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THE LARGE-SCALE COLLECTIVE ACTION DILEMMA OF RECYCLING: EXPLORING THE ROLE OF TRUST

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ABSTRACT

Household recycling contributes to environmental sustainability goals by limiting the extraction of natural resources. Previous literature has mapped out several factors, mainly at the individual level, that tend to increase individuals' tendency to recycle. Inherent features of household recycling propose however that a large-scale collective action framework should be relevant when analyzing this activity, which suggests that trust, especially *institutional trust,* should increase recycling frequency. This paper consequently does three things: firstly, it examines whether institutional trust is linked to individuals' tendency to recycle, secondly, it tests the role of *generalized trust*; and third, the paper provides a new theoretical approach when testing the link, which would result in a positive relationship of institutional trust on recycling behavior but with a negative relationship among the most trusting individuals (i.e. a curvilinear overall relationship). Support is found for a positive link between generalized trust, institutional trust, and Quality of Government on reported household recycling. However, we find no support for a curvilinear relationship. Findings suggest that institutional trust has a role to play in household recycling, but that this relationship should benefit from further examination.

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Introduction

Household recycling is critical for the aim of reaching goals of sustainable resource management (UNEP 2015). In this paper we use collective action theory to understand and analyze recycling behavior among individuals. As we see it, there are individual costs for recycling (e.g. that it is time consuming) and therefore incentives for the individuals to free-ride (i.e. not recycle). Using this framework highlights important difficulties societies may face in attempts of increasing recycling levels, not least since household recycling in most modern societies often involves a large number of actors which increase the demand for a third-party enforcer (e.g. the state) to coordinate and facilitate action. Previous literature on both small-scale and large-scale collective action dilemmas shows that trust is a key aspect for increasing collective action. Actors are more likely to find cooperative solutions to problems if they trust each other (Ostrom 1998). However, besides the more extensively explored the links between *generalized trust* (i.e. trust in other individuals) and large-scale environmental cooperation (Sønderskov 2009; Fairbrother 2017). It can also be argued that *institutional trust* (i.e. trust in public institutions) in such situations is important for cooperative behavior. The underlying mechanism for such a positive link should roughly be that citizens' are more willing to make individual sacrifices if they believe that the state will carry out their part of the work, for example take care of individual contributions by providing well-functioning infrastructure for recycling.

Building on previous findings on collective action behavior, we here test the link between institutional quality on individual, self-reported recycling behavior. The state plays a significant role in the collective action dilemma of recycling through provision of recycling stations and responsibility of processing the collected waste, implying that institutional quality should influence citizens' tendency to recycle, both through direct trust in public institutions (institutional trust) but also through trust in other citizens and households (generalized trust), since institutional quality is a guarantee for other individuals' cooperative behavior.

Exploring this relationship contributes to the knowledge of recycling behavior. In addition, we test the established large-scale collective action rationale by providing and testing a new theoretical approach, that suggests that institutional trust at its highest levels could be expected to affect cooperation negatively. The mechanism behind such an link should be that trust in public institutions after a certain (high) level makes the own contribution appear as unnecessary, resulting in non-cooperative behavior out of passivity or rational calculation, and consequently a curvilinear relationship between

institutional trust and recycling behavior. Cross-country micro data allows us to explore this hypothesis.

Findings from the analysis suggest that institutional quality is linked to reported recycling behavior, and both institutional trust and generalized trust are also correlated with reported recycling behavior, while no evidence of a curvilinear relationship is found. To investigate this relationship further in contexts of different macro level trust levels (or QoG levels) would be a way forward. For the purpose of further exploring the hypothesis of a curvilinear relationship, examining a high-trusting context, preferably with experimental data, would be the natural next step.

The remaining of this paper is structured as follows: Sections 2 and 3 briefly introduces recycling as a sustainability problem and collective action problem and present previous findings. Section 4 accounts for data and design, and section 5 presents the results of the analysis. In the last sections we discuss and sum up our results.

Household recycling: the challenges

The new UN sustainable development agenda, adopted in September 2015 and including goals of e.g. responsible consumption and production, sustainable forest management and the halt of biodiversity loss, accentuates a widespread concern regarding scarce natural resources and the importance of sustainable resource management (UN 2017). Households' recycling of materials such as wood, paper, glass and plastics is a crucial part of the process of working towards the established goals, by contributing to limiting the extraction of new natural resources. In 2014, over 8 percent of total waste generated within the EU countries was household waste (Eurostat 2016).

Successful recycling of household waste hinges upon the voluntary efforts of a large number of individual citizens in their private spheres. A number of studies aimed at identifying factors associated with high levels of individual recycling have pointed out personal factors as moral motives, pro-environmental attitudes and knowledge as important (Hage, Söderholm and Berglund 2008; Kelly et al 2005; Hornik et al 1995). Usage of economic incentives is also proven to generate positive effects (Hage et al 2008; Yau 2010). In most natural cases, however, the individual sacrifice associated with recycling does not generate any direct beneficial outcomes, economic or others. What is more, the contribution of co-citizens cannot be guaranteed, with the implication that the own contribution not necessarily will contribute to an overall successful result. Incentives for citizens to make the effort of

recycling their waste should in light of these features be absent or modest, emphasizing the inherent collective action dilemma characteristics of recycling. Generalized trust has been argued to be at the core of solving collective action dilemma situations (Ostrom, 1998) and shown to be related to large-scale collective action behavior (Sönderskov, 2011).

With a collective action approach to recycling, it is clear that societies may face a challenge in working towards recycling objectives and that aggravating factors not exclusively are isolated at the individual level. Public institutions can take measures to increase the likelihood of individual contribution – i.e. extensive establishment of recycling stations or information campaigns. The final result, however, should still be affected by individual decisions in light of the dilemma situation. In the following sections, we map out the theoretical framework of collective action dilemmas in general and the collective action dilemma of recycling in particular.

Previous findings and theoretical framework

Recycling and the collective action dilemma

The social dilemma is by this point a familiar puzzle within the social sciences. As highlighted by Ostrom (1998), it goes by many names; the collective-good problem, the free-rider problem, the credible commitment dilemma, the tragedy of the commons and the Prisoner's dilemma are all varieties of the same phenomenon (see e.g. Olson 1965; Edney 1979; Hardin 1968). The dilemma occurs in situations characterized by interdependent relationships between individuals, where the rationale of the course of events typically should be predictable by means of game theoretical models. The basic premise is that everyone in a group would be better off in the long run through *collective action* – that is, if everyone cooperated and acted in accordance with the group interest, thereby generating an ideal outcome X. Since a contribution to the group interest is associated with a short-term cost for the individual, there should however be an incentive for the individual not to cooperate if the contribution of others cannot be guaranteed. Consequently, there is a risk that nobody contributes to the production or sustainment of X. In this way, all individuals of the group get to maximize their short-term self-interest (by escaping from making an effort for the group interest), while it also means that X eventually cannot be enjoyed – we have reached *the tragedy of the commons* (Hardin 1968), from this point of view an apparently unavoidable condition that leaves everyone worse off in the long run.

Environmental problems hold characteristic requisites for large-scale collective action problems. Considering the case of combating climate change, the benefits of reducing one's emissions by changed behavior could be visible several generations away, and cooperation is to a large extent dependent on private sacrifices as less consumption or changed travel patterns. Not all contributions to environmental dilemmas could however reasonably be labeled "pure sacrifices". Some would regard commuting to work by train, in that way reducing car emissions, as an individual sacrifice while others would appreciate the comfort and the economic benefits it brings. Environment-friendly behavior should thus *not* automatically be considered an intentional contribution to the common good, since not all such behavior involves a clear element of sacrifice. As demonstrated by Sønderskov (2009), a decision of buying organic fruit should reasonably not be dependent on others' decisions of doing so. Recycling, on the other hand, appears as closer to a pure case of large-scale collective action, being both more time-consuming and more tediously compared to throwing waste in the trashcan. In a study on Swedish citizens 75 percent of respondents reported that they recycle for environmental reasons, which should be compared to economic (5 percent), practical (14 percent) and health- related (3 percent) motives (Jagers et al. 2016). What is more, recycling as behavior could be kept relatively private. Recycling should thus be less vulnerable to social norms and social punishment compared to other behaviors performed more publically (March & Olsen 1989; Helmke & Levitsky 2004; Scholz & Pinney 1995). Previous findings on the relationship between social norms and recycling rates supports this notion – while there is some evidence that social pressure from family and friends may increase an individual's recycling level, the effects of general social norms and influence from neighbors are limited (Bratt 1999; Shaw 2008).

The role of trust in small – and large scale dilemma settings

A key element that has been pointed out as capable of increasing cooperation in situations with collective action dilemma characteristics is trust (Ostrom 1998), implying that problems of collective action to a large extent are problems of trust and reciprocity between participating actors. For cooperation to take place in small groups it has been found that interpersonal trust and reciprocity among group members is crucial (Sally 1995; Fischbacher, Gächter & Fehr 2001; Ostrom & Walker 2003; Gächter et al. 2004; Milinski et al. 2002; Nowak & Sigmund 2005; Gächter & Hermann 2009). For large-scale collective action problems, where actors do not know each other, trust in others increases

cooperation in the form of *generalized trust*, i.e. actors' trust in other people in general. (Sønderskov 2009; Rönnerstrand 2015; Jones et al. 2010).[1]

An increasing group size does however obstruct the extent to which contributions can be coordinated, often resulting in the introduction of coercive arrangements to facilitate cooperation. For problems addressed at the national level, such arrangements imply elements of state intervention and policy. Potential measures include regulation, introduction of market-based instruments, fees or subsidies (for an overview, see Sterner & Coria 2012). With the introduction of a third party, citizens' perceptions of the intervenor become central for the outcome of the dilemma. As a result, political trust or *institutional trust* has been identified as important for cooperative behavior, beside the more extensively explored generalized trust (Fairbrother 2017; Hammar et al. 2009; Harring, 2013; Jones et al. 2010). Trust in public institutions could imply a faith in the state's capacity to administrate citizens' contributions, meaning that the individual effort is perceived as meaningful.

Furthermore, well-functioning institutions are important for generating trust between actors (Sønderskov & Dinesen 2016). Generalized trust could reflect a belief in public institutions' ability to monitor and punish potential rule breakers and confidence that this is made in a just way. As a consequence, the public can be regarded as the guarantor for a system of fair and efficient compliance despite the large number of actors involved – to some extent replacing the horizontal bonds between actors and compensating for the difficulty of assessing others' level of cooperation in a large group.

The trust concept

The debate surrounding the concept of trust reveals a divide between different theoretical views. In his overview of this discussion, Nannestad (2008) points out the division over trust as rational or more norm-driven as central. The main disparity could be summarized as to which extent trust should be understood from a relational or individual point of view. A rationalistic account would roughly correspond to findings from small-scale experimental settings, where trust can be read as a belief in the cooperation of others that by extension makes the own cooperation rational and fair. A suggested basis for such a belief in others, which should make up the core of this conceptual account, is an estimation that others have preferences and/or incentives to serve our interest (i.e. that others

[1] The standard way to measure generalized trust levels is by asking respondents if "most people can be trusted or that you can't be too careful in dealing with people", on an either seven- or eleven-point scale.

see our interest as their own) when they have the possibility to do so (Hardin 2006; Levi & Stoker 2000).

Uslaner (2002) stands for a more norm-driven account, stating that trust rather reflects a ***moralistic*** view as opposed to a strategic one. Arguing that the concept should be understood more independently from relational estimations, it is in this view seen as a statement about how one *should* behave. Possessing high trust in others should thereby more reflect a general outlook on the world (Uslaner 2002, 23; Nannestad 2008, 415).

While this discussion clearly applies to the generalized trust concept, much of these theoretical ambiguities should be less important for institutional trust. The difficulty with the generalized trust concept mainly derives from the fact that "people in general" potentially is a different group of people for different persons – on a range from the closest sphere of friends and family to citizens in other countries. For institutional trust this can be expected to be different, following from the fact that respondents typically are asked about their level of trust in a specific part of the public sphere (government, public agencies, politicians…). In this way, one can expect institutional trust to be relational, i.e. being determined of the performance or credibility of public institutions, and with higher certainty be expected to correspond to a "rationalistic" trust account.

Hypotheses

Drawing on results from previous research, it should be reasonable to predict that the relationship between institutional trust and recycling is positive. The theoretical underpinnings for such a link, from the rationalistic point of view, should be that *the stronger belief in that the state will do its part of the work, the more are citizens themselves willing to make the sacrifices associated with contributive behavior.*

It is however not obvious that this positive relationship should be expected to be continuous over the whole trust scale. Based on previous work, both empirical and theoretical, it follows that high trust, in general, should be better for cooperation than low trust. However, such arguments do not reveal at what trust level cooperation takes place and peaks. Consequently, it cannot be settled e.g. whether a high-trusting society is fruitful on basis of a certain "trust threshold" that has been reached on the aggregate level, or if it is the higher incidence of individuals possessing *very* high trust in institutions that makes the difference. Still, what happens above a certain trust level is an important aspect

with implications for understanding mechanisms of both recycling and the collective action rationale as a whole.

A continuous positive relationship between institutional trust and recycling appears as far from obvious when understanding institutional trust in a "rationalistic" way. Cooperation would be the rational decision also at the highest trust levels in the sense already demonstrated, namely that having high faith in the public's interest in, and capacity of, making use of contributions effectively would make the own contribution even more reasonable and thereto beneficial. Drawing on previous conclusions about trust and collective action, where trust seems to be a factor capable of making cooperation the natural choice, this should be a plausible line of reasoning. However, one could also hypothesize that high institutional trust should imply a further transformed rationale, meaning that a strong faith in the public's ability to solve complex issues makes the personal contribution appear as less important at some point. From this perspective, high institutional trust should result in non-cooperative behavior at a certain level, either out of rational calculation or passivity. The result of such "high trust" rationality would be non-cooperation.

To conclude, four different hypotheses on the relationship between trust and recycling can be derived from the potential scenarios discussed. On the one hand, one could expect institutional quality, institutional trust and generalized trust even at the highest levels, to result in a high level of recycling (H1; H2; H3). On the other hand, institutional trust might at a certain high point result in non-cooperative behavior (H4):

H1: The relationship between institutional trust and reported household recycling is *positive*.

H2: The relationship between generalized trust and reported household recycling is *positive*.

H3: The relationship between institutional quality and reported household recycling is *positive*

H4: The relationship between institutional trust and recycling is *curvilinear* (i.e. positive but de clining).

Data and design

To test our hypotheses, we use cross-country micro data from the International Social Survey Programme (ISSP) 2010 – Environment III (International Social Survey Programme, 2012). Micro data enables an investigation of recycling behavior at different levels of institutional trust and allows us to distinguish the between medium to high institutional trust levels from high to very high levels. With

macro data, such differences would disappear in country average levels. Aware that self-reported behavior data is not an ideal measure of actual behavior, we argue that it here well serves the purpose of exploring the hypotheses on a large, global data sample at an initial stage. Natural ways forward would be to analyze experimental data and to look closer at different country-level samples.

The ISSP data includes respondents from 30 countries globally, approximately half of them European, and covers in total 45 199 respondents. Face-to-face interviews have been carried out in most countries. In some cases self-completion questionnaires have been used, and a few countries use a mix of different methods. Data from Slovak Republic was collected during fall 2009, while data from all other countries was collected 2010-2011. The sample is for most countries population over the age of 18 and over.

Dependent variable

For the dependent variable, a question about respondents' tendency to make an effort to sort glass, tins, plastic or newspaper for recycling is used. Respondents pick their answer on a scale ranging from 1 to 4 (1= "always", 2 = "often", 3 = "sometimes" and 4 = "never"). The dependent variable is reversed so that a higher number corresponds to higher frequency of recycling.

Main independent variables

For the purpose of measuring the independent variable, i.e. respondents' level of institutional trust, two different questions are used. The first one is a statement about politicians, saying that "Most politicians are in politics only to get out of it personally". For the second question, respondents take a stand on the statement "I trust in people in government". For both questions, respondents answer on a five-graded scale from "Agree strongly" to "Disagree strongly". The sample's distribution on included variables is demonstrated in Table 1. For the analysis, we use the institutional trust variables separately since an index based on the two items does not meet the criteria for internal consistency (Cronbach's α below .7). Both of the institutional trust variables are reconstructed so that a higher number corresponds with a more trustful attitude.

In order to capture generalized trust we use an index of the questions 'Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?' with responses rated on a scale from 1 ('can't be too careful') to 5 ('most people can be trusted'); and 'Generally speaking, do you think that most people would try to take advantage of you if they got the

chance, or would they try to be fair?' with responses rated on a scale from 1 ('most people would try to take advantage of you') to 5 ('most people would try to be fair') (Cronbach's $\alpha = 0.70$).We also check for the quality of public institutions at the country level, or Quality of Government (QoG). To measure QoG, we use data from the International Country Risk Guide (ICRG) that is concerned with investment risk in different countries. The data includes information on political risk, financial risk and economic risk, and we here use parts of the political risk measure: corruption, law and order, and bureaucracy. It is an expert based measure, where higher scores indicate that a country's institutions are relatively well-functioning, that is impartial, non-corrupt and comparatively efficient.[2]

Control variables

Beyond our main variables, we control for age, income, gender, and level of education, and whether people perceive that they are affected by environmental pollution or not.

For the analysis, we conduct multilevel ordinal regression analyses to test the link between institutional quality, institutional trust, and generalized trust on recycling behavior, followed by estimations of marginal effects at different levels of institutional trust. While the first step will indicate whether the independent variables are positively linked to the dependent variable (H1, H2 & H3), looking at marginal effects will allow us to discover curvilinear relationships (H4).

[2] The Quality of Government Institute (Teorell *et al.*, 2011). http://www.qog.pol.gu.se

TABLE 1, (DESCRIPTIVE STATISTICS)

Variable	Mean	Std. Dev.	Min	Max	Item:
Recycling behavior	3.0	1.09	1	4	”How often do you make a special effort to sort glass or tins or plastic or newspapers and so on for recycling?” (1=never, 4=always)
Trust in politicians	2.30	1.09	1	5	“Most politicians are in politics only for what they can get out of it personally” (1=Agree strongly, 5=Disagree strongly)
Trust in government	2.67	1.11	1	5	“Most of the time we can trust people in government to do what is right” (1=Disagree strongly, 5=Agree strongly)
Social trust	2.85	1.09	1	5	“Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people? “(1=You can’t be too careful, 5=Most people can be trusted)
Income	5.02	2.99	0	10	In order to generate comparativ e measures between countries. Income deciles are constructed by country generating a comparative measure
Gender	.46	.50	0	1	Female=0, male=1
Education					”Highest completed degree of education” (1=No formal education, 2=Lower secondary level, 3=Upper secondary, 4=Secondary, non-tertiary, 5=Lower level teritiary, 5= Upper level tertiary)
Age					Age, 15-30, 31-60, 61-100
Affected by environmental pollution					“Environmental problems have a direct effect on my everyday life”. Constructed categories: “agree”; “disagree” “neither agree nor disagree”.
Quality of Government	5.11	3.03	0	10	

Results

Results of the regression analysis are specified in Table 2. As shown, both generalized trust and institutional trust are positively associated with reported recycling behavior under control for other variables. The link between generalized trust and reported recycling behavior is stronger and more robust than that of institutional trust. The latter is not linear, while people who have moderate trust are not significantly different to people with low trust. However, people with high trust in institutions are significantly more likely to recycle. No indication of a curvilinear relationship is found. The results also show that QoG is linked to individual recycling behavior, which is also illustrated in Graph 1.

Included control variables as gender, age, and level of education all prove to explain cooperative behavior, where being woman, older and educated is associated with more self-reported recycling behavior.

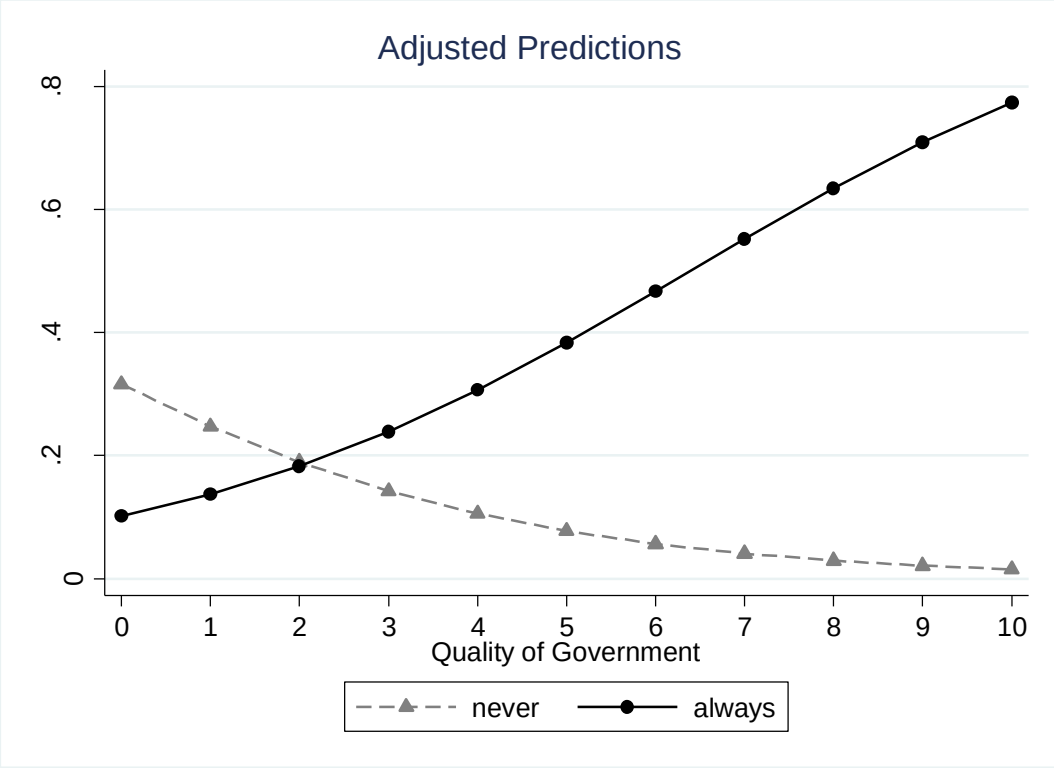
TABLE 2

		Model 1	Model 2	Model 3	Model 4
Individual level					
Trust in politicians[a]					
	Low trust		0.02		0.07
			(0.47)		(1.63)
	Fairly low trust		0.02		0.04
			(0.45)		(1.02)
	Fairly high trust		0.02		-0.02
			(0.57)		(-0.38)
	High trust		0.21**		0.17*
			(2.75)		(2.06)
Trust in Government[a]					
	Low trust	0.04		0.07	
		(0.89)		(1.54)	
	Fairly low trust	0.04		0.05	
		(1.22)		(1.41)	
	Fairly high trust	0.12***		0.09*	
		(3.52)		(2.43)	
	High trust	0.17*		0.14¤	
		(2.28)		(1.81)	
Social trust					0.13***
					(10.42)
Income (log)		0.06***	0.06***	0.06***	0.06**
		(3.60)	(3.54)	(3.43)	(3.19)
Age[b]					
	Young	-0.60***	-0.60***	-0.60***	-0.60***
		(-19.47)	(-19.29)	(-19.37)	(-18.99)
	Old	0.37***	0.37***	0.37***	0.36***
		(11.26)	(11.15)	(11.11)	(10.69)
Gender (male)		-0.31***	-0.32***	-0.32***	-0.33***
		(-12.29)	(-12.44)	(-12.45)	(-12.74)
Education levels[c]					
	Lower secondary level	0.45***	0.45***	0.45***	0.48***
		(7.37)	(7.20)	(7.18)	(7.50)

	Upper secondary	0.54***	0.54***	0.54***	0.55***
		(9.09)	(9.05)	(9.01)	(9.13)
	Post secondary, non-tertiary	0.68***	0.68***	0.69***	0.69***
		(11.88)	(11.70)	(11.82)	(11.64)
	Lower level tertiary	0.68***	0.68***	0.69***	0.68***
		(10.99)	(10.87)	(10.96)	(10.68)
	Upper level tertiary	0.89***	0.88***	0.89***	0.86***
		(14.34)	(14.06)	(14.18)	(13.42)
Affected by environmental pollution[d]					
	Agree	0.29***	0.29***	0.28***	0.28***
		(9.17)	(9.03)	(8.99)	(8.88)
	Disagree	-0.13***	-0.13***	-0.13***	-0.14***
		(-4.00)	(-3.77)	(-3.98)	(-3.98)
Country level					
Quality of Government		0.35***	0.35***	0.35***	0.34***
		(6.53)	(6.50)	(6.50)	(6.34)
Cut 1		-0.07	-0.06	-0.04	0.30
		(-0.20)	(-0.19)	(-0.11)	(0.87)
Cut 2		1.46***	1.46***	1.49***	1.83***
		(4.25)	(4.26)	(4.35)	(5.35)
Cut 3		2.86***	2.87***	2.90***	3.25***
		(8.36)	(8.35)	(8.44)	(9.47)
Constant		0.81***	0.80***	0.81***	0.79***
		(3.84)	(3.84)	(3.84)	(3.84)
Log likelihood		28965	28446	28582	27767
AIC		57961	56932	57204	55584
Number of individuals		28121	27577	27718	26946
Number of countries		30	30	30	30

*Comments: ¤ p<0.10, * p<0.05, ** p<0.01, *** p<0.001; [a] Reference category "Neither low nor high trust"; [b] Reference category "Middle-aged"; [c] Reference category: "Primary school"; [d] Reference category: "Neither agree nor disagree".*

FIGURE 1 (*PREDICTED PROBABILITIES – THE QUALITY OF GOVERNMENT AND REPORTED RECY-CLING BEHAVIOUR*)



Discussion

The conducted analysis points out trust as a contributing factor for household recycling at the individual level, which is a result that contributes to the literature on successful recycling behavior. Hence we receive support for the second hypothesis *he relationship between generalized trust and recycling is positive* and some support for the first hypothesis *the relationship between institutionalized trust and recycling is positive*. The findings thereto contribute to the literature of collective action behavior: On a general level, it strengthens previous findings about trust as important for cooperative behavior in collective action dilemma situations. More particularly, the results highlight the importance of trust vis-à-vis the coordinating third party in a large-scale, social dilemma setting. There is support for our third hypothesis *the relationship between institutional quality and recycling is positive*. However, the links between the trust variables and recycling behavior are modest on an individual level. Moreover, the country variate (QoG) indicate that trustworthiness of the third party in the national dilemma context (i.e. the government) is important, to some extent reflected in the trust levels at an individual level.

From a "rational" trust concept understanding, it was hypothesized that incentives could change at the highest levels of institutional trust, resulting in a lower frequency of recycling among the most trustful individuals (hypothesis 4). No support for such a curvilinear relationship is found. A way forward would be to investigate this relationship closer in a high-trusting context, since there is a risk for a potential curvilinear relationship to disappear in a global sample. Presupposing the existence of a curvilinear effect in theory, there is of course a possibility that no one trusts public institutions to the extent that a curvilinear effect is reached in practice. If there were a curvilinear tendency to be found, on the other hand, it would most likely be visible in a high-trusting context. To enable more in-depth comparisons at the highest levels – where distinctions can be made between "medium-to high" and "high-to very high" institutional trust – a trust variable with additional scale steps would be preferred for such an analysis. If the relationship still would prove to be linear, this would further confirm the established collective action rationale where trust is capable of transforming social dilemma situations in a cooperative direction.

Conclusion

The aim of this study was to examine the links between trust and reported recycling behavior. Observing this relationship allowed us to investigate the relevance of a large-scale collective action framework for understanding frequencies of household recycling. By providing and testing a new theoretical approach, we also tested the established collective action rationale where institutional trust is considered to be linked to collective action behavior. Findings support the notion of household recycling as a large-scale collective action dilemma, and exhibit that both generalized and institutional trust levels of individuals and trustworthiness of the third party enforcer in the dilemma context should be considered important factors for recycling behavior. While findings here likely give an indication of the link between institutional trust and household recycling at a general, global level, this relationship should benefit from being analyzed further in both high- and low trusting contexts and with new types of data.

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