

Kim Mannemar Sønderskov

# Making Cooperation Work:

Generalized Social Trust and Large-N Collective Action



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PhD Dissertation

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Aarhus, June 2008

Kim Mannemar Sønderskov

# Chapter 1:

## Introduction

This report is part of the Ph.D. dissertation “Making Cooperation Work: Generalized Social Trust and Large-N Collective Action”, conducted at the Department of Political Science, University of Aarhus.

The objective of the dissertation is to answer the following questions: Does generalized social trust help solve large-N collective action problems, and if so, how? These questions have been investigated in the following papers:

1. “The Environment”, Forthcoming as Chapter 15 in G.T. Svendsen and G.L.H. Svendsen (eds.), *Handbook of research on Social Capital*, Cheltenham: Edward Elgar. (Hereafter “The environment”.)
2. “Environmental Group Membership, Collective Action and Generalised Trust”, *Environmental Politics*, 17, 1, pp. 78-94. (Hereafter “Environmental group membership”.)
3. “Does generalized social trust lead to associational membership? Unraveling a bowl of well-tossed spaghetti”, manuscript under review. (Hereafter “Does trust lead to membership?”.)
4. “Different goods, different effects: Exploring the effects of generalized social trust in large N social dilemmas”, manuscript under review. (Hereafter “Different goods”.)
5. “Explaining Large-N Cooperation: Generalized Social Trust and the Social Exchange Heuristic”, working paper. (Hereafter “Explaining Large-N Cooperation”.)

This report provides a detailed answer to the questions raised above. It connects and elaborates the theoretical arguments from the accompanying papers and summarizes their empirical results. In addition, I will raise some important issues that go beyond the individual papers by motivating the central research questions, discussing the overall validity of the findings, and pointing to the implications for future research.

The following Chapter 2 presents the overall research question and argues that studying generalized social trust and large-N collective action can

provide important insights with great relevance to both political scientists and everybody else.

Chapter 3 presents the theoretical argument linking generalized social trust and large-N collective action. Based on a discussion of existing explanations and their limitations, I lay out a novel explanation as well as the empirical implications derived from it.

I investigate whether or not generalized social trust helps solve large-N collective action problems by testing if generalized social trust enhances cooperation in environmental dilemmas. The reasoning behind this research strategy is discussed in Chapter 4. Details on the overall research design and data are also found in this chapter.

Chapter 5 summarizes the empirical results from the papers, while Chapter 6 discusses some possible concerns raised by these findings. Based on the empirical results and the possible concerns, Chapter 7 sums up and discusses the implications for future research and policy making.

## **Chapter 2:**

### **Research questions**

This dissertation explores cooperation and collective action dilemmas. Collective action dilemmas arise in connection with voluntary provision of non-excludable goods. Non-excludable goods, or collective goods, are goods that nobody can be excluded from enjoying (Musgrave, 1959; Olson, 1971). Every potential contributor—that is, everyone who would like to see the good provided—faces the following dilemma: Should I help provide the good even though I can enjoy it without contributing? And further, if I overcome the temptation to free ride, I risk that other people free ride, thus leaving the good unprovided or, at least, that the free riders exploit my contribution. So even though I would like to enjoy the good, both greed and fear might dampen my motivations for contributing (Ahn et al., 2001). Since the group of potential contributors would be better off if the good were provided, the difference between individual and collective motivations is a central feature in collective action dilemmas. If the potential contributors could somehow overcome their individual temptations to not contribute—if they could cooperate—they would all be better off. The central theme in this dissertation is when such cooperation occurs.

### **Why study collective action dilemmas?**

Collective action dilemmas are part and parcel of social reality. Most of us as well as other creatures, states, organizations, etc., face such dilemmas—be it consciously or unconsciously—in many aspects of life: Should I boycott certain goods for political reasons? Should I throw a party for my friends despite previous complaints from neighbors? Should I occasionally cede my right of way in order to help traffic flow more smoothly? Should I cheat the tax system? Vote? Sign petitions? Demonstrate? Should the EU cut CO<sub>2</sub> emissions to encourage other countries to do likewise? Should a farmer comply with regulations in order to avoid stricter regulation on farming? Should the taxi driver lie about his location and purloin customers from fellow taxi drivers when requested by the dispatcher? Should the ancestral hunter share his prey with unfortunate band members in the hope that they will do the same for him tomorrow? Should birds put themselves in harm's way by sounding warning calls when a predator approaches? Not surprisingly, collective action dilemmas are studied extensively in a broad range of scientific disciplines.<sup>1</sup>

Despite years of research, we are still not able to fully explain behavior in most collective action dilemmas. Rational choice—the dominant social

science framework applied to collective action—predicts non-cooperation in most collective action dilemmas. Given the strong motivations against contributing faced by each potential contributor, no one should contribute, or so the theory predicts. However, one need not be a social scientist to realize that cooperation does occur. People throw parties despite fierce reactions from neighbors, people vote and join voluntary organizations, and the EU member states have promised to cut CO<sub>2</sub> emissions beyond other states' reduction targets. On the other hand, non-cooperation and free riding can also be observed. The US has, for example, refused to sign the Kyoto Protocol. Membership rates in environmental organizations are far lower than the number of people who prefer a cleaner environment (cf. Olson, 1982: 34n). Numerous social scientists have confirmed in both real-world and experimental studies the tremendous amount of variation in cooperation rates across different settings, and that the rational choice account is rarely supported by empirics (e.g. Henrich et al., 2001; Ostrom, 1990; Ostrom & Walker, 2003). Thus, despite the indisputable relevance and years of research, we are still not able to explain when and why cooperation occurs.

In her 1997 presidential address to the American Political Science Association, Elinor Ostrom pointed to collective action dilemmas as the most important issue in political science and emphasized the need for behavioral theories to explain the outcomes of such dilemmas. She noted:

“[T]he theory of collective action is *the* central subject of political science. It is the core of the justification for the state. Collective-action problems pervade international relations, face legislators when devising public budgets, permeate public bureaucracies, and are at the core of explanations of voting, interest group formation, and citizen control of governments in a democracy. If political scientists do not have an empirically grounded theory of collective action, then we are hand-waving at our central questions. I am afraid that we do a lot of hand-waving.” (1998: 1).

My modest objective is to bring our understanding of collective action dilemmas a step further and to shed light on some of the dynamics that affect when cooperation takes place. Obviously, I have no illusions that I will be able to touch upon all relevant aspects of this vast topic. To narrow the focus, the dissertation will therefore exclusively deal with large-N collective action dilemmas. In large-N dilemmas the set of potential contributors consists of a large number of actors who do not know or have detailed information about every other actor.

Large-N dilemmas were chosen for two reasons. First, large-N dilemmas are widespread in modern complex societies. From a political science point of view large-N dilemmas are an inevitable dynamic on both the input and

outcome sides of the political system; interest group formation, political participation, voting and policy compliance involve collective actions dilemmas. Likewise, the ability of societal groups to overcome collective action problems without external enforcement affects the optimal level of state intervention and policy performance (cf. Boix & Posner, 2000). Second, cooperation within large collectives is probably *the* phenomenon that rational choice theory has the most difficulties in explaining. Given the large number of actors, they cannot possess detailed information on all the other actors. Thus, traditional rational choice explanations of cooperation, for instance reputational effects and repeated interaction, do not apply to large-N settings (cf. Isaac, Walker & Williams, 1994; Olson, 1971; Ostrom, 1990; Scholz, 1998).

In sum, this dissertation seeks to improve our insufficient knowledge of a phenomenon that is an evitable part of social reality and has immense relevance for political science.

## **The possible role of generalized social trust in large-N dilemmas**

Within the last 15 years a new framework for understanding behavior in large-N dilemmas has emerged. A rapidly expanding literature has promoted social capital and in particular generalized social trust as a solution to large-N problems (e.g. Knack, 2002; Putnam, 2000; Rothstein, 2005; Uslaner, 2002: Ch. 2; cf. Ostrom & Ahn, 2003).<sup>2</sup> As it will be elaborated in Chapter 3, generalized social trust reflects positive expectations about people in general. Trust between a small number of actors is an obvious explanation of cooperation in small-N dilemmas, and at first glance it therefore seems very plausible that generalized social trust could enhance cooperation in large-N situations. Although some authors question this (e.g. Cook, Hardin & Levi, 2005: 1) the presumption enjoys tremendous support in the literature (see, for instance, the literature reviewed in “The environment”). Thus, at first sight generalized social trust is an obvious concept to turn to if one wishes to understand behavior in large-N dilemmas.

However, we still know surprisingly little about the relationship. Although the beneficial effect of trust on collective action is often asserted, surprisingly few studies have subjected the hypotheses to solid, falsifiable empirical testing. While much sound work has been done on the causes of generalized social trust,<sup>3</sup> most studies dealing with the collective action enhancing effect are rather less impressive.<sup>4</sup>

Several studies simply interpret the existence of cooperation as a confirmation of the effect of trust; without trust there could be no

cooperation, would seem to be their argument (e.g. Berg, Dickhaut & McCabe, 1995; Cramb, 2006; Pretty & Ward, 2001; cf. Cook, Hardin & Levi, 2005; Hardin, 2003; 2006: Ch. 3). Obviously, such studies cannot show if trust increases cooperation. Other studies incorporate measures of trust that are separated from the dependent variable, but the dependent variable in these cases is rarely cooperation rates, but some distant alleged effect of cooperation—such as, e.g., economic growth or environmental policy performance (e.g. Grafton & Knowles, 2004; Knack & Keefer, 1997; Sønderskov, 2005; Whiteley, 2000). Thus, it is far from clear *if* generalized social trust actually does have a positive effect on large-N cooperation.

The lack of empirical knowledge is further aggravated by the fact that surprisingly little work has been done to establish a theoretical link between generalized social trust and large-N collective action (Ostrom & Ahn, 2003; “The environment”). I will discuss the few available accounts in Chapter 3, but my general impression from reading the literature is that the link predominately is an assumption without much theoretical (and empirical) justification. In most studies, the link between generalized social trust and large-N collective is solely a convenient assumption that serves to validate another theoretical argument or to justify the relevance of the study (see also Ostrom & Ahn, 2003: xiii). Quite a few studies hypothesize that generalized social trust affects a certain phenomenon like, for instance, tax compliance and to establish a link between generalized social trust and the phenomenon of interest, it is briefly argued that generalized social trust enhances collective action and therefore affects the dependent variable. However, the crucial link between trust and collective action remains underspecified (e.g. La Porta et al., 1997). Other studies refer to the positive benefits of generalized social trust to justify an analysis of its causes, which again leaves the link underspecified (e.g. Freitag, 2003). Thus, even if generalized social trust enhances large-N collective action, it is far from clear *how* this is so.

In sum, generalized social trust is at first sight a promising explanation of behavior in large-N collective action dilemmas that potentially could bring new insights on when cooperation occurs. However, we still need to figure out if and how generalized social trust enhances large-N dilemmas. On that basis, the research question investigated throughout this dissertation is: Does generalized social trust help solve large-N collective action problems, and if so, how?

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<sup>1</sup> For studies of some of these topics, see Cosmides & Tooby (1992); Downs (1957); Finkel & Muller (1998); Gambetta (1993: Ch. 8); Goul Andersen & Tobiasen (2001); Lubell (2002; 2004); Putnam (2000: Ch. 8, 21); Scholz & Lubell (1998); Svendsen (2003: Ch. 5); Trivers (1971); Winter & May (2001).

<sup>2</sup> The relationship between generalized social trust and social capital is discussed in Chapter 7 and in “The Environment”.

<sup>3</sup> E.g. Nannestad & Svendsen (2005); Rothstein (2005); Stolle & Hooghe (2004); Stolle, Soroka & Johnston (2008); Uslaner (2002).

<sup>4</sup> For an exception see Nannestad (2006).



## **Chapter 3: Theory**

In this chapter I present the theoretical argument linking generalized social trust and large-N cooperation. The aim is to establish an explanation that is internally consistent and concurs with the existing knowledge on human decision-making and behavior in social dilemmas. To do this I will define generalized social trust and present already existing explanations. Based on a discussion of their weaknesses, a novel explanation is developed. Finally, empirical implications are derived from this explanation.

Although all of the accompanying papers provide theoretical discussions, the argument is restated and elaborated here because the paper format does not allow me to present my argument in full. Furthermore, the theoretical argument has evolved somewhat over the course of the project. Hence, the argument presented below is ‘the state of my art’ at the end of the project.

### **Generalized social trust defined**

Generalized social trust is defined as the belief that people in general are trustworthy. Generalized social trust is one extreme on a continuous scale reflecting people’s expectations about the generalized other. Hence, people with low levels of generalized social trust have negative expectations, whereas people with high levels of generalized social trust have a positive outlook in relation to most people. Accordingly, the level of generalized social trust varies between individuals, but it is beyond the scope of this dissertation to give a complete account of what causes this variation. In vague terms, a person’s level of generalized social trust is perceived here as the outcome of her social experiences throughout life as well as the overall institutional surroundings in which she currently finds herself.<sup>1</sup>

Generalized social trust is moreover defined as a distinctive form of trust. Most notably, it differs from *specific trust* (or *thick*, *strategic* or *knowledge-based trust*). Specific trust is trust in specific persons based on specific information like appearance, prior interactions, reputation, etc; specific trust is context dependent (Granovetter, 1973; Hardin, 2006: Ch. 2; Uslaner, 2002: Ch. 2). Generalized social trust, on the other hand, is not directed toward a specific person. It reflects a positive perception of the generalized other. Hence, a person’s level of generalized social trust reflects her default expectation, her standard estimate, of the trustworthiness of other people when no other information is available (Coleman, 1990: Ch. 5; Robinson & Jackson, 2001; Yamagishi, 2001). This estimate does not necessarily correspond to her level of trust in specific persons in a specific situation. A

person's level of specific trust varies according to the specific situation, whereas the level of generalized social trust is a rather stable estimate that does not change from one situation to another (Uslaner, 2002: Ch. 6). As explained below, the distinction between generalized and specific forms of trust is important since the two types are relevant in different situations.

The literature also labels generalized social trust as *thin trust*, *social trust*, *depersonalized trust*, *interpersonal trust*, and *generalized trust*. I do not necessarily intend to detach my definition from the ones using these labels (in fact, I label it generalized trust in "The environment" and "Environmental group membership"). However, I believe that generalized social trust is the better label. It emphasizes the two features that distinguish it from other forms of trust: it is *general* as opposed to specific and it is directed toward the *social* environment, not inwards (self-confidence), or towards non-human objects (institutions, organizations, etc).

## **Existing accounts**

As described in the previous chapter surprisingly few thorough explanations linking generalized social trust and large-N collective action exist. However, at least two fairly established explanations can be found in the literature: 1) the civicness/altruistic/moralistic account and 2) the rational choice account.

According to the civicness/altruistic/moralistic account, generalized social trust increases cooperation for the simple reason that people with high levels of generalized social trust "are all-round good citizens" (Putnam, 2000: 137), who place greater value on society's welfare than non-trusters do (Letki, 2006; Mansbridge, 1999; Torsvik, 2000). Likewise, Uslaner describes trusters as people who value the welfare of a wider set of actors than low trusters do. People with high levels of generalized social trust have a wide moral community, he argues (2002: Ch. 2).

Generalized social trust therefore increases large-N cooperation because trusters are concerned about the wellbeing of a wide set of people. According to this perspective, trusters tend to be less greedy and therefore free ride less often in large-N dilemmas. This explanation is consistent and has found some support in the literature (Holm & Danielson, 2005; but see Letki, 2006). However, by arguing that a person's level of trust reflects her (lack of) greediness, trust no longer plays an active part in the explanation. Instead, a person's level of generalized social trust is reduced to a proxy for her level of concern for the welfare of others, her other regarding preferences. This reservation is obviously not sufficient to reject the explanation out of hand. It could be that people holding generalized social trust do have higher levels of other regarding preferences and therefore engage in pro-social behavior more

readily. This would, among other things, result in increased cooperation in collective action dilemmas. Hence, the explanation cannot be dismissed a priori, and it has therefore subjected to empirical tests in contest with the explanation offered in this dissertation.

The second account has included generalized social trust into a rational choice framework. In the rational choice explanation, trust is not used as a proxy for greediness but rather as an assessment of other people's trustworthiness, corresponding to the definition offered above. In brief, the argument goes like this: If I have generalized social trust, I believe that most people will cooperate in collective action dilemmas. When I expect others to cooperate, I need not fear to be exploited or cheated and I therefore cooperate. Thus, cooperation is the rational choice for a person having high levels of generalized social trust. ("Environmental group membership"; Lubell, 2004; Nannestad, 2006; forthc; Rothstein, 2005: Ch. 1, 3; Torsvik, 2000; see also Scholz & Lubell, 1998). While I believe that some parts of this explanation is accurate (see below), it is not consistent with the standard rational choice assumptions about self-interested actors. The explanation is inconsistent since it fails to explain why such a self-interested actor—so sure that others will cooperate—does not free ride and enjoy the benefits provided by others. In other words, it fails to explain how individuals overcome the temptation to be greedy (cf. Pruitt & Kimmel, 1977; Scharpf, 1997: 89; Sugden, 1984).

Russell Hardin (1971) has argued that all social dilemmas,<sup>2</sup> including collective action dilemmas, are in fact prisoner's dilemmas. At first sight this could bring relief to the rational choice account, because conditional cooperation—that is, cooperating if you expect others to do likewise—is a rational choice in repeated prisoner's dilemmas (cf. Axelrod, 1990). While this probably is true in small-scale repeated interactions, the argument is less valid in large-N situations. In small-scale situations my behavior is observable by all the other actors, and my contribution can help sustain a long-term cooperative equilibrium that would leave me better off in the long run. So if I trust others to cooperate, then cooperation is a rational choice in small-N situations. However, actors in large-N situations do not have specific information on all other actors' behavior. In such a situation, my personal behavior hardly affects the long-term equilibrium. A rational actor, regardless of his level of generalized social trust, should therefore free ride and reap the benefits provided by others in large-N situations (cf. Sugden, 1984).

The rational choice account therefore cannot explain why a rational actor with high levels of generalized social trust should cooperate in large-N collective action. The existing rational choice account is thus deemed

inconsistent and unfit to explain why generalized social trust should enhance large-N collective action.<sup>3</sup>

In sum, the existing explanations are not without problems. The first one plays down the role of trust, thus ignoring that people might fear being exploited by others, while the rational choice account (ironically) ignores that people can be motivated by greed. So the theoretical link between generalized social trust and large-scale cooperation requires further elaboration. What is missing is an account that assigns trust an active role in the explanation and simultaneously explains why actors who trust other people in general choose to cooperate.

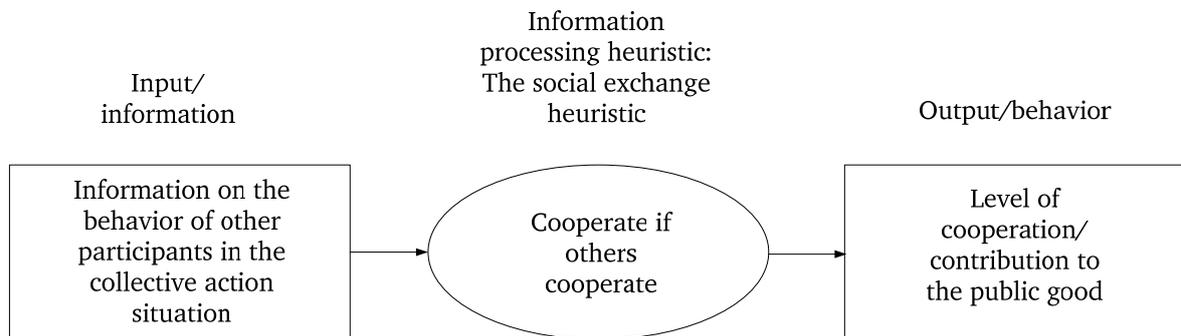
### **The dissertation's account: Adding the social exchange heuristic**

In line with the rational choice account—and with the definition proposed above—I maintain that generalized social trust is used as an assessment of other people's trustworthiness in large-N dilemmas. However, I abandon the rational choice view of human decision-making. Standard psychological behavioral decision-making theory argues that every-day decisions are not results of thorough evaluations of pros and cons. Drawing on Simon's concept of bounded rationality, it is generally held that humans employ simplifying strategies to guide decision-making in every-day situations. One such strategy is the use of heuristics. A heuristic is a rule of thumb or a decision-rule that guides behavior in specific situations based on available information (Lau, 2003). Recent studies argue and show that this is also the case in social dilemmas (Kiyonari, Tanida & Yamagishi, 2000; Tooby, Cosmides & Price, 2006; Yamagishi et al., 2007).

#### *The social exchange heuristic*

This heuristic guides behavior in social dilemmas and helps individuals decide whether to cooperate or not. The decision-rule is: "cooperate if others cooperate and defect if others defect". Thus, based on information on the likely behavior of other actors in a particular situation, the heuristic affects behavior in that particular situation. Figure 3.1 depicts this process; information on the likely behavior of other actors in a social dilemma is entered into the decision rule that in effect helps the individual decide what to do.

Figure 3.1. A schematic depiction of the relationship between information, the social exchange heuristic, and behavior



### *The origin of the social exchange heuristic*

To explain the existence of the social exchange heuristic the literature mainly relies on insights from evolutionary psychology. Drawing on evolutionary arguments, it has been proposed and shown that the human brain is adapted to follow a principle of conditional cooperation in social dilemmas. This strategy was selected for as it—in combination with evolved abilities to detect cheaters—facilitated advantageous cooperation in small-scale ancestral social dilemmas on the savannas of the Pleistocene. Hunter-gatherers with this adaptation engaged in mutual, advantageous cooperation like food sharing and thus outproduced less well adapted humans (Axelrod, 1990; Cosmides & Tooby, 1992; Hagen & Hammerstein, 2006; Haley & Fessler, 2005; Price, Cosmides & Tooby, 2002; Tooby, Cosmides & Price, 2006; Trivers, 1971).

### *...and its persistence today*

To readers unfamiliar with the evolutionary psychology literature it might be appropriate here to explain how ancestral conditions affect the behavior of contemporary humans. In brief, the argument is: human behavior is guided by several specific cognitive modules such as the social exchange heuristic. These modules guide behavior in specific situations like social dilemma situations (Cosmides & Tooby, 2006). Contemporary human behavior is guided by the same modules that proved advantageous on the Pleistocene savanna, because the ancestral humans whose modules generated the most adaptive behavior outproduced less well adapted humans through natural selection (cf. above). Thus, contemporary humans are decedents of those ancestral humans who had the most adaptive modules. Further, these modules are still present today because the human brain has not changed significantly from that of our ancestors on the Pleistocene savanna. The fixity of the human brain since the Pleistocene era is caused by the relatively slow process of natural selection compared to the rapid changes in environments

that began at the end of that era. Due to these changes new adaptations introduced by random mutation will not be the most adaptive for sufficiently long to outcompete all other adaptations (Boyd & Silk, 2003: 401-404, 540-542; Petersen, 2007: 50-54; Sidanius & Kurzban, 2003).

When faced with a social dilemma people draw on the heuristic that evolved in small-N settings because the human brain has not evolved special heuristics for large-N dilemmas. Consequently, contemporary humans prefer mutual cooperation and employ a “cooperate if others cooperate”-heuristic in social dilemmas, including large-N dilemmas (Boone, Declerck & Suetens, 2008; Cosmides & Tooby, 1992; Kiyonari, Tanida & Yamagishi, 2000; Kurzban, 2003; Tooby, Cosmides & Price, 2006; Zak, 2007; see also results in Isaac, Walker & Williams, 1994).<sup>4</sup>

Neuroeconomic studies have uncovered evidence suggesting that humans do indeed follow the social exchange heuristic in social dilemmas. Using experimental games and brain imaging, Rilling et al. (2002) show that mutual cooperation simply feels good; it triggers the release of dopamine in the brain. Similarly, dopamine is released in the face of mutual defection, whereas unilateral defection or cooperation is accompanied by less dopamine release. The human brain thereby stimulates cooperative behavior when others are cooperating, and curbs unitary behavior (cf. Petersen, Roepstorff & Serritzlew, forthc; Zak, 2007). In sum, humans prefer mutual cooperation and therefore tend to cooperate when they believe that others cooperate too. Or in other words: humans are conditional cooperators.

That people rely on the social exchange heuristic, that they are conditional cooperators, is consistent with experimental and real world evidence beyond the scope of the studies mentioned above. Several studies show that people contribute more readily in social dilemmas when they expect that others contribute—and it also holds for large-N and other anonymous situations (Dawes, McTavish & Shaklee, 1977; Dawes et al., 1986; Fischbacher, Gächter & Fehr, 2001; Lubell & Scholz, 2001; Lundqvist, 2001; Marwell & Ames, 1979; Orbell & Dawes, 1991; 1993; Scholz & Lubell, 1998; Song, 2008; Tyszka & Grzelak, 1976; cf. Cook & Cooper, 2003; Ledyard, 1995) .

Since the social exchange is a relatively new concept, none of these studies explicitly refer to the social exchange heuristic. Nevertheless, the social exchange heuristic seems to be a very plausible explanation of why an actor chooses to cooperate when she believes that others will do likewise.<sup>5</sup> In game theoretical terms, the social exchange heuristic implies that people perceive most social dilemmas as assurance games where the dominating strategy is dictated by what the other actors are doing (Hayashi et al., 1999;

Kiyonari, Tanida & Yamagishi, 2000; Sugden, 1984; Yamagishi et al., 2007; see also Pruitt & Kimmel, 1977).

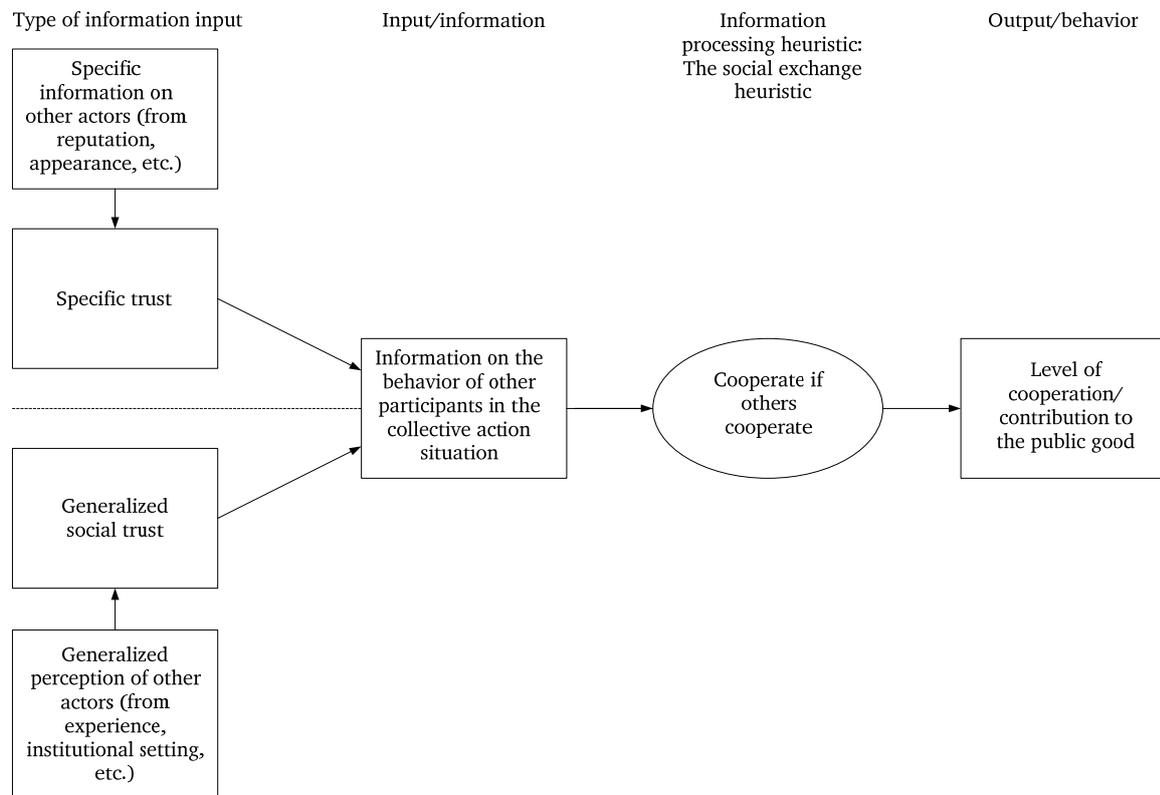
*The social exchange heuristic and specific versus generalized trust*

The social exchange heuristic means that people seek mutual cooperation and tend to cooperate when they expect others to do the same. However, the social exchange heuristic does not mean that people holding generalized social trust cooperate in every social dilemma they encounter. Conversely, people without generalized social trust do not defect in all social dilemmas. The reason is that generalized social trust is only invoked as information about the trustworthiness of others in certain situations.

As noted above, the social exchange heuristic works along with individual ability to detect cheaters. Recent research shows that people rely on as much information as they can possibly get when evaluating the trustworthiness of other actors—information from prior interactions, reputation, appearance, group composition, and institutional setting (Bohnet & Baytelman, 2007; Eckel & Wilson, 2003; Frank, Gilovich & Regan, 1993; Krumhuber et al., 2007; Wilson & Eckel, 2006). Hence, people rely on all available information in social dilemmas. In large-N social dilemmas, however, it is demanding, if not impossible, to get specific information on all the other actors. In such situations, generalized social trust could serve as an alternative source of information or as a shortcut to information on trustworthiness. Generalized social trust is therefore argued to be a stereotypic perception of other people that is invoked when it is hard to obtain specific information on their trustworthiness (cf. Hayashi et al., 1999; on stereotypes see Brown, 1986: Ch. 16; Macrae, Milne & Bodenhausen, 1994; Petersen, 2007: Ch. 9).

The argument posits that generalized social trust is only relevant when no specific information is available. In relation to the social exchange heuristic, this implies that generalized social trust is only used as information by the heuristic when no specific information is present. The argument is illustrated in Figure 3.2. The figure depicts a decision making process in two (ideal-typical) social dilemmas. The upper half of the figure depicts a dilemma where specific information is available. In this situation, the level of specific trust is entered to the social exchange heuristic, and in turn affects behavior. In the other situation specific information is unavailable. Here is the actor's level of generalized social trust used as information on others' likely behavior by the social exchange heuristic.

Figure 3.2. The relation between generalized social trust, the social exchange heuristic, and behavior



This perspective on generalized social trust is supported by experimental evidence. Yamagishi and collaborators (cf. Yamagishi, 2001) find a correlation between generalized social trust and perceptions of others' trustworthiness when no information is available, but not when information is available. In fact, generalized social trusters are sometimes less trusting of specific people (see also Rotter, 1980). Furthermore, Holm and Danielson (2005) and Gächter, Herrmann & Thöni (2004) find that generalized social trust increases cooperation in anonymous public good games where participants have no information about the other players (though see Ahn et al., 2003). Likewise, Glaeser et al. (2000), Harbaugh, Krause & Liday (2003), and Yamagishi (2001) find no effect of generalized social trust on behavior in non-anonymous experiments.<sup>6</sup>

In sum, the perspective on generalized social trust in this dissertation posits that a stereotypic perception of other people's trustworthiness is used only in situations where no specific information is available, or when it is very costly to obtain such information. When specific information is available, generalized social trust does not affect behavior; in such situations behavior depends on specific and more precise evaluations of trustworthiness, that is, specific trust.

### *Generalized social trust, the social exchange heuristic and large-N cooperation*

I am now able to answer the question why generalized social trust should affect large-N collective action: Due to their common evolutionary history most humans are conditional cooperators, that is, they tend to cooperate in social dilemmas if they expect that others cooperate too. A person's level of generalized social trust, which varies between individuals according to experience and institutional surroundings, is invoked to assess the trustworthiness of other players when it is hard to obtain information on the trustworthiness of others. Since information on all other actors is unobtainable in large-N dilemma situations, a person's level of generalized social trust affects her perception of the other players. This perception in turn affects her behavior in large-N dilemmas through the social exchange heuristic.

This chapter has provided an explanation that links generalized social trust and large-N collective action. The explanation accords trust a pivotal role as opposed to the civiness/altruistic/moralistic explanation, and it explains why trusters cooperate even in large-N anonymous settings. Furthermore, the account is consistent with the knowledge about human behavior obtained in several scientific disciplines. Finally, the account has specified the situations where generalized social trust affects behavior. The perspective on generalized social trust is that it can enhance large-N collective action, but not much else. This perspective differs substantially from existing expectations of generalized social trust. As observed in a recent review there is almost no good thing that generalized social trust has not been claimed to affect (Nannestad, 2008; see also Welch et al., 2005). The perspective taken here accords generalized social trust a more modest, but still very important role.

### **Implications**

The link between generalized social trust and large-N collective action rests on the following assumptions: a person's level of generalized social trust is used as information about the likely behavior of other actors in large-N situations. This information guides behavior in such situations through the social exchange heuristic. The validity of these assumptions is supported by evidence from the existing literature, and it is further assessed through the following three implications derived from them:

1. People with high levels of generalized social trust—all else being equal—are more inclined to cooperate in large-N collective action dilemmas than low trusters.

2. Generalized social trust only affects behavior in social dilemmas
3. Generalized social trust affects behavior in large N-dilemmas in the same way across cultures and institutional settings.

Obviously, the first implication is the most important implication. If it is not backed by empirics, then generalized social trust does not enhance large-N cooperation and the remaining implications are irrelevant.

To appreciate the reasoning behind the second implication recall that generalized social trust was argued to be invoked to help assess the trustworthiness of other people. If this is true, generalized social trust should only matter when the trustworthiness of others actually affects me. Thus, this implication can also be formulated as: *Generalized social trust should not affect behavior in dilemmas concerning provision of goods with large private benefits*. Private benefits are benefits that can be enjoyed only by the contributor, and if they are sufficiently large, the potential contributor does not face a social dilemma. In such situations generalized social trust should not affect behavior because other people's behavior does not affect my benefits. Another way to understand implication 2 is through the social exchange heuristic. According to the theory and empirics, the heuristic is only active when the actor realizes that he is in a social dilemma (Yamagishi et al., 2007). Again, this implies that generalized social trust only affects behavior in social dilemmas.

Implication 3 also follows from the logic of the social exchange heuristic. Since the social exchange heuristic is argued to originate in the common evolutionary past of humans it should be active, and operate similarly across cultures. Note, that this is not to say that all cultures have similar levels of cooperation, rather it is hypothesized that generalized social trust increases cooperation by the same amount across cultures.

Thus, the theory predicts a universal behavioral effect of generalized social trust in collective action dilemmas. These predictions are tested in the accompanying papers. Moreover, the theory predicts that generalized social trust only affects behavior in large-N situations. This prediction is not explicitly tested in the empirical analyses, since all analyses deal with the role of generalized social trust in large-N situations (cf. Chapter 4).

Nevertheless, given our insufficient knowledge of the association between generalized social trust and large-N cooperation, testing the three implications can bring our knowledge an important step forward. The central implication, the first one, is tested in all the empirical papers, while the others are tested in selected papers. These tests serve to investigate if generalized social trust increases large-N cooperation (implication 1), as well as to assess the validity of the explanation provided above (2 & 3). Moreover,

and as described in the next chapter, some of these tests allow me to compare this explanation to the civicness/altruistic/moralistic explanation. The following chapter gives further details on this aspect as well as on the analytical strategy employed to test these implications.

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<sup>1</sup> See note 2 in Chapter 2 for studies on the causes of trust

<sup>2</sup> The concept “social dilemmas” describes a broad class of N-persons dilemmas (including collective action dilemmas) characterized by a mismatch between individual and collective motivation (cf. Dawes, 1980).

<sup>3</sup> Another inconsistency in the rational choice account is between its notion of generalized social trust and the often made assumption about fully informed actors. If all actors have full information on the trustworthiness of the generalized other, then should all actors within a collective have the same level of generalized social trust. This implies that generalized social trust is either a constant, than cannot explain variation, or the assumption about fully informed actor is not met.

<sup>4</sup> Although the social exchange heuristic has evolved through natural selection and therefore can be seen as the result of “self-interested” genes (Kurzban, 2003; though see Gintis et al., 2003), it does not mean that the behavior of contemporary humans neither maximizes their self interest, nor the interest of their genes. Rather, behavior is guided by heuristics that proved advantageous in ancestral settings. These heuristics evolved in settings where the number of actors in collective action dilemmas never exceeded more than a dozen or so people. In such an environment, conditional cooperation might be a better strategy, but that does not mean that the social exchange heuristic yields the most adaptive behavior in modern large-N settings (Cosmides & Tooby, 1992; Kurzban, 2003; Tooby, Cosmides & Price, 2006).

<sup>5</sup> Orbell & Dawes (1991) provide another explanation for conditional cooperation than the social exchange heuristic. They propose that people simply project their own intentions onto their fellow players. That would explain why cooperators think others will cooperate too. However, their proposal is inconsistent with recent empirical results, which document that humans are exceedingly preoccupied with evaluating the trustworthiness of other actors in social interactions (cf. below). If humans search for cheaters in social interactions, it seems illogical that they simply project their own intentions onto others when evaluating trustworthiness (see also Yamagishi et al., 2007).

<sup>6</sup> It should be noted that both Glaeser et al. and Harbaugh, Krause & Liday argue that the non-effect of generalized social trust on cooperation undermines the validity of the generalized social trust measure. However, in light of the argument just presented, we should not expect any effects of generalized social trust in non-anonymous settings (see also Holm & Danielson, 2005).



## **Chapter 4: Strategy**

As outlined in Chapter 2, the objective of this dissertation is to answer two questions: does generalized social trust help solve large-N collective action problems, and if so, how? In Chapter 3 I argued that there are good reasons to expect that generalized social trust helps solve large-N collective action problems because people with high levels of generalized social trust expect other people to cooperate in large-N dilemmas. Guided by the social exchange heuristic, this expectation stimulates cooperative behavior in large-N dilemmas.

If generalized social trust increases cooperation, and if it does so for the reason just described, all three implications outlined in Chapter 4 should be supported by empirics. In papers 2-5 (cf. Chapter 1) I have investigated whether this is so (paper 1, “The environment”, is a review paper that does not analyze the implications). This chapter describes my overall analytical strategy. Concerns and pitfalls associated with the strategy are discussed in Chapter 6.

### **Pro-environmental behavior as indicator of cooperation**

To examine whether generalized social trust increases cooperation (implication 1) requires a sound indicator of large-N cooperation. As I argue in “The environment”, a clean environment and voluntary pollution abatement represent archetypical examples of a non-excludable good and a large-N collective action dilemma, respectively. Thus, the environment is an excellent place to test hypotheses about large-N collective action. In three of the four empirical papers pro-environmental behavior is used as the observable indicator of cooperation, while “Does trust lead to membership?” employs a broader indicator (including pro-environmental behavior). How individuals behave in relation to the natural environment and how they respond to pollution thus constitute the unifying empirical case scrutinized in this dissertation.

When an actor joins an environmental organization or donates money to one, when she buys environmentally friendly goods or avoids unfriendly ones, when she takes voluntary action to improve the environment or avoids other harmful behaviors, she contributes to a good that can be enjoyed by others whether they contributed or not. She contributes to a non-excludable good. The private benefits deriving from these actions, that is, the benefits that can be enjoyed only by the actor herself, are marginal. Furthermore, the set of potential contributors is usually very large in relation to environmental

improvements, since most of them benefit large numbers of people. So for a person preferring a cleaner environment, the decision whether or not to engage in pro-environmental behavior constitutes a large-N collective action dilemma. Likewise, actually undertaking these actions signifies cooperative behavior in such dilemmas. All in all, pro-environmental behavior is an obvious and enlightening place to start when investigating large-N collective action.

Specifically, joining environmental organizations, joining other organizations that produce non-excludable goods, and recycling are used as indicators of cooperative behavior in the empirical analyses. If generalized social trust really enhances cooperation in large-N dilemmas, then people holding generalized social trust—all else being equal—should more readily undertake such actions.

Testing this hypothesis helps explore if trust has an effect on cooperation, but it does not shed light on the other implications derived above. To test implication 2, that is, if generalized social trust affects behavior only in collective action dilemmas, three of the papers also investigate if generalized social trust affects behavior in situations that are similar to the actions identified above, except that they do not involve a collective action dilemma. Specifically, “Does trust lead to membership” contrasts the effect of trust upon membership of collective goods producing associations versus membership of non-public goods producing associations. “Different goods” contrasts the effect of trust on recycling behavior and organic food consumption. Several studies show that recycling is an archetypical collective action dilemma, whereas organic food consumption is not. In “Explaining Large-N Cooperation” I loosen the assumption that recycling always constitutes a collective action dilemma and compare the effect of trust between individuals with varying perceptions of the size of the collective action dilemma. Hence, the second implication is tested by comparing the effect of generalized social trust in similar situations that differ only with respect to the magnitude of the associated collective action dilemma.

If implication 2 is backed by empirics, I can validate the theoretical explanation offered above. It will show whether the social exchange heuristic explanation or the civicness/altruistic/moralistic account is the most accurate account. The civicness/altruistic/moralistic account has it that generalized social trust should also affect behavior in non-social dilemmas as long as the behavior benefits others. It is argued that generalized social trust reflects the actor’s level of other regarding preferences or her civic values. If this is true, generalized social trust should lead to all sorts of civic behavior beneficial to others, and it should not be confined to cooperation in social dilemmas. Thus,

both explanations predict a positive effect of generalized social trust on large-N collective action, but they differ in their predictions in other areas. By testing both if and when generalized social trust affects behavior the theory is examined rigorously.

Implication 3 stated that generalized social trust affects behavior in large N-dilemmas in the same way, regardless of culture and institutional surroundings. This is tested in “Explaining Large-N Cooperation” by comparing the effects of trust on recycling behavior in four countries.

In sum, pro-environmental behavior serves as the observable indicator of cooperation to assess the effects of generalized social trust. In that respect pro-environmental behavior is merely an empirical case that could be replaced by any other large-N dilemma. However, from a political science point of view, pro-environmental behavior is relevant in its own right as an object of study. Environmental interest groups are important political actors who affect policy agendas and policy output (Dalton, 1994; Dalton, Recchia & Rohrschneider, 2003). It is therefore highly relevant to understand when and why citizens support such organizations. The amount of voluntary action taken to improve the environment not only affects the level of state intervention required to reduce pollution. It also affects the effectiveness of policy intervention (cf. Scholz & Lubell, 1998). Again, understanding why and when citizens undertake voluntary pro-environmental action is useful in political science.

## **Measuring levels of generalized social trust and pro-environmental behavior**

Throughout the empirical studies, the level of generalized social trust is the key independent variable, while pro-environmental behavior is the key dependent variable.

Generalized social trust is measured using survey data. Whenever possible, the studies rely on the following three item battery: (1) “Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?”, (2) “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?”, and (3) “Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?”. However, because of data limitations I have had to rely on only the first of these items in two of the analyses. Both the single item and the three item measure are used extensively in the literature and are generally accepted as valid indicators of generalized social trust, but their validity is nevertheless discussed in Chapter 6.

The choice of survey data as indicators of generalized social trust is consistent with most studies on both the causes and effects of generalized social trust. However, experimental studies have proposed another way to measure trust (e.g. Berg, Dickhaut & McCabe, 1995; Kosfeld et al., 2005). Although some studies are more sophisticated than others (e.g. Bohnet & Baytelman, 2007), they all suffer from the deficit described in Chapter 2. They measure trust as cooperative behavior in experimental games, and that makes the measure inadequate when studying both trust and cooperation (cf. Cook & Cooper, 2003; Nannestad, 2008). To rely on survey measures is therefore the best strategy in my case.

Pro-environmental behavior—the dependent variable—is measured in different ways throughout the studies (cf. above and Table 4.1 below). In general terms, three types of measures are used: self reported behavior, aggregated self reported behavior, and aggregated actual behavior.

In addition to these key variables, the studies include relevant control variables described in the individual papers. These controls are measured using survey data as well as country level data from several international databases (cf. below). The controls have been carefully selected to get a rigorous test of the effect of generalized social trust.

### *Units of analysis*

As described above, the dependent variable is measured at the individual level and at the (aggregated) country level. Hence, the units of analysis are in some instances countries and in others individuals. In two studies individuals are the units using individual level survey data. Both studies include respondents from more than one country (4 and around 40, respectively). The reason is two-fold: First, by including respondents from several countries the variance is increased on both the independent and dependent variables. It also raises the number of respondents, which is an advantageous feature in quantitative research. Second, and more importantly, by including individuals from several countries the range of generalizability is expanded beyond, e.g., a high trusting Danish context. However, using cross-national survey data raises other concerns and potential problems—which are also discussed in Chapter 6.

### *Data*

The cross-national survey data come from three sources: The European and World Values Surveys, European Social Survey and a survey conducted by Carsten Daugbjerg, Gert Tinggaard Svendsen, and myself (dubbed *organic survey* below). Details on European and World Values Surveys and European Social Survey can be found in the respective papers as well as at the

appropriate websites.<sup>1</sup> Organic survey is a unique survey designed to assess individual motivation behind pro-environmental behavior with special emphasis on the role played by various forms of trust. The survey contains data from approximately 4,000 respondents from the US, UK, Sweden and Denmark. Further details on the survey are found in “Explaining Large-N Cooperation”.

In addition, several sets of country level data are used. They were collected from a variety of sources like The World Bank, OECD and Eurostat. Details on these data are also given in the respective papers. Table 4.1 provides an overview of various methodological issues in the four empirical studies.

Table 4.1. Overview of the empirical studies

	Study/Paper			
	2	3	4	5
	Environmental group membership	Does trust lead to membership?	Different goods	Explaining Large-N Cooperation
Units of analysis	Countries (N=52)	Individuals (N~2,500)	Countries (N=20)	Individuals (N~3,000)
Measure of Generalized social trust	Country mean of item 1	Item 1	Country mean of items 1-3	Mean of items 1-3
Measures of cooperation	Environmental group membership (share of citizens who claim to be a member)	Passive membership of public good producing associations	Actual country level recycle rate	Claimed level of recycling
Data source(s)	EWVS, wave 4; Controls from e.g. Freedom House	EWVS, wave 3; Controls from e.g. Penn World Table	ESS, Round 1; Eurostat; Controls from e.g. EWVS	Organic survey
Data year	~2000	~1995	2002/03	2008
Implications tested	1	1 & 2	1 & 2	1-3
Method	OLS regression	Multi-level logistic regression	OLS regression; extreme bounds analysis	Multi-level OLS regression

Notes: EWVS: European and World Values Survey; ESS: European Social Survey.

### **Three implications, several settings**

In sum, to explore if, when, and how generalized social trust helps solve collective action problems three implications are tested using various measures of cooperative behavior as the dependent variable. Reliability and generalizability are maximized by using data from several sources, countries, and points in time. The empirical analyses should therefore give reliable and thorough answers to the questions raised above.

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<sup>1</sup> <http://www.worldvaluessurvey.org>; <http://www.europeanvalues.nl>;  
<http://www.europeansocialsurvey.org/>.

## **Chapter 5: Findings**

As described in Chapter 4, the overall research strategy in this dissertation is to test the empirical validity of the three implications in different settings. This chapter summarizes the results of these tests.

### **Generalized social trust helps solve large-N collective action problems**

The empirical studies provide unconditional support for the first and foremost implication. All analyses show that generalized social trust increases cooperation in large-N dilemmas.

I find that citizens in countries with high densities of generalized social trust are more likely to join and/or support organizations working to improve the environment (“Environmental group membership”). The results are backed by individual level data in “Does trust lead to membership?”, where it is shown that individuals with high levels of generalized social trust more readily support associations that provide public goods—including environmental organizations. In line with the results in Nannestad (2006), these studies show that generalized social trust enhances associational membership when such membership involves large-N collective action dilemmas.

Turning to the other indicator of cooperation, recycling, the results also support a positive effect of generalized social trust. Two studies show that generalized social trust increases recycling significantly. In “Different goods”, this result is obtained using actual country level recycling data, whereas “Explaining Large-N Cooperation” relies on individual level data with self-reported recycling behavior as the dependent variable. Again, taken together, these studies demonstrate that generalized social trust increases pro-environmental behavior in large-N settings. Based on these results, the answer to the first question raised in dissertation is in the affirmative: Generalized social trust does indeed help solve large-N collective action problems.

#### *The effect is robust and non-trivial*

The fact that a positive significant effect is found in all empirical studies shows that the effect is robust to changes in indicator, analytical level, method, and data (cf. Table 4.1). This is reassuring. Moreover, much effort went into assessing the robustness of the results in each paper. For instance, a variant of extreme bounds analysis is applied, where a range of control

variables were introduced to assess robustness (“Different goods”). In other studies alternative measures of the control variables are used without causing a change in the effect of trust (“Environmental group membership”, note 13 and “Explaining Large-N Cooperation”, Model II). Furthermore, all studies except “Different goods” use alternative measures of the dependent variable, again yielding the same convincing results. In sum, the positive effect of generalized social trust is robust, both across and within studies.

Another important overall finding is that the effect of generalized social trust is quite substantial. Compared to other variables, including environmental values and education, generalized social trust has a greater effect in most studies. None of the studies was specifically designed to compare the effect of trust to other variables, so this finding is not definitive.<sup>1</sup> The results nevertheless show that generalized social trust has an anything but trivial effect on collective action. The importance of generalized social trust is further corroborated by the finding that generalized social trust is a necessary condition for collective action; without trust collective action does not take place. In countries with low densities of generalized social trust there is no environmental mobilization even when a large share of the population holds postmaterial values or when there are severe environmental problems (“Environmental group membership, Model VII, Figure 1 & 2”).<sup>2</sup> In addition to these findings, the importance of generalized social trust is underlined in the last analysis in “Explaining Large-N Cooperation”. This analysis shows that the effect of trust on collective action does not diminish as the costs of contributing increase (Model X). Although this result cannot be generalized to situations with even greater costs (cf. Chapter 6), it informs us that trust is a vital factor in large-N collective action, and taken together, the findings show that the effect of trust is not only positive, significant, and robust. It is also important.

### **Generalized social trust matters only in collective action situations**

In Chapter 3 it was argued that generalized social trust should only affect behavior in the presence of a collective action dilemma (implication 2). If generalized social trust is used as information about the trustworthiness of other actors, it should only affect behavior when information on the behavior of others is relevant.

This implication is observed empirically. People with high levels of generalized social trust more readily join associations where membership involves a collective action dilemma, as described above. However, this membership enhancing effect vanishes when the membership in question

does not involve a collective action dilemma. In “Does trust lead to membership?”, I find that people with high levels of generalized social trust are no more inclined to join professional or religious organizations than low trusters are. Membership of such organizations hardly constitutes a collective action dilemma; rather the decision to join is a completely private decision. This result shows that generalized social trust only affects behavior in the presence of a collective action dilemma.

Similar results are obtained by comparing the effect of trust on recycling and organic food consumption. While generalized social trust increases recycling rates (cf. above) it does not increase organic food consumption. Both recycling and organic food consumption are beneficial to the environment, but the private benefits associated with organic food consumption are far higher than those associated with recycling. This means that the decision to consume organic foods constitutes a minor dilemma compared to recycling. Again, the difference in effects indicates that trust only affects behavior in collective dilemmas.

The last chunk of evidence on this matter is found in “Explaining Large-N Cooperation”. Here I exploit the fact that some people associate private benefits with recycling, for instance if recycling helps them get rid of excess refuse. For people who mainly associate private benefits with recycling, there is no effect of generalized social trust, whereas generalized social trust has a large impact on recycling for people who do not associate private benefits with recycling (Model IX; Figure 1). Like the findings above, these results tell us that generalized social trust only matters in collective action situations, which supports the assumption that generalized social trust is used as a way to estimate the behavior of other people.

Together with the findings on the first implication, these results show that generalized social trust affects behavior in large-N collective action situations, but not in other situations. This lends solid support to the social exchange heuristic account proposed in Chapter 3. The expected effects are not only present when expected, they are also absent when they should be.

Moreover, the findings indicate that the social exchange heuristic account stands up well against alternative explanations of generalized social trust and large-N collective action. As argued in Chapter 4, the civiness/altruistic/moralistic and the social exchange heuristic account both predict positive effects of generalized social trust on large-N collective problems, but they differ in their predictions of the effect in other areas. The civiness/altruistic/moralistic account posits that people holding generalized social trust are more civic minded and are more concerned about the welfare of a broad set of people than low-trusters. If this is so, the effects of trust should not be

confined to collective action dilemmas, because behavior in non-social dilemmas can also be considered civic or other regarding. However, as just described, generalized social trust does not affect behavior outside collective action dilemmas. The fact that generalized social trust does not increase membership of non-public good producing associations shows that people holding generalized social trust—all else being equal—are no more civic minded than low trusters. Likewise, people holding generalized social trust do not consume more organic foods than low-trusters even though organic food consumption helps improve the environment. And finally, high trusters who get private benefits from recycling are no more inclined than low trusters to help reduce resource consumption through recycling. Thus, people holding generalized social trust are not unconditionally good citizens. They are optimists who engage in cooperation because they expect that others do the same.

### **The effect of trust is similar across cultures and institutional settings**

The third implication also finds support in the analyses. In “Explaining Large-N Cooperation”, I find that generalized social trust increases recycling by approximately the same amount in Sweden, Denmark, UK, and US. The effect varies marginally between countries, but analyses show that the difference is insignificant (Models IV-VII; note the test of difference is not reported in the paper). The findings in the study indicate that generalized social trust affects cooperation similarly across cultures and institutional settings, which is to be expected if generalized social trust affects cooperation through a universal social exchange heuristic. Note, however, that the reliability of this finding is more modest than the findings above because it is based on a single study. Moreover, the countries in the analyses are far too similar to conclude that the effect of trust is constant across the globe. More studies are needed on this issue to draw firm conclusions.

### **Overall result**

Despite the reservation on implication 3, the overall conclusion on the empirical validity of the implications is almost unconditional: the findings lend substantial support to the three implications. This tells us that generalized social trust in all likelihood increases cooperation in large-N dilemmas, and that it does so for the reason proposed in Chapter 3. However, before jumping to (the) conclusions, Chapter 6 raises some additional concerns about the findings just presented.

<sup>1</sup> For instance, it could be that education causes generalized social trust, which would imply that the total effect of education is underestimated (cf. Helliwell & Putnam, 2007; Uslaner, 2002: Ch 4; and in particular Stubager, 2006: Ch 4). On the other hand, other authors argue and show that generalized social trust leads to education and not the other way around, which would imply that the inclusion of education underestimates the overall effect of generalized social trust (Bjørnskov, forthcoming; Coleman, 1988).

<sup>2</sup> Note, however, that tentative analyses using *organic survey* could not replicate these findings with respect to postmaterialism.



## **Chapter 6: Concerns**

This chapter discusses what may be considered weaknesses in the findings presented in chapter 5. Some specific concerns have already been addressed in the relevant papers. Here I will address the following concerns: are the measures of trust valid and reliable? Are aggregated data suitable for analyzing individual behavior? And finally, do the analyses tell us anything about the effects of generalized social trust in general?

### **The generalized social trust measure**

Obtaining a valid and accurate measure of the key independent variable is a paramount objective. As noted above, both the single item and the three items measure are used extensively and are generally recognized as valid measures of generalized social trust. Several studies analyzing the validity and reliability point to some weaknesses, but still end up accepting the measures. These studies praise the low rate of non-response as well as the remarkable cross-survey and temporal stability of the responses (Nannestad, 2008; Reeskens & Hooghe, 2008; Sønderskov, 2005: Appendix 3; Uslaner, 2002: Ch. 3). Moreover, all the accompanying papers discuss various aspects of validity and reliability. Given the importance of this issue, I will nevertheless address two possible concerns here.

The first concern arises because of the rather vague formulations of the questions, which leave quite a lot room for interpretation by the respondents and therefore potentially tap into quite different beliefs across individuals—especially when using cross-cultural data. For instance, looking at the first item (“Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?”), it is clear that both who “most people” are and what they “can be trusted” to do is up to the respondent (cf. Hardin, 2006: Ch. 3). Nannestad (2008) elaborates on this critique by pointing out that quite a few respondents answer differently to a similar question when “most people” is replaced by a specific group of people like, for instance “immigrants” or “Jews”.

I agree that what “most people can be trusted” to do is underspecified, which might involve some measurement error, and I will touch upon this issue below. However, the fact that people respond differently when the object of trust is changed is not surprising and does not necessarily threaten validity or reliability. As proposed above, generalized social trust differs from specific forms of trust, so when asked about trust in a specific group, the respondent reveals her specific trust in that group, not her generalized social

trust. The changes in trust-levels across survey items are thus perfectly in line with the definition of generalized social trust proposed in this dissertation.

In fact, the data Nannestad uses in his critique can be interpreted as a support to validity rather than a threat. According to the definition proposed in this dissertation, generalized social trust is a distinctive form of trust that differs from specific trust and reflects trust in the generalized other. If that is what the measure reflects it should differ from a measure of trust in people who are not “most people”, and it should correspond to a measure of trust in people who are “most people”. This is exactly what Nannestad’s data show (2008: 417). 83% of native Danes said that most people can be trusted (on a dichotomous variant of the item described above), whereas 69% of the same respondents indicated trust in immigrants. Immigrants make up less than 10% of the Danish population, and hence only make up a very small fraction of “most people” in Denmark. In that light, one would expect a large difference between generalized social trust and specific trust in immigrants. Moreover, 47% of immigrants in Denmark hold generalized social trust, while 40% of immigrants trust Danes. Here the difference is much smaller than above, which is to be expected if the measure is valid. Since native Danes make up a very large part of “most people” in Denmark there should only be minor differences between trust in Danes and trust in the generalized other. Thus, the measure of generalized social trust does indeed seem to tap generalized social trust.

The second concern is raised by existing critiques of the three items measure in particular. Conventional wisdom has it that indices are preferable when measuring complex phenomena like generalized social trust (cf. Reeskens & Hooghe, 2008). However, Uslaner (2002: Ch 3) criticizes the three items index and argues that a measure based on the “most people can be trusted” item is superior. Based on open-ended questions, his main objection against the other two items is that they apparently reflect personal experiences in dealing with people. While this is at odds with his own notion of generalized social trust, it does not conflict with the definition employed here. On the contrary, I expect personal experiences to affect a person’s level of generalized social trust. Using the three items measure is therefore preferable in my case (see also discussion in Stolle, Soroka & Johnston, 2008). On the other hand, Reeskens & Hooghe (2008) show that the last item, “Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?” is somewhat problematic in that it loads poorly with the other items in some countries.

In light of this discussion I have rerun all analyses using the three items measure, replacing it by both the single item measure and an index consisting

of the first two items. The results do not change substantially regardless of measurement, which underscores the validity of the results. Note, however, that data limitations prevent me from reanalyzing the results obtained with the single item measure.

This stability means that, based on the discussion on specific versus generalized social trust as well as the discussions in the accompanying papers, it can be concluded that the measure of generalized social trust is not completely without problems, but they are not overwhelming, nor do they give any reason to reject the findings.

### **A fallacy of composition?**

The implications being tested in the papers are individual level implications; they predict that certain behavior by individuals depends on their level of generalized social trust. Nevertheless, in two of the papers these implications are tested using aggregated measures of individual behavior (aggregated claimed environmental group membership rates in “Environmental group membership” and aggregated actual recycling and organic food consumption rates in “Different goods”). This strategy is suboptimal because aggregated data is not well suited to test individual level phenomena. There is no guarantee that an association found at the aggregate level is real at the individual level (Robinson, 1950; Seligson, 2002). To infer individual level behavior from aggregated data is thus an ecological fallacy—or a fallacy of composition. That gives rise to questions about the results obtained in these two papers.

The papers rely on aggregated data, but for different reasons. Aggregated survey data is used in “Environmental group membership” because generalized social trust is added to a model that relies on aggregated data. “Different goods” used aggregated actual behavior to confront problems of reliability associated with self-reported data (see discussion in “Different goods”, p. 8, and “Explaining Large-N Cooperation”, p. 8). However, no matter how good the reasons are, a fallacy of composition might still have a negative effect on the validity of the results.

Two points must be made before deeming these results flawed. First, the results in both papers were sustained using individual level data in “Does trust lead to membership?” and “Explaining Large-N Cooperation”, respectively. Second, in “Environmental group membership” I test if there is an individual level relationship (see note 12 in that paper). Although this test is not complete, the tentative test reveals an individual level relationship between generalized social trust and environmental group membership using the same data source as that used for the aggregated data. So one should

probably not have too much faith in the exact coefficients obtained in aggregate studies, but since the overall results obtained with aggregated data have been supported by individual level data, it is reasonable to assume the results are valid.

## **The range of generalizability**

The results presented in chapter 5 showed a positive effect of generalized social trust on pro-environmental behavior. An obvious concern in relation to these findings is whether the results can be generalized across space, time, and issues. Or put another way: does generalized social trust enhance cooperation across the globe at all times, and does it enhance cooperation in all large-N collective action dilemmas?

Concerning generalizability across space and time, the analyses provide some evidence that there is a universal positive effect of generalized social trust. The analyses have relied on data from several countries and different points in time, supporting a universal effect. Note, however, that only a few countries outside the western world are included, and that the time span over which the data was collected is only around ten years. In addition, it should be noted that implication 3 stated that the effect should not only be positive across cultures. It should also be constant. As discussed in the previous chapter, there is scant evidence for this implication. Future studies should therefore dig deeper into this issue.

Generalization across issues is perhaps more problematic. On the one hand, there is no doubt that pro-environmental behavior is an excellent indicator of large-N cooperation, implying that the results do indeed identify a connection between generalized social trust and cooperation. On the other hand, voluntary pro-environmental behavior is different from other behavioral dilemmas in at least one respect: the cost of undertaking pro-environmental behavior is relatively small and the potential loss an actor might incur by being cheated by others is similarly small. This means that, strictly speaking, the studies only provide evidence of an effect in situations where the collective action dilemma is not overwhelming. As described in the previous chapter, I have analyzed whether the effect diminishes as the costs, or inconvenience, of recycling increase. This was not the case, but the results do not show if generalized social trust helps solve dilemmas with even higher costs and higher potential losses (cf. Coleman, 1990: Ch. 5; Hardin, 2006: Ch. 3). It could be that at some level of expenditure people stop relying on their level of generalized social trust simply because it is too risky (recall that the measure does not specify what “most people can be trusted” to do). It might also be that at some level of cost, people no longer rely on the social

exchange heuristic when deciding what to do. People might actually carry out a thorough evaluation of the pros and cons instead of relying on a heuristic beginning at some particular level of costs. If just one of these speculations is true, it would imply that generalized social trust no longer affects behavior in certain collective action situations. This discussion points to a limitation of the indicator of cooperation, and only future studies can determine if there are limits to the effects of trust and at what level of costs trust eventually ceases to affect behavior. However, this limitation does not invalidate the results; it only limits the range of generalization.

Before deeming the results irrelevant to collective action in general there are two points to keep in mind. First, the positive effect of trust in less severe dilemmas is highly relevant. Even if trust only helps solve less severe problems it has positive effects on several dilemmas faced by modern societies, and understanding when people engage in a particular type of collective action is relevant. Second, neither my studies, nor others, have yet found limits to the effects of generalized social trust. It could very well be that trust helps solve even more severe problems.

### **Can the results be trusted?**

Three conclusions emerge from the discussion in this chapter. Although some of the exact coefficients reported in the macro level studies should be taken with a grain of salt, the overall conclusion from Chapter 5 stands: generalized social trust enhances large-N collective action and it most likely does so for the reasons described in Chapter 3. Secondly, the findings cannot be generalized straightforwardly to large-N dilemmas with higher costs. Finally, and related, there are still unresolved questions to be answered by future studies. These unresolved questions are discussed in the last chapter.



## **Chapter 7: Conclusions**

This dissertation has extended our theoretical understanding and empirical knowledge of the relationship between generalized social trust and collective action and the arguments and findings have several implications for scholars, policy makers, in fact for all of us. This chapter summarizes the contributions made by the dissertation and discusses the implications for future research and policy making.

### **What have we learned?**

The dissertation has demonstrated that the relationship between generalized social trust and large-N collective action proposed so often is most probably real. Generalized social trust apparently does help solve large-N collective action problems; generalized social trust makes cooperation work. These results have been obtained through thorough empirical investigations that—unlike most previous literature—focused specifically on large-N collective action. In that respect, the dissertation has provided much-needed solid empirical support for the relationship. In particular the dissertation has made micro-level evidence available, which used to be in short supply. These findings show that generalized social trust helps solve many of the problems faced by modern societies; it enhances citizens' willingness to engage in voluntary collective action even though they are not closely related to, or do not have access to, detailed information about one another. In that way the dissertation has advanced our knowledge of when and why collective action takes place in large complex societies.

In addition, a coherent and novel theoretical account has been provided: Generalized social trust helps solve large-N collective action problems because it reflects positive expectations about the likely behavior of other actors in situations where specific knowledge is unavailable. Guided by the social exchange heuristic, which stimulates conditional cooperation, people with high levels of generalized social trust more readily engage in large-N collective action, it was argued. The empirical analyses lent support to this explanation and it appears to be superior to alternative explanations.

The arguments and findings have numerous implications that can be utilized straightforwardly in future research, but the dissertation also leaves several questions unanswered or underexposed, which calls for future studies. These implications and unanswered questions are discussed next.

## **Implications for future research**

A first straightforward implication of the findings in this dissertation is that studies on the *causes* of generalized social trust have been shown to be highly relevant. Several studies already exist, but they are irrelevant unless generalized social trust has consequences in the real world. Given the positive benefits of generalized social trust identified here, figuring out exactly what causes it is essential.

The existing literature has identified several causes, but no clear conclusions have yet emerged. In that light, I agree with the recommendations in a recent review of the trust literature: it is now time for rigorous robustness analyses to identify which causes are real and which are spurious (Nannestad, 2008).

### *Implications for research on the effects of generalized social trust*

As noted above, only a few earlier studies have used falsifiable empirical testing to show whether generalized social trust actually enhances large-N cooperation. Obviously more studies are needed before the conclusions reached in this dissertation can be considered authoritative. These studies should preferably be conducted at the individual level and using empirical indicators other than pro-environmental behavior. To name a few possible indicators, future studies might investigate the role of generalized social trust in citizens' compliance with regulations (tax regulations, environmental regulations, traffic regulations, copyright regulations, etc.), participation in political demonstrations and political consumerism, the amount of help they give to people in need, or whether they participate in blood donation programs.

Such studies could also shed light on some of the questions left unanswered in this project. Most importantly, they could explore the limits of the collective action enhancing effects of generalized social trust. Does generalized social trust help solve every large-N dilemma, or is the effect restricted to less severe dilemmas such as those investigated here? In addition, such studies could explore whether generalized social trust only helps solve large-N dilemmas as predicted by the theory, or if it also affects dilemmas with fewer participants. One obvious way to explore these limits is through experimental research. Both the costs and the number of participants as well as the amount of information they have on each other can easily be manipulated and measured in an experimental design.

### *Implications for collective action research*

The findings demonstrate that generalized social trust is an important factor in large-N collective action. Large-N cooperation is more likely to occur when

the collective has a high density of people holding generalized social trust. Future studies of large-N collective action should therefore incorporate generalized social trust in their models.

The social exchange heuristic could also be a fruitful concept in collective action research. Although this dissertation has not directly shown that people rely on the social exchange heuristic in social dilemmas (cf. below), it appears to be a fertile concept for research in human decision-making in social dilemmas. This is especially so because the social exchange heuristic should not only be relevant in large-N dilemmas; it is relevant in every social dilemma where an actor needs to decide whether to free ride or cooperate.

However, as noted above, this study has only shown that people most probably do rely on the social exchange heuristic, and hence, more studies are needed on this matter. We still need to find out if it is an accurate description of decision-making, if it is a universal heuristic applied by most people, where it stems from, and in what situations it is applied. Given the nature of these questions, this is mainly a task to be undertaken by (evolutionary) psychologists and neuroscientists.

#### *Implications for environmental research*

The specific results obtained in this project show that generalized social trust affects citizens' environmental behavior, and that the effect is quite large compared to the effects of other factors. Future studies of pro-environmental behavior can therefore no longer ignore generalized social trust. Moreover, the macro level results as well as a general assumption in the literature suggest that generalized social trust could also affect environmental policy performance. This is an obvious avenue for future environmental policy studies.

#### *Implications for social capital research*

Throughout the accompanying papers I have discussed and analyzed the relationship between generalized social trust and social capital. Three points emerge from these discussions.

My first point about the relationship between generalized social trust and social capital is that they are not identical. Most scholars perceive social capital as a phenomenon that helps groups or societies overcome collective action problems (e.g. Coleman, 1990: Ch. 12; Fukuyama, 1995: 10; Putnam, 1993: Ch. 6). This implies that social capital must be an aggregate concept that refers to relationships, norms, and institutions within that group or society. Social capital therefore cannot be an individual level concept. As noted by Stolle & Rochon, "it is a category mistake to refer to an individual's social capital" (1998: 50).<sup>1</sup> On the other hand, according to my and most

definitions, generalized social trust is an individual level phenomenon. Generalized social trust and social capital therefore cannot be the same thing.

However, that does not mean they are unrelated. If social capital is a phenomenon that helps groups overcome collective action problems then—in light of the results presented in this dissertation—social capital and generalized social trust are indeed related. The results show that people with high levels of generalized social trust often engage in collective action, and hence, a group consisting of actors with high levels of generalized social trust is better able to solve collective action problems than other groups. On that basis, social capital can therefore be defined as a high density of generalized social trust within a group.

But that definition is only valid if the group consists of a large number of actors who do not have detailed information about each other. As argued in Chapter 3, generalized social trust is only relevant to collective action when specific information is unobtainable. A small group's ability to solve collective action problems, that is, its social capital, is therefore unrelated to the level of generalized social trust held by its individual members. A small group's amount of social capital is determined by the level of specific trust between the members, not by their generalized social trust. Only when the number of group members is large, for example the population within a country, is generalized social trust related to the level of social capital within that group (see discussion in "The environment" for elaboration on this issue).

The second point of relevance to the social capital literature emerging from this dissertation is that generalized social trust is not solely an effect of associational membership as many social capital scholars would have it. In "Does trust lead to associational membership" the findings suggest that the relationship is either reciprocal or unidirectional from trust to membership. I show that people with high levels of generalized social trust more readily join (certain) associations. The study does not reveal if generalized social trust is reinforced by associational membership, but it does show that high trusters self-select into associations (see also Brehm & Rahn, 1997; Dinesen, 2007; Nannestad, 2006; Stolle, 2001). Future social capital studies would therefore do well to stop assuming that the direction of causality flows exclusively from associational membership to generalized social trust.

This brings me to the third point. The social capital literature still needs to figure out the exact relationship between these components. If generalized social trust is the cause of both associational membership and collective action in general, then it is perhaps time to abandon the concept of social capital altogether and simply label it trust (variously defined). If, on the other

hand, they are interrelated, the concept makes sense and is perhaps a more relevant object of study than just trust.

### **Implications for policymakers and the rest of us**

In light of the positive effects associated with generalized social trust reported in this dissertation, every benevolent policy maker should pay attention to research into the causes and provenance of generalized social trust. Policies and institutional arrangements that promote generalized social trust are very likely to produce a range of positive externalities benefiting society as a whole. Apparently generalized social trust is a phenomenon that a society cannot get too much of. While high levels of *specific trust* within a group in some instances can have negative or even catastrophic consequences for the rest of society, generalized social trust does not have this dark side. Specific trust within a group enables the group to accomplish things not possible without this trust, albeit sometimes with negative consequences for the rest of society. The cohesiveness within an outlaw biker group or the mafia is an obvious example of negative consequences of specific trust (cf. Putnam, 1995; 2000: Ch. 22; Stolle & Rochon, 1998; Uslaner, 2002: Ch. 2; see also the discussion in “The environment”, p. 15). Thus, policies that promote specific trust or out-group mistrust in certain societal segments are likely to affect society negatively. Generalized social trust, on the other hand, is less likely to produce negative externalities since it is directed towards most of society (cf. Rothstein, 2005: Ch. 3). Thus, once we know how to grow generalized social trust, policymakers should begin to invest in it.<sup>2</sup>

With the above conclusions in mind it is evident that generalized social trust is relevant to all of us. Generalized social trust makes cooperation work in modern complex societies. Much research has documented that generalized social trust is declining in some parts of the world, notably in the US and in formerly communist countries (Inglehart & Welzel, 2005: 130; Paxton, 1999; Putnam, 2000: Ch. 8; Stolle & Hooghe, 2005). Likewise, several studies have ranked citizens in the Nordic countries as the most trusting people in the world (“Environmental group membership”; Bjørnskov, 2006; Delhey & Newton, 2005; Svendsen & Svendsen, 2006: Table 4). Given the importance of generalized social trust identified in this dissertation, citizens in the US and elsewhere have reasons to be worried about their declining stock of generalized social trust, and citizens in high-trusting countries like the Scandinavian countries should consider themselves lucky and nurture their high level of trust.

<sup>1</sup> Readers familiar with Pierre Bourdieu's notion of social capital might be puzzled by this observation. According to Bourdieu, social capital is networks, contacts, etc. that help an individual succeed in life (Bourdieu, 1986; cf. Portes, 1998). Obviously, such a form of social capital is present on the individual level, but this perspective differs from most notions of social capital (see however Svendsen & Svendsen, 2003 for an attempt to combine these two perspectives).

<sup>2</sup> See however Ahn & Esarey (2008) for a dynamic model of generalized social trust that would make such endeavors worthless.

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## Summary

It has often been argued that generalized social trust, the belief that most people are trustworthy, enhances cooperation in large-N collective action dilemmas. Large-N dilemmas are situations where an actor has to decide whether to contribute to the provision of public goods that benefit a large number of people. Modern societies abound with such dilemmas, and if generalized social trust does enhance voluntary contributions it would be a very valuable asset that would benefit every society.

This dissertation digs into this frequently posited relationship. A series of empirical analyses drawing on survey and national level data from several countries is used to investigate if, how, and when generalized social trust leads to collective action. Specifically, citizens' behavior in relation to the environment is used as the indicator of voluntary public good provision. This indicator affords excellent opportunities to perform a rigorous test of the relationship and to expand our knowledge about it, because whether or not to help improve the environment is a paradigm case of a large-N collective action dilemma.

The analyses demonstrate that generalized social trust makes large-N cooperation work. Citizens with high levels of generalized social trust more readily undertake pro-environmental behavior like recycling or supporting environmental associations. These results are sustained at the national level; countries with trusting citizens have higher recycling rates and more members of environmental associations. I conclude that generalized social trust is a very valuable resource that affects the well-being of citizens and the functioning of societies.

In addition to the empirical analyses, the dissertation also provides a novel theoretical explanation for the relationship. Drawing on insights and arguments from mainstream and evolutionary psychology, experimental economics and neuroscience, the dissertation proposes that generalized social trust enhances voluntary cooperation in large-N situations because humans tend to cooperate when they believe that others cooperate as well. Specifically, it is argued that in most social dilemmas humans employ a specific heuristic, the social exchange heuristic, which stimulates cooperation when others are expected to cooperate. An actor's level of generalized social trust is used as information about the likely behavior of others in large-N situations, which implies that the heuristic simulates cooperative behavior in people with high levels of generalized social trust.

The project expands our knowledge of the effects of generalized social trust in several ways. First, it shows that the proposed relationship is most likely real. The relationship is often proposed but it is surprisingly rarely

tested using sound indicators of collective action. Moreover, some of the analyses have been conducted with individual level data, which is in contrast to the majority of earlier studies. Second, this dissertation provides a coherent theoretical account, and it is examined through empirical analyses. Third, it is shown that generalized social trust mainly affects collective action, not everything good in the world. This result is also at odds with several extant presumptions. And finally, the dissertation provides a range of novel research questions to be explored in future analyses.

The dissertation comprises five papers published in or prepared for international peer-reviewed journals or edited books as well as a report summarizing the project (see Chapter 1 in this publication).

## Dansk Resume (Summary in Danish)

Denne afhandling handler om generaliseret social tillid og kollektive handlingsproblemer. Generaliseret social tillid afspejler en tro på at de fleste mennesker er tillidsværdige og opfører sig anstændigt. I litteraturen antages det ofte, at denne form for tillid kan afhjælpe kollektive handlingsproblemer i situationer med mange aktører. Sådanne situationer kaldes i afhandlingen for stort-N kollektive handlingsproblemer. Selvom det umiddelbart virker indlysende at generaliseret social tillid skulle have denne effekt, er der overraskende få studier der har undersøgt om det forholder sig sådan. Dette er bemærkelsesværdigt. Hvis generaliseret social tillid faktisk er befordrende for kollektive handlingsproblemer med mange deltagere, er denne form for tillid en uvurderlig ressource for moderne samfund, som i kraft af deres størrelse netop præges af en lang række stort-N kollektive handlingsdilemmaer. Hvorvidt generaliseret social tillid faktisk bidrager til deres løsning er derfor et vigtigt spørgsmål.

I denne afhandling undersøges dette spørgsmål. Gennem en række empiriske analyser med data fra internationale holdningsundersøgelser og databaser testes sammenhængens gyldighed. Konkret testes sammenhængen ved at analysere betydningen af generaliseret social tillid for borgernes adfærd i forhold til miljøproblemer. Et rent miljø kan nydes af et stort antal mennesker og alle har glæde af det, hvad enten de selv har bidraget til at tilvejebringe det eller ej. Borgernes adfærd i forhold til miljøproblemer er derfor en velegnet indikator for deres adfærd i kollektive handlingsdilemmaer med mange deltagere.

Tilsammen demonstrerer analyserne at generaliseret social tillid har afgørende betydning for adfærden i kollektive dilemmaer. Borgere med høj grad af tillid udviser mere miljøvenlig adfærd end borgerne med lav tillid. Konkret vises det at tillidsfulde borgere i højere grad sender deres affald til genbrug og oftere støtter miljøorganisationer. Disse resultater underbygges på landeniveau; lande hvis borgere har en høj grad af tillid har højere genbrugsrater og flere medlemmer af miljøorganisationer.

På den baggrund konkluderes det i afhandlingen, at generaliseret social tillid er en væsentlig ressource med stor betydning for ethvert moderne samfund. Disse resultater er interessante, ikke mindst i en dansk kontekst. Talrige undersøgelser har vist, at borgerne i Danmark har en bemærkelsesværdig høj grad af generaliseret social tillid, og resultaterne i denne afhandling viser, at generaliseret social tillid er en ressource som Danmark med fordel kan søge at bevare og fremme.

Afhandlingen består af denne sammenfattende rapport samt 5 artikler, der alle er publiceret i eller skrevet til internationale tidsskrifter og bøger (se Kapitel 1).

This dissertation investigates the role of generalized social trust in social dilemmas. Generalized social trust is a belief that most people are trustworthy and social trust is argued to enhance cooperation in many social dilemmas faced by citizens in modern societies.

Through a series of empirical analyses drawing on survey and national level data from several countries, the dissertation contributes to our knowledge on if, how, and when generalized social trust leads to collective action. The analyses demonstrate that generalized social trust makes cooperation work between actors who do not know one another. Specifically it is shown that citizens with high levels of generalized social trust more readily undertake pro-social behavior like recycling or supporting benevolent associations.

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