.01 (0.01)	0.05 (0.06)
Environmental conditions (ENV)	-0.07 (0.11)	-0.06 (0.12)	-0.07 (0.11)	-0.09 (0.07)	-0.02 (0.01)	-0.01 (0.01)	0.22 (0.13)
Interaction GT × PM							0.03*** (0.00)
Interaction GT × ENV							-0.01*** (0.00)
Constant	7.44 (6.88)	6.99 (7.27)	6.80 (6.84)	8.84 (5.51)	1.88** (0.92)	1.83* (0.96)	-0.15 (7.74)
R ²	0.17	0.16	0.27	0.31	0.28	0.20	0.55
Adj. R ²	0.10	0.09	0.19	0.24	0.20	0.13	0.47
Model F-value	2.37*	2.20*	3.41**	4.22***	3.58***	2.91**	7.55***
N	55/52†	52	52	52	52	52	52

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. †Three countries have missing data on one independent variable. These countries have been excluded in all other models. Standard errors in parentheses.

have proposed that a certain threshold of democratisation has to be passed before large-scale mobilisation takes place (2002). Above, it was argued that a certain level of generalised trust has to be present in order to overcome the collective action problem associated with membership. These threshold hypotheses are explored through interaction terms. The effects of all possible two-way interaction terms have been explored and it was found that two interactions improve Model IV significantly: the interactions between generalised trust and postmaterialism, and between generalised trust and environmental conditions.⁹

In Model VII, these two terms have therefore been added, and their inclusion improves the explanatory power of Model IV substantially. Furthermore, the results are no longer affected by outliers.¹⁰ The slopes of the interaction terms indicate that the marginal effect of increasing postmaterialism on membership increases as generalised trust increases. Hence, postmaterialism has the greatest effect in countries with high densities of generalised trust. Likewise, the negative effect of sound environmental conditions is greatest when generalised trust is high. The coefficients of postmaterialism indicate that in the hypothetical situation of zero generalised trust, postmaterialism actually affects membership negatively. Analogically, with zero generalised trust, marginal worsening of the environmental conditions leads to lower membership levels. However, these coefficients should be interpreted with caution, as they are purely hypothetical.

Much more information on the conditional relationship between generalised trust, postmaterialism, environmental conditions and membership can be obtained if we calculate the marginal effects of postmaterialism and environmental conditions on membership levels at different levels of generalised trust (cf. Brambor *et al.* 2006).¹¹

Figure 1 depicts the conditional relationship between postmaterialism, generalised trust and membership levels. At low levels of generalised trust, the marginal effect of increasing postmaterialism on membership is not significantly different from zero, but at generalised trust levels above 30, increasing postmaterialism affects membership levels positively, and at high levels of generalised trust, the effect of postmaterialism is about 1.5 – or about five times higher than the mean effect found in Model IV. Put another way, in high trust countries, one percentage point increase in the share of postmaterialists increases membership by 1.5 percentage points. In low trust countries, on the other hand, increasing postmaterialism does not lead to increased membership.

The same picture emerges from Figure 2, which illustrates the conditional relationship between environmental conditions, generalised trust and membership levels. At low levels of generalised trust, the marginal effect of environmental conditions is not different from zero, but again, at generalised trust levels above 30, improving environmental conditions has the expected negative effect.

Model VII thus sustains the expected role of generalised trust. Without generalised trust, postmaterialism and severe environmental conditions do not

Figure 1. Marginal effects of postmaterialism on membership at different levels of generalised trust.

Figure 2. Marginal effects of environmental conditions on membership at different levels of generalised trust.

lead to mobilisation, but when generalised trust is present, people can overcome the collective action problem associated with membership and start joining environmental organisations. This mediating effect of generalised trust explains the superiority of the non-linear model and it explains why models without generalised trust do not perform very well. To my knowledge, the mediating effect found here has not previously been found, and it should be explored further in other studies of generalised trust.

In sum, the analyses in this section have sustained the expected positive effect of generalised trust. People living in countries with high densities of generalised trust are more inclined to join environmental organisations. The theoretical explanation of this effect offered at the outset was that people holding generalised trust more readily contribute to common goods. Obviously, this micro-level explanation has not been fully sustained since the analyses are conducted at the macro-level. To sustain this explanation, micro- or multi-level studies are needed, but they are beyond the scope of this article. However, some evidence suggests that a micro-level association exists. Other micro-studies have found a similar effect on other types of associational activity (Nannestad 2006), and preliminary analyses, using the EWVS data, sustain a micro-level connection between generalised trust and environmental group membership.¹²

Before concluding, one more issue must be addressed. Some patterns in Table 3 give reason to question the validity and robustness of the results. The effects of GDP per capita and press freedom are somewhat unstable. GDP per capita changes sign when using the Sønderskov data and the coefficients of press freedom vary depending on the model specification. Analyses show that the coefficients of these factors might be affected by multicollinearity. This implies that the coefficients of these factors should be interpreted with caution. The multicollinearity gives reason to question whether the addition of generalised trust is a real contribution or whether generalised trust is just another measure of modernisation. This would explain the multicollinearity and would imply that the addition of generalised trust is an improvement in measurement of modernisation but not a real theoretical improvement.

Several studies have shown that generalised trust affects modernisation. On that basis, we cannot dismiss the possibility that the effect of generalised trust found above is caused solely by its correlation with modernisation and that variation in modernisation is the real explanation of environmental group membership. On the other hand, generalised trust has shown remarkable stability during the 25 years for which internationally comparable data has been available (Bjørnskov 2007). Hence, while generalised trust is a good explanation of cross-national variation in modernisation, it is not a good measure of it – at least in the long run. This indicates that generalised trust is a valid and significant theoretical explanation of membership.

One way to assess the significance of generalised trust empirically is by analysing its collinearity with the other explanatory variables as some of these measure modernisation. If generalised trust is only vaguely collinear with the

other variables, it implies that generalised trust is a significant independent explanation of environmental group membership. If, on the other hand, generalised trust is highly collinear, then the role of trust is unclear since it would be indeterminate whether the measure of generalised trust merely expresses modernisation, or whether generalised trust is an independent explanation that just happens to be correlated with some of the other variables. The VIF statistic from Model V for generalised trust is 1.77, which indicates only low collinearity. On that basis, it is concluded that generalised trust is a genuine, independent explanation of environmental group membership.¹³

Conclusions

I have investigated the role of generalised trust in relation to environmental group membership through a cross-national analysis. The analysis has demonstrated a strong, positive effect of generalised trust on membership. When generalised trust is present, more people join environmental organisations, thus overcoming the collective action problem and providing public goods. What is more, the results indicated that generalised trust enhances the effect of objective conditions and values like postmaterialism. This possible interaction between trust and values is a new finding, which could be exploited in future research. The interaction could be investigated in a fully developed multi-level analysis of environmental group membership, but the interaction could also be applied in other studies on the effects of generalised trust.

The main limitation of the present analysis is the level of analysis. The macro-level analysis cannot sustain the proposed micro-level connection between generalised trust and environmental group membership. This also calls for a more thoroughly multi-level analysis.

The analyses have only dealt with environmental group membership, and the results cannot be extrapolated to other types of associations without additional studies. Further exploration of the connection between generalised trust and other types of associations could reveal whether the effect found here is general or if it only applies to certain kinds of organisations. One hypothesis could be that the effect applies when the organisation aims to improve large-scale common goods. On the other hand, Inglehart and Welzel (2005, pp. 254–256) have shown that generalised trust is a good indicator of the prevalence of a prodemocratic civic culture, which indicates that the effect is a general one.

Concerning environmental groups, the addition of generalised trust to Dalton's model has been fruitful. By including generalised trust, our understanding of membership has improved significantly, and the inclusion has demonstrated that Dalton's model is a good starting point, but that it ignores the collective action dilemma associated with membership. By including generalised trust, this aspect has now been modelled. This in fact supports Dalton's model, as some of the expected effects are more robust when generalised trust is included. Thus, rather than rejecting Dalton's model, the paper has improved and supported it.

The fruitfulness of generalised trust in relation to environmental organisations indicates that generalised trust can be useful in other areas of environmental political science. Many aspects of environmental politics and policies and also individual's environmental behaviour involve collective action dilemmas, and using generalised trust as an explanation of outcomes on these areas could improve our understanding of these matters. To name but one example, generalised trust could be integrated in the *environmental performance framework* developed by Jänicke (1992) as well as in the later contributions of Scruggs (2003) and Jahn (1998).

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Notes

1. Thirty-two percent of inactive members display generalised trust compared to 31% of active members. This analysis is performed with 71,161 respondents from 54 countries. A weight that corrects sample bias and represents each country with 1000 respondents has been employed (EWVS 2006, a165, a103, s018).
2. Table 1 reports data for Bosnia-Herzegovina that are not included in Dalton's table. However, Bosnia-Herzegovina is included in Dalton's analyses and is included here too.
3. For some countries the membership statistics differ slightly from those reported in Dalton (2005, Table 1), because Dalton's measure is based on unweighted data and includes non-responses ($r > 0.99$). The data for United Kingdom are the population-weighted average from surveys in Great Britain and Northern Ireland. Two surveys were conducted in Spain, and I use the average of these surveys.
4. The same procedure as used on the membership measure is used here (regarding non-responses, weighting, UK and Spain).
5. The correlation with the data in Dalton is 0.97. Once again, the present data are weighted, non-replies are excluded and the Spanish data are based on two surveys. The postmaterialism battery was not asked in Great Britain, and I use Great Britain data from the third wave of European and World Values Survey.
6. Some surveys are collected over two years; in these cases, the mean GDP of the two years is used. Inglehart *et al.* list the survey years (2004, pp. 401–406). The correlation with the data in Dalton is 0.99; Dalton uses GNP in year 2000.
7. Dalton uses the same approach, but is apparently using different years in some cases; $r = 0.97$.
8. Dalton uses the full ESI; the correlation between ESI and the average of the two components used here is 0.66.
9. The contributions of all possible interactions were tested with *F*-tests. Aside from the interactions between generalised trust and postmaterialism and between generalised trust and environmental conditions, one additional term contributed significantly to the model, namely, interaction between generalised trust and GDP per capita. This term was however insignificant when included together with the other two terms.
10. Netherlands' studentised residuals still exceeds the critical limit of ± 2 , but an analysis without Netherlands does not alter the results substantially.

11. Brambor *et al.* (2006) have created a very helpful website that describes the procedure in detail (<http://homepages.nyu.edu/%7Emrg217/interaction.html>).
12. Individual-level data from the third and fourth wave of EWVS shows significantly higher membership levels among people holding generalised trust compared to people without generalised trust (EWVS 2006, a071, a103, a165, s018). The details of this analysis are available upon request.
13. In a more thorough analysis, a series of models have been estimated, using different measurements of the control variables. These analyses show that the coefficients of generalised trust are stable regardless of measurement. This sustains that generalised trust is an independent explanation, in that unstable coefficients would have indicated collinearity. The analysis also shows that the coefficients of press freedom and GDP per capita are highly unstable, which underlines that the effects of these factors should be read with caution. The details of this analysis are available upon request.

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